ENVIRONMENTAL QUALIFICATION
SUMMARY REPORT

FOR

HOPE CREEK GENERATING STATION

PUBLIC SERVICE ELECTRIC & GAS

REV	DATE	PREPARED	REVIEWED	APPROVED
0	8/2/84	[illegible]	[illegible]	[illegible]
1	3/28/85	[illegible]	[illegible]	[illegible]
2	8/15/85	[illegible]	[illegible]	[illegible]
3	11/05/85	[illegible]	[illegible]	[illegible]
		I. Nag		

ENVIRONMENTAL QUALIFICATION
SUMMARY REPORT FOR
HOPE CREEK GENERATING STATION

PREFACE

This report summarizes the status of the environmental qualification program for safety related electrical and mechanical components installed at HCGS. This program is an ongoing effort with completion scheduled prior to initial core load; this document reflects the work done to date. The scheduling and status information is included as Section XI of this report. Major EQ related items currently being reviewed for resolution are identified in Section XI.

Note that this revision (Revision 3) includes work completed since 3/28/85 and also addresses items discussed during the NRC EQ audit in July of 1985.

I. PURPOSE

The purpose of this HCGS Summary Report is to explain the approach taken to identify and to ensure the operability, under any postulated environmental conditions (normal/abnormal/accident), of the safety related electrical and mechanical components required to bring the plant to, and maintain it in, a safe shutdown condition any time during its anticipated forty year life.

In accordance with Item (b) of 10CFR50.49, this report addresses qualification of: (1) safety related electrical equipment, (2) non-safety related electrical equipment whose failure under postulated environmental conditions could prevent satisfactory accomplishment of safety functions, and (3) post accident monitoring equipment located in a harsh environment as delineated in HCGS FSAR Section-1.8.1.97 and FSAR Table 3.11-5. As HCGS is qualifying each of these types of equipment equally in this EQ program, the words "safety related" as applied to electrical components and when used in this report only, are synonymous with the three categories noted. HCGS compliance with 10CFR50.49 is summarized in the attached FSAR Table 3.11-3 (pages I-3 thru I-6).

Additionally, in accordance with Section 4.4.1 of IEEE STD-627-1980, this report addresses the qualification of safety related mechanical components which: (1) are located in a harsh environment, (2) contain materials with "significant aging mechanisms", and (3) are required to function during and/or after a Design Basis Accident (DBA).

This Summary Report includes a synopsis of:

(1) The identification of the various parties,(PSE&G, GE, Bechtel, etc.), responsible for the ongoing technical review as well as the establishment and periodic updating of the EQ file and EQ Summary Report (Section III).

(2) The listing of applicable EQ Program related design criteria including Regulatory Guides, IEEE Standards, NUREG's, IE Bulletins/Notices, etc. (Section IV).

(3) The Quality Assurance programs utilized to assure adherence of the EQ program to the requirements of 10CF50, Appendix B (Section V).

(4) The analysis methods used to determine the environmental design envelopes (radiation, pressure, temperature, humidity) for normal as well as abnormal and Design Basis Accident (DBA) operating conditions (Section VI).

(5) The identification process used to determine: (a) the systems required to mitigate and follow the course of any postulated DBA as well as achieve and maintain safe shutdown following a DBA, and; (b) the selection process used to identify the individual electrical and mechanical components within each of these systems required to function to ensure required system operation (Section VII).

(6) The review process methods used to ensure the completeness of EQ reports for each of the identified safety related system components to verify compliance with applicable EQ design criteria including HCGS Licensing commitments to IEEE Standards, Regulatory Guides, NUREG, IE Bulletins/Notices, and Code of Federal Regulations. (Section VIII).

(7) The description and implementation process for a maintenance and surveillance program to document the proper monitoring, and performance of maintenance related repairs and/or replacement of EQ related electrical and mechanical components to ensure operability under any anticipated environmental conditions during the forty year life of the plant (Section IX).

(8) The development method used for the compilation of Equipment Evaluation Summary Sheets (EESS) by system which summarizes the EQ data on a component by component basis (Section X).

In addition to the EQ data contained in this Summary Report, the following sections of the HCGS FSAR contain EQ support documentation:

(1)	Section 1.8	Conformance to NRC Guidelines
(2)	Section 1.10	TMI-2 Related Requirements for New Operating Licenses.
(3)	Section 1.11	Differences from Standard Review Plan.
(4)	Section 1.12	Unresolved Generic Safety Issues.
(5)	Section 3.1	Conformance with NRC General Design Criteria.
(6)	Section 3.2	Classification of Structures, Components, and Systems.
(7)	Section 3.9	Mechanical Systems and Components.
(8)	Section 3.10	Seismic Qualification of Seismic Category 1 Instrumentation and Electrical Equipment.
(9)	Section 3.11	Environmental Design of Mechanical and Electrical Equipment.
(10)	Chapter 6	Engineered Safety Features.
(11)	Chapter 7	Instrumentation and Controls.
(12)	Section 8.3	On-site Power Systems.
(13)	Chapter 15	Accident Analysis.

Various EQ applicable sections of the FSAR are summarized in this EQ Summary Report. These sections of the FSAR were utilized and referenced to determine the environmental design criteria, to identify the systems/components required to achieve and maintain plant shutdown, and to verify the licensing criteria (NUREGS, Regulatory Guides, IE Bulletins/ Notices, etc.) to which the HCGS EQ Program is committed.

FSAR TABLE 3.11-3

TABLE 3.11-3

SUMMARY OF HCGS COMPLIANCE WITH 10 CFR 50.49

This table represents a summary of Hope Creek Generating Station compliance with 10 CFR 50.49.

Paragraph(a)	-	Requirement incorporated. A program has been established for qualification of electric equipment in a harsh environment that is safety-related. The present program will be discussed in detail by an EQ summary report as referenced in Section 3.11.
Paragraph(b)(1)	-	Requirements incorporated. Safety-related electrical equipment, needed to mitigate design basis events, has been identified, designed and will be qualified to function properly in the environmental conditions during normal, abnormal and design basis events.
Paragraph(b)(2)	-	Requirement incorporated. The criteria used to identify non-safety electric equipment whose failure could affect operation of safety-related equipment will be included in the summary EQ report. (To date no non-safety-related equipment in this category has been identified.)
Paragraph(b)(3)	-	Requirement incorporated. The parameters required to be measured by Regulatory Guide 1.97 are included to the extent noted in Section 1.8.1.97. Equipment required by Regulatory Guide 1.97 to be environmentally qualified has been included in the equipment qualification program.
Paragraph(c)	-	No requirement. This section details items (mild environment, seismic qualification, etc.) that are not included within the scope of this rule.

TABLE 3.11-3 (Con't) Page 2 of 4

Paragraph(d)	-	Requirement incorporated. Table 3.11-5 has been developed to identify safety-related electric equipment located in a harsh environment. This table is included in Section 3.11 and will be included in the EQ summary report.
Paragraph(d) (1)	-	Requirement incorporated. The equipment evaluation summary (EES) sheets in the EQ summary report will provide this information.
Paragraph(d) (2)	-	Requirement incorporated. Equipment test reports will provide this information.
Paragraph(d) (3)	-	Requirement incorporated. The EES sheets in the EQ summary report will provide this information.
Paragraph(e) (1)	-	Requirement incorporated. Section 3.11 discusses the design basis including temperature and pressure. A plant specific profile for temperature and pressure vs. time for equipment qualification will be included in the EQ summary report. Temperature and pressure limits are included on the EES's and in Table 3.11-1.
Paragraph(e) (2)	-	Requirement incorporated. Humidity has been considered where it is applicable and is included on the EES's and in Table 3.11-1.
Paragraph(e) (3)	-	Requirement incorporated. Chemical effects are not applicable since demineralized water is used. Effects on demineralized spray are encompassed by testing at 100% relative humidity. Equipment subjected to direct spray impingement will be evaluated to determine if testing under spray conditions in addition to 100% relative humidity conditions is required.

TABLE 3.11-3 (Con't) Page 3 of 4

Paragraph(e) (4)	-	Requirement incorporated. Radiation effects on safety-related electrical equipment have been taken into account, where applicable, including radiation resulting from recirculating fluids. Radiation levels are included on the EES's and in Table 3.11-1.
Paragraph(e) (5)	-	Requirement incorporated. Aging is included as part of equipment qualification except where equipment is not considered to be age sensitive. Qualified life is included on the EES's.
Paragraph(e) (6)	-	Requirement incorporated. Equipment that could be submerged has been identified and demonstrated to be qualified by test for the duration required.
Paragraph(e) (7)	-	Requirement incorporated. Synergistic effects have been considered in the accelerated aging programs. An engineering evaluation will be performed to identify known synergistic effects for materials that are included in the equipment qualified. Any identified synergistic effects are accounted for in the qualification programs. Section 3.11.2.7.4 discusses the design basis for synergistic effects.
Paragraph(e) (8)	-	Requirement incorporated. The equipment technical specification includes the margin in the environmental conditions of the plant and the margin to be applied to service conditions. Section 3.11.2.7.1 discusses margins as part of the design basis.
Paragraph(f) (1-4)	-	Requirement incorporated. Section 3.11.6.1 discusses performance of environmental qualification by testing and analysis.

TABLE 3.11-3 (Con't)

Paragraph(g)	-	N/A. Pertains to plants receiving operating licenses prior to February 22, 1983.
Paragraph(h)	-	N/A. Pertains to plants receiving operating licenses prior to February 22, 1983.
Paragraph(i)	-	N/A. Pertains to plants receiving operating licenses prior to November 30, 1985.
Paragraph(j)	-	Requirement incorporated. Section 3.11.3 states that environmental qualification documentation for safety-related electrical equipment will be available for NRC audit.
Paragraph(k)	-	No requirement. This section permits applicants for, and holders of, operating licenses exemption from this rule if the Commission previously required qualification of equipment in accordance with DOR guidelines or NUREG-0588.
Paragraph(l)	-	Requirement incorporated. Replacement equipment will be qualified in accordance with 10CFR-50.49.

II. PROGRAM SYNOPSIS

The objective of the EQ program is to ensure that the electrical and mechanical components required to safely shut down the station under any postulated DBA will successfully perform their safety related function. This DBA could occur at any time during the anticipated forty year plant life. This objective is met by:

(1) Identifying the systems and the components within each system required to safely shut down the station.

(2) Determining the normal environmental operating conditions that the components will be functioning under.

(3) Determining the worst case environmental conditions the components will be subject to under normal, abnormal, and DBA occurrences.

(4) Ensuring that the EQ test/analysis data for each component verifies component operability under both these normal and worst case DBA environmental conditions.

An additional, unique EQ related effort which was performed for HCGS but is not included in this EQ Summary Report, is the qualification review of the components required to mitigate the consequences of an Anticipated Transient Without Scram (ATWS) event. In summary, a qualification program was performed by General Electric (GE) and verified by PSE&G which ensures that the various components required for ATWS were qualified to operate in the ATWS environment for the length of time required to perform their defined functions.

(1) Identification of the Components Required to Safely Shut Down the Station

These were defined as those system components required to detect, follow and mitigate an accident condition and to maintain the station in a safe shutdown condition following the accident. Each accident scenario was reviewed and the components required to perform detection, monitoring and/or mitigating functions were identified on a system-by-system basis.

These systems and their related components were defined and separated into the following categories:

(a) Protection Systems - those systems which initiate safety actions to mitigate the consequences of a DBA.

(b) Engineered Safety Feature Systems - those systems which provide cooling, core protection and isolation of the reactor plant during a DBA.

(c) Safe Shutdown Control Systems - those control systems used to achieve and maintain the station in a safe shutdown condition following a DBA.

(d) Safety Related Display Instrumentation - the display instrumentation available to the operator to indicate proper functioning of safety related systems including indication of required operator manual initiation and control of safety systems/components.

(2) Determination of Normal Environmental Conditions
Once the components required for safe shutdown were identified, their physical locations within the station were determined. The architect/engineer (A/E) for HCGS (Bechtel) then calculated the conditions that exist during routine station operation including startup, shutdown, power operation, refueling and maintenance. This data was used as the baseline data in determining normal environmental effects on components required to safely operate and shut down the station.

(3) Determination of Worst Case Environmental Conditions
The A/E then analyzed the effects that abnormal operating conditions would have on the environment of each identified safety related component. This analysis included such conditions as loss of offsite power and loss of ventilation as well as Design Basis Accidents (DBA) such as LOCA, feedwater line break, etc. The resultant worst case environmental conditions postulated were chosen for each plant area. From this analysis, two categories of environmental states were defined:

(a) Harsh Environment- Components located in these areas would be subjected to worst case DBA anticipated temperatures, pressure, humidity, and/or radiation extremes well above the normal operating environmental conditions. Harsh environmental areas are those in which the abnormal or DBA values of temperature or radiation exceed 120 °F or 1×10^3 RADS respectively.

(b) Mild Environment- Components located in these areas would at no time (including under worst case DBA) be subjected to environmental conditions significantly more severe than those experienced under normal plant operating conditions.

(4) Verification of Component Operability Under Defined Environmental Conditions

The test/analysis data for each component was then reviewed to ensure that the component would perform its required safety related function under normal, abnormal and applicable DBA environmental conditions. This was accomplished by comparing the detailed manufacturer or component supplier EQ reports for each identified safety related component to the environmental envelopes calculated for the normal, abnormal and DBA operating states under which that component would be required to operate.

III. PROCEDURES

The responsibility for the development and ongoing technical review of the HCGS EQ program, including the creation and updating of the EQ central file, has been undertaken by the Controls and Electrical Division of the PSE&G Engineering and Construction Department. As such, it is responsible for the coordination and monitoring of the efforts of the various participants involved in the EQ program including the A/E (Bechtel), NSSS supplier (GE), and other PSE&G division personnel as well as associated independent consultants, component suppliers, and testing labs.

The EQ program supervision is under the direction of a PSE&G Principal Engineer and includes a functional engineering staff which is supported by Bechtel, GE, and a consultant. The work activities are applicable to; (1) the NSSS EQ program and (2) the Balance-of-Plant (BOP) EQ program and include the following:

- Direct the efforts of the architect-engineer (A/E) requiring interface with GE and other vendors.
- Verify that all equipment requiring qualification is identified.
- Review specified environmental conditions and qualification plan compliance.
- Review/approve all EQ documents submitted by the vendor including test plans, analyses, and reports.
- Prepare qualification documentation in the form of NRC auditable packages.
- Assure that necessary checklists and equipment evaluation work sheets are prepared and approved.
- Review/approve work done by consultants, GE, or the architect-engineer.
- Participate as a member of Technical Review Committee (TRC) in the NSSS EQ Program.
- Resolve comments generated on plans and reports and provide recommended resolutions of equipment qualification issues.

- Monitor open issues.

- Establish a program to provide documentation for the development of a plant maintenance, surveillance, and replacement program for EQ related components.

- Review of USNRC IE Bulletins/Notices to determine any impact on the EQ program and resolution of any resultant discrepancies.

In addition, PSE&G's engineering personnel involved in EQ are responsible for preparation and updating of this EQ Summary Report. This includes review and resolution of USNRC licensing concerns as they pertain to the EQ program.

The completion, and continuation, of the Hope Creek Environmental Qualification effort has been re-assigned to site engineering personnel who will eventually become part of the PSE&G Nuclear Department. This transition of responsibility is in process as of the date of this amendment and is expected to be complete prior to fuel load. All EQ work required during plant operation will be performed by the Nuclear Department.

IV. REGULATORY COMPLIANCE

The HCGS EQ effort for safety related electrical equipment located in a harsh environment is required to comply with Category II of NUREG-0588, "Interim Staff Position on Environmental Qualification of Safety Related Electrical Components" dated December 1979 and IEEE-323-1971 "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations". However, the EQ program is attempting to meet, wherever possible, and qualify equipment to the Category I requirements of NUREG-0588 and IEEE-323-1974. In addition, the EQ program will conform to the criteria of 10CFR50.49 for safety related electrical equipment located in both harsh and mild environments.

For safety related mechanical equipment located in a harsh environment, the EQ Program establishes, via analysis, the qualified life of the components including proper required functionability before, during, and after a DBA. This analysis is performed by identifying significant aging mechanisms within each mechanical component in accordance with IEEE-627-1980, "Design Qualification of Safety Systems Equipment Used in Nuclear Power Generating Stations", Section 4.4.1.

This EQ program is designed to supplement, and, as such, neither replaces nor modifies compliance with other applicable codes and standards prepared by ASME, AISC, ACI or any other governing organization. Additionally, the safety related mechanical components meet the sequential testing, seismic mounting configuration verification, functional assurance criteria, identification of aging mechanism's process, maintenance/surveillance interface requirements and other applicable criteria delineated in the Seismic Qualification Review Team (SQRT) and the Pump and Valve Operability Review Team (PVORT) documentation.

This overall EQ program effort includes, but is not limited to, conformance with the following as described in the FSAR:

(a) ASME Section III, Class 2 Criteria.

(b) IEEE Standard 344-1975 - "Recommended Practices for Seismic Qualification of Class 1E Equipment"

(c) IEEE Trial Use Standard 323-1971 - "General Guide for Qualifying Class 1E Electric Equipment for Nuclear Power Generating Stations"

(d) IEEE Standard 383-1974 - "Type Test of Class 1E Electric Cables, Field Splices, and Connections for Nuclear Power Generating Stations"

(e) IEEE Standard 382-1980 - "Type Test of Class 1E Electric Valve Operators"

(f) IEEE 627-1980 - "Design Qualification of Safety Systems Equipment Used in Nuclear Power Generating Stations"

(g) ANSI Standard N-278-1 - "Self Operated and Power Operated Safety Related Valves Functional Specification Standard"

(h) Regulatory Guide 1.148 - "Functional Specification for Active Valve Assemblies in Systems Important to Safety"

(i) NUREG 0800 - "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants"

As is noted in FSAR Section 3.11, the EQ program is also designed to be in conformance with the following 10CFR Appendix A General Design Criteria and Regulatory Guides:

[The extent of compliance with these guidelines/criteria is delineated in the parenthesized FSAR Chapters/Sections].

(a) General Design Criterion 1:
Quality Standards and Records (Chapter 17)

(b) General Design Criterion 4:
Environmental and Missile Design Basis (Sections 3.5, 3.11).

(c) General Design Criterion 23:
Protection System Failure Modes (Chapter 7)

(d)General Design Criterion 50
Containment Design Basis (Chapter 6)

(e) Regulatory Guide 1.30
Quality Assurance Requirements for Instrumentation and Electrical Equipment (Chapter 7)

(f) Regulatory Guide 1.33
Quality Assurance Program Requirements (Sections 1.8, 3.11)

(g) Regulatory Guide 1.63
Electrical Penetration Assemblies in Containment Structures for Light Water Cooled Nuclear Power Plants (Sections 1.8, 8.1.4.12)

(h) Regulatory Guide 1.73
Qualification Tests of Electrical Valve Operators Installed Inside the Containment of Nuclear Power Plants (Sections 1.8, 3.11)

(i) Regulatory Guide 1.89
Qualification of Class 1E Equipment for Nuclear Power Plants (Sections 1.8, 3.11)

(j) Regulatory Guide 1.97
Instrumentation for Light Water Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident (Section 1.8).

Additionally, concern about continued compliance with USNRC initiated Bulletins, Circulars and Information Notices has resulted in the establishment of the following review process designed to analyze, identify and address the potential impact of these documents as they pertain to the ongoing EQ program:

PSE&G receives and tabulates the various USNRC Bulletins, Circulars and Information Notices and assigns Bechtel the task of performing a detailed review and analysis to determine potential HCGS impact.

Bechtel in turn maintains a historical tabulation of these documents (commencing circa 1977) which pertain generically to USNRC BWR plant concerns. This computerized tabulation is continually updated to reflect the relevance of the particular document to HCGS. Bechtel performs its initial analysis to determine applicability to HCGS. If it is determined that the specifics of a particular document are not pertinent to HCGS, Bechtel prepares a draft response to the USNRC for PSE&G review stating the reason(s) why the Bulletin/Circular is not relevant. Upon PSE&G concurrence, this response is transmitted to the USNRC and the computerized table is updated to reflect the non applicability. For Notices where no formal USNRC response is required, the approved PSE&G reply is filed in the HCGS documentation for future reference. Again, the computerized tabulation is updated to reflect the reply file location.

For USNRC documents which require USNRC written response (Bulletins/Circulars) and which are determined to apply to HCGS, Bechtel performs its detailed analysis to determine the impact on ongoing HCGS licensing efforts. This analysis, along with any determined modification/changes required to comply with the concerns outlined in the Bulletins/Circulars, is then sent to PSE&G Engineering for additional detailed analysis, review, comment and ultimate concurrence.

The final accepted response which addresses the course of action which will be taken at HCGS to meet the intent of the concerns outlined in the Bulletin/Circular is then transmitted to the USNRC for review. Upon final acceptance by the USNRC, which may include additional support documentation and/or meetings, the proposed modifications will be implemented at HCGS. The correspondence flow and the final resolution is again documented on the computerized tabulation for future reference.

For USNRC Notices which do not require formal response to the USNRC but are determined to be applicable to HCGS, this review path is identical to that outlined above except that no formal USNRC correspondence is transmitted. Therefore, the detailed analysis and proposed modifications, if required, are performed and the documentation flow path and resolution(s) are noted on the computerized tabulation.

In this way, the ongoing EQ program is continually updated to reflect the response to EQ concerns contained in USNRC Bulletins/Circulars/Notices as they pertain to HCGS.

V. QUALITY ASSURANCE PROVISIONS

Per the licensing requirements of 10CFR50, Appendix B, the Quality Assurance (QA) programs of both PSE&G and the architect/engineering firm, (Bechtel Power Corporation) for HCGS have been implemented in the establishment as well as the ongoing efforts of the EQ program. PSE&G's QA commitments are described in detail in both Chapter 16 of the HCGS PSAR and in PSE&G's QA Manual. The applicable EQ sections of Bechtel's QA program are delineated in an appendix to its Engineering Procedure Manual.

The purpose of the QA program is to ensure that the documentation required to validate EQ safety related equipment's proper performance over its qualified life is complete, accurate, traceable and auditable. This QA program effort includes:

- Audit of the overall EQ program including the documented selection process for safety related classification. QA ensures that this documentation is traceable, auditable and independently reviewed and approved.

- Audit of the environmental design and accident analysis to ensure that the correct conditions and calculations were utilized and independently verified for correctness.

- Review and approval of vendors to verify that they are qualified to supply the specified safety related equipment. This vendor approval may include vendor subcontractors and may involve vendor/subcontractor site visits to review the in-house QA/QC program and evaluate the objective evidence of the vendor's ability to meet his QA/QC commitments.

- Review and approval of testing laboratories used to perform EQ analysis and/or testing. Site visits to review in-house QA/QC programs, test facilities, test instrumentation calibration documentation, test setups, data collection, analysis and storage, etc., are also performed.

- Verification of proper procedures and practices for the shipment, storage and mounting of safety related equipment including proper signoffs of equipment receipt inspection, and proper signoff of pre-installation/operation tests. Level of storage in accordance with vendor and EQ requirements is verified.

- Audit of the EQ file to verify that the required support documentation is available for review. This includes auditing of the vendor supplied detailed operating, test, and maintenance manuals, noting particularly the highlighting of any EQ related requirements, as well as verification of document control for any equipment replacement or modification.

- Audits to ensure proper review and signoff of vendor qualification plans, test procedures and analysis documentation. Witnessing of tests and signoffs at prescheduled hold points is performed.

- Audits of plant surveillance and maintenance program procedures to ensure compliance with vendor's recommendations and in-plant experience. Equipment repair and replacement activities must be verified to be in strict accord with EQ requirements over the qualified life of each piece of equipment. These EQ related programs are audited to verify periodic update based on IE Bulletins, vendor feedback, industry data and the plant's own experience with the equipment.

- Verification of a program to procure qualified spare parts and/or replacement equipment from approved vendors.

- Establishment of a documented process for QA identified deficiency resolution.

VI. ENVIRONMENTAL CONDITIONS

The development of the abnormal/Design Basis Accident (DBA) environmental envelopes established for each harsh environmental area of the plant in which safety related electrical and mechanical equipment is located was based on accident scenarios described and analyzed in FSAR Chapter 15. In selecting an environmental envelope for any particular component, the DBA which results in the worst case environmental extremes (temperature, pressure, humidity, radiation) under which the component was required to perform its defined safety function was chosen. The analysis to determine the environmental envelopes for the DBA's was performed by Bechtel Power Corporation, the Architect/Engineer for HCGS.

The DBA's identified as causing worst case harsh environment conditions were:

(1) Loss of Coolant Accident (LOCA) Inside Primary Containment (Drywell).

(2) Main Steam Line Break Outside Primary Containment.

(3) Instrument Line Break Outside Primary Containment.

(4) Feedwater Line Break Outside Primary Containment.

(5) Control Rod Drop Accident.

(6) Fuel Handling Accident

Based on these analyses, the environmental conditions for the following plant areas were determined and the resultant parameter excursions listed in Table 3.11-1 of the FSAR:

(1) Reactor Building
(2) Turbine Building
(3) Auxiliary Building
(4) Intake structure
(5) Inside Drywell
(6) Inside Suppression Chamber

Each table provides the following information:

(1) Area description and elevation.
(2) Normal operating environmental conditions (temperature, presssure, humidity, radiation).
(3) Abnormal operating environmental conditions.

(4) DBA environmental conditions (worst case).

The plant environmental conditions contained on these tables have been based on the following:

(1) **Normal Conditions** - Plant design criteria or calculations for the heating, ventilating, and radiation shielding design for HCGS.

(2) **Abnormal Conditions** - Plant design criteria or calculations performed to bound the environment caused by such an event. Abnormal condition calculations were performed for areas containing or affecting safety related equipment.

(3) **DBA Conditions** - Plant design criteria or calculations of bounding environment for the DBA's identified above.

The safety related components are generally qualified to these environmental envelopes with emphasis upon the DBA extremes. This environmental envelope approach is conservative in that it ensures that each safety related component located in a harsh environment which is required to perform a safety related function will perform its required safety function under each anticipated DBA condition. Exceptions are identified in FSAR Table 3.11-6 (included in Section VII of this report).

In addition to determining worst case environmental conditions, margin is normally added to each component's qualification program to both the qualification parameters and the analyzed time duration, to increase confidence in the components ability to perform its defined safety function and is in accordance with IEEE-323, IEEE-627, and NUREG 0588.

For the duration of the DBA environmental conditions, two different time periods are used. For temperatures, pressures and humidities, a conservative duration of 100 days was used with ambient conditions reached thereafter. For the post-accident integrated radiation exposures, a period of 180 days was used. The systems and components required to mitigate the consequences of the DBA are designed and tested

to verify functional operability under the DBA environmental conditions. For some specific components, the temperature, pressure and/or humidity conditions are reduced to cover just their required functional operation period following the DBA (case-by-case basis). Based upon the component's functional requirement, the EQ Program insures that none of these components will fail during the 100 day period in a manner which would jeopardize a safety function.

The DBA radiation total integrated doses (TID) and dose rates were established in accordance with NUREG 0588. TID levels inside containment for the 180 day period were based on release to containment of 100% of core noble gas inventory, 50% of core halogen inventory and 1% of core solid fission inventory. Enveloping TID conditions outide containment but inside the reactor building, based again on NUREG 0588, were assumed to be from two sources:

(1) After a DBA, 50% of core halogen inventory and 1% of core solid fission product inventory were introduced to the emergency core cooling system water.

(2) After a DBA, the airborne cloud has been released to the reactor building from the primary containment.

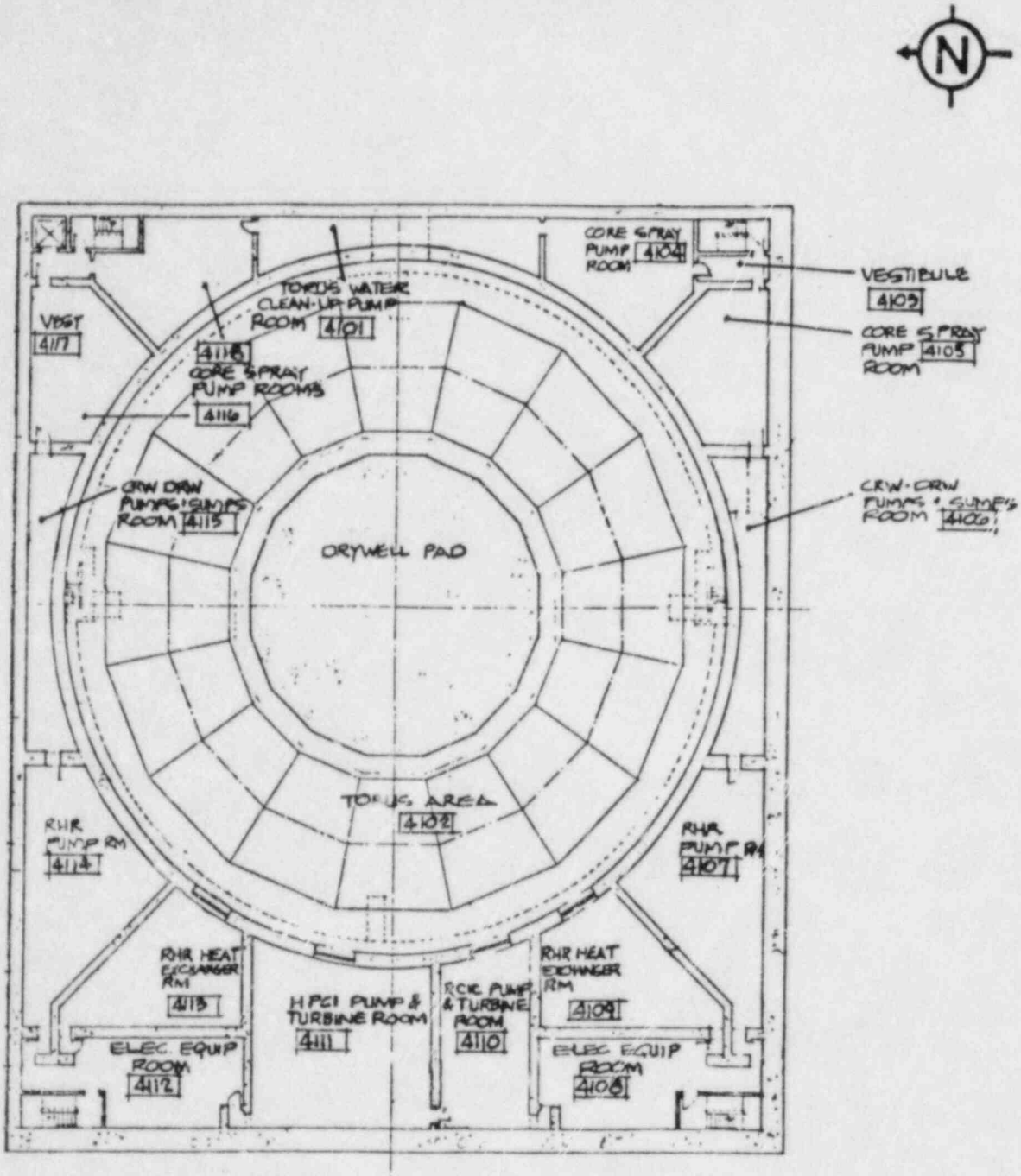
The TID inside the reactor building, like that inside containment, was assumed for a 180 day period with saturation assumed thereafter. Dose rates were determined based on normally anticipated radiation levels preceding, during and following the DBA.

Environmental Maps

The locations given on the component summary sheets for the various defined harsh environmental areas correspond to the various areas of the plant shown in the attached harsh environment zone maps (Figures 1 thru 9) and corresponding "Enveloping Plant Environmental Conditions - Reactor Building", Table 3.11-1a (9 pages). The conditions listed are those that would exist in a specific area during normal, abnormal, and the most severe DBA conditions.

FSAR TABLE 3.11-1a

AND ENVIRONMENTAL ZONE MAPS



NOTES

1. ENVIRONMENTAL CONDITIONS FOR ROOMS 4102 THRU 4118 SHOWN ABOVE APPEAR ON FSAR TABLE 3.11-1a. (FIG. 1a)
2. ROOM 4101 DOES NOT HAVE HARSH ENVIRONMENT ESTABLISHED FOR ENVIRONMENTAL QUALIFICATION IN ACCORDANCE WITH FSAR TABLE 3.11-1a. (FIG. 1a)

PUBLIC SERVICE ELECTRIC & GAS COMPANY
HOPE CREEK GENERATING STATION

DRN	EQUIPMENT QUALIFICATION	
CHK	HARSH ENVIRONMENT	
APPR	REACTOR BLDG. EL. 54'	
DATE		
JOB NO.	DRAWING NUMBER	REV
	FIG. 1	

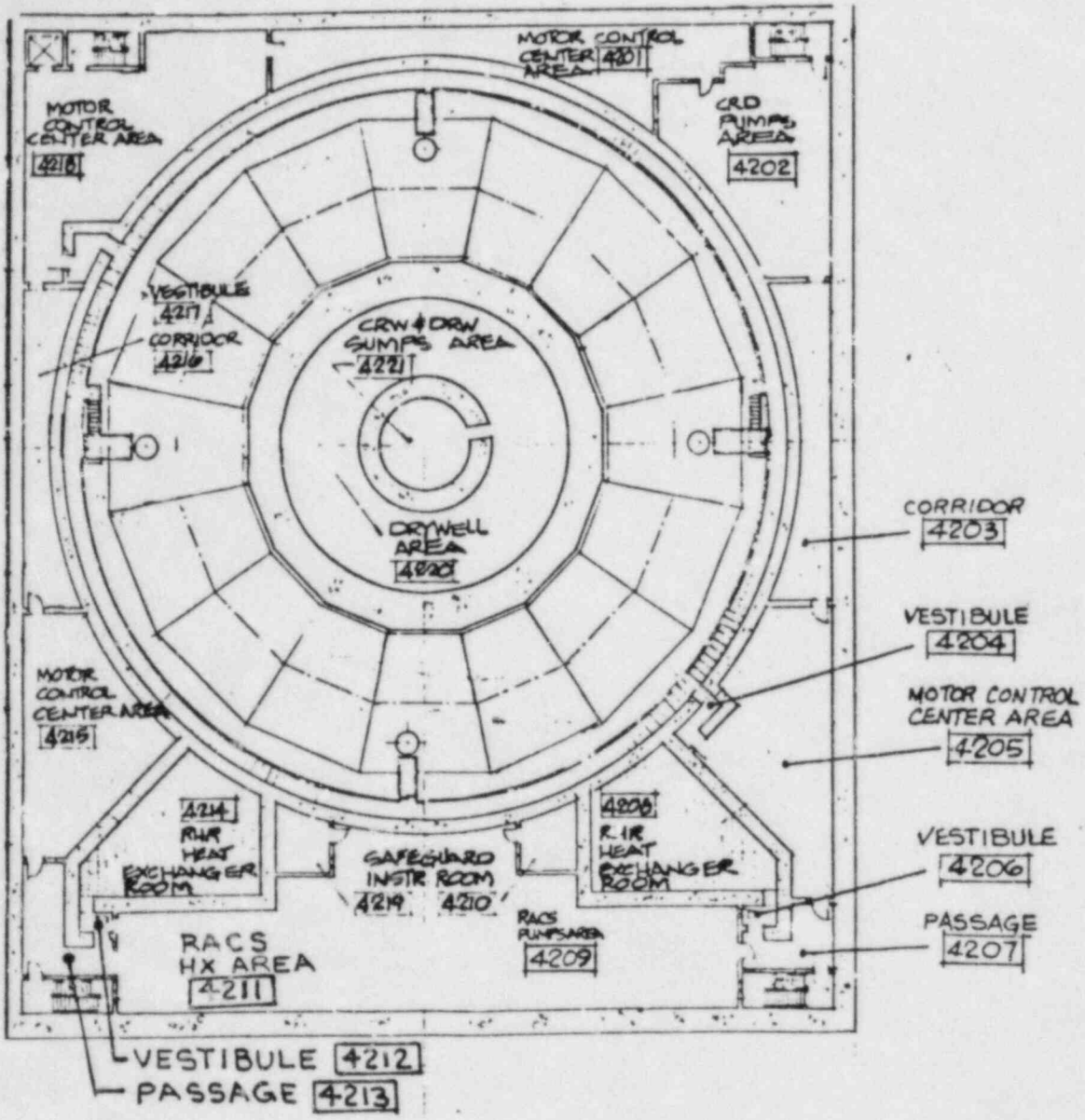
TABLE 3.11-1a

ENVELOPING PLANT ENVIRONMENTAL CONDITIONS - REACTOR BUILDING

Area Description & Room Number	Normal Operating Conditions: Press Max/Min, Hg	Temp, °F Test/Max/Ave/Min	% Rel Humidity Max/Min	Max Dose Rate, Rad/h	Integr Dose, Rad (1)	Abnormal Conditions: Press psig	Temp °F	% Rel Humidity Max/Min	DBE Conditions: Press, psig (2)	Temp °F (2)	% Rel Humidity	Max LOCA Dose Rate, Rad/h (5,7)	LOCA Integr Dose, Rad (6,7)
Reactor Building, el 54'													
Core spray Pump rooms 4104, 4116, 4105, 4118	1/-0.25	110/78/68/40	90/20	0.01	3.5E3	Atm	113	100/20	3-30 min (3)	148	100	1.1E5	4E6
RPCI pump room 4111	1/-0.25	107/83/72/60	90/20	2.3	9.1E3	Atm	110	100/20	5-30 min (3)	340-30 min (4)	100	1.3E5	2E6
RHR pump rooms 4114, 4107	1/-0.25	111/84/73/40	90/20	10.0	3.5E4	Atm	112	100/20	3-30 min (3)	148	100	1.1E5	3E6
RHR pump & HX rooms 4109, 4113	1/-0.25	111/79/69/40	90/20	10.0	3.5E4	Atm	113	100/20	5-30 min (3)	340-30 min (4)	100	1.6E5	5E6
RCIC pump room 4110	1/-0.25	106/79/69/60	90/20	4.5	9.1E3	Atm	112	100/20	3-30 min (3)	340-30 min (4)	100	8.8E4	2E6
Elect. equipment room 4112, 4108	1/-0.25	-/104/72/40	90/20	0.0025	8.8E2	Atm	108	100/20	3-30 min (3)	148	100	7.8E-1	6E0
CRN/DRW pump room 4106	1/-0.25	-/85/74/60	90/20	0.31	7.4E4	Atm	116	100/20	3-30 min (3)	148	100	1.1E5	4E6
Torus water Stair vestibule 4103, 4117	1/-0.25 1/-0.25	-/113/104/40 -/104/-/40	90/20 90/20	0.015 0.0025	5.2E3 8.8E2	Atm -	142 -	100/20 -	3-30 min 3-30 min (3)	148 148	100	5.9E2	2E4
Torus compartment 4102	1/-0.25	-/88/77/40	90/20	0.100	3.5E4	Atm	108	100/20	3-30 min (3)	340-30 min (4)	100	1.2E1	4E2
CRN/DRW pump room 4115	1/-0.25	-/85/74/40	90/20	0.21	7.4E4	Atm	116	100/20	3-30 min (3)	148	100	2.9E5	2E7
											100	2.6E0	3E1

FIG. 1a

T10021729V-A2



NOTES

1. ENVIRONMENTAL CONDITIONS FOR ROOMS 4201 THRU 4219 SHOWN ABOVE APPEAR ON FSAR TABLE 3.11-1a. (FIG. 2a)

2. ROOMS 4220 AND 4221 HAVE HARSH ENVIRONMENTS ESTABLISHED FOR THE DRY WELL AND APPEAR IN FSAR TABLE 3.11-1f.

PUBLIC SERVICE ELECTRIC & GAS COMPANY
HOPE CREEK GENERATING STATION

DRN	EQUIPMENT QUALIFICATION HARSH ENVIRONMENT REACTOR BUILDING EL. 77'	
CHK		
APPR		
DATE		
JOB NO.	DRAWING NUMBER	REV
	FIG. 2	

ENVELOPING PLANT ENVIRONMENTAL CONDITIONS - REACTOR BUILDING

Area Description & Room Number	Normal Operating Conditions: Press Max/Min, Mg	Normal Operating Conditions: Temp, °F Test/Max/Ave/Min	Normal Operating Conditions: % Rel Humidity Max/Min	Normal Operating Conditions: Max Dose Rate, Rad/h	Normal Operating Conditions: Integr Dose, Rad (1)	Abnormal Conditions: Press psig	Abnormal Conditions: Temp °F	Abnormal Conditions: % Rel Humidity Max/Min	Dbn Conditions: Press, psig (2)	Dbn Conditions: Temp °F (2)	Dbn Conditions: % Rel Humidity	Dbn Conditions: Max LOCA Dose Rate, Rad/h (5,7)	Dbn Conditions: LOCA Integr Dose, Rad (6,7)
Reactor Building, el 77'													
RACS pump rooms 4209,	1/-0.25	-/93/82/40	90/20	0.0025	8.8E2	Atm	124	100/20	3-30 min (3)	148	100	1.2E1	2E2
RACS HX room 4211	1/-0.25	-/93/82/40	90/20	0.0025	8.8E2	Atm	124	100/20	3-30 min (3)	148	100	1.2E1	2E2
RHR HX rooms 4208, 4214	1/-0.25	111/79/69/40	90/20	10.0	3.5E4	Atm	113	100/20	5-30 min (3)	340-30 min (4)	100	1.1E5	3E4
Safeguard inst rooms 4210, 4215	1/-0.25	-/82/77/40	90/20	0.0025	8.8E2	Atm	115	100/20	3-30 min (3)	148	100	1.2E1	2E2
Motor control center 4215	1/-0.25	-/77/70/40	90/20	0.0025	8.8E2	Atm	109	100/20	3-30 min (3)	148	100	1.2E1	2E2
Motor control center 4201	1/-0.25	-/87/79/40	90/20	0.0025	8.8E2	Atm	118	100/20	3-30 min (3)	148	100	2.3E1 at 36 h	2E3
Motor control center 4218	1/-0.25	-/76/67/40	90/20	0.0025	8.8E2	Atm	107	100/20	3-30 min (3)	148	100	1.1E0	2E1
CRD pump room 4202	1/-0.25	-/97/86/40	90/20	0.0025	8.8E2	Atm	130	100/20	3-30 min (3)	148	100	2.3E1 at 36 h	3E2
Corridor 4203	1/-0.25	-/82/77/40	90/20	0.0025	8.8E2	Atm	110	100/20	3-30 min (3)	148	100	1.1E4	4E5
Vestibule 4204	1/-0.25	-/110/-/40	90/20	0.015	5.3E3	-	-	-	3-30 min (3)	340-30 min (4)	100	3.0E0	3E1
Passage 4207, 4213	1/-0.25	-/104/-/40	90/20	0.0025	8.8E2	-	-	-	3-30 min (3)	148	100	3.0E0	3E1
Vestibule 4206, 4212	1/-0.25	-/115/-/40	90/20	0.015	5.3E3	-	-	-	5-30 min (3)	340-30 min (4)	100	3.0E0	3E1
Motor control center 4205	1/-0.25	-/77/70/40	90/20	0.0025	8.8E2	Atm	109	100/20	3-30 min (3)	148	100	2.4E1	4E1
Corridor 4216	1/-0.25	-/82/77/40	90/20	0.0025	8.8E2	Atm	110	100/20	3-30 min (3)	148	100	2.1E0	2E1
Vestibule 4217	1/-0.25	-/104/-/40	90/20	0.015	5.3E3	-	-	-	3-30 min (3)	340-30 min (4)	100	2.1E0	2E1

FIG. 2a

TABLE 3.11-1h

ENVELOPING RADIATION CONDITIONS INSIDE PRIMARY CONTAINMENT

Area[7]	Radiation Type	Operating Dose Rate[1]	Design Basis Event Type	Design Basis Event Dose Rate[1,2]	Integrated Dose[1,2] Normal	Integrated Dose[1,2] DBE
Drywell, inside biological shield	Gamma	2.3×10^4	LOCA		8.1×10^9	
	Neutron	8.8×10^3		(5)	3.1×10^9	(6)
	Beta	(4)			-----	
Outside biological shield						
Zone 1 Above core	Gamma	$\leq 2.3 \times 10^4$	LOCA		$\leq 8.1 \times 10^9$	
	Neutron	$\leq 8.8 \times 10^3$		(5)	$\leq 3.1 \times 10^9$	(6)
	Beta	(4)			-----	
Zone 2 Core region	Gamma	54.0	LOCA		1.9×10^7	
	Neutron	12		(5)	4.3×10^6	(6)
	Beta	(4)			-----	
Zone 3 Under vessel	Gamma	$\leq 2.3 \times 10^4$	LOCA		$\leq 8.1 \times 10^9$	
	Neutron	$\leq 8.8 \times 10^3$		(5)	$\leq 3.1 \times 10^9$	(6)
	Beta	(4)			-----	
Zone 4 Near recirculation	Gamma	50.0	LOCA		1.8×10^7	
	Neutron	≤ 12		(5)	4.3×10^6	(6)
	Beta	(4)			-----	
Zone 5 > 15 feet from recirculation	Gamma	50.0	LOCA		1.4×10^6	
	Neutron	≤ 12		(5)	4.3×10^6	(6)
	Beta	(4)				
Zone 6 Suppression chamber	Gamma	50	LOCA	5.1×10^4 at 48 h	1.8×10^7	6.3×10^4
	Neutron	≤ 12			4.3×10^6	
	Beta	(4)		1.5×10^4 at 48 h		3.5×10^4

(1) The unit of dose rate is Rads/hr,
The unit of dose is Rads
(2) Normal integrated dose is calculated for 40 years
(3) DBE dose rate is the dose rate immediately following the DBE, unless otherwise specified.
(4) The beta dose is not significant compared to others during normal operation.
(5) Gamma 1.9×10^7 (airborne)
1.9×10^8 (plateout at 1 h)
Beta 3.1×10^6 (airborne)
1.1×10^7 (plateout at 1 h)

(6) Gamma 2.6×10^7 (airborne)
3.4×10^6 (plateout)
Beta 9.5×10^6 (airborne)
6.7×10^6 (plateout)
(7) See Figure 3.11-1 for areas inside primary containment.

FIGURE 2b

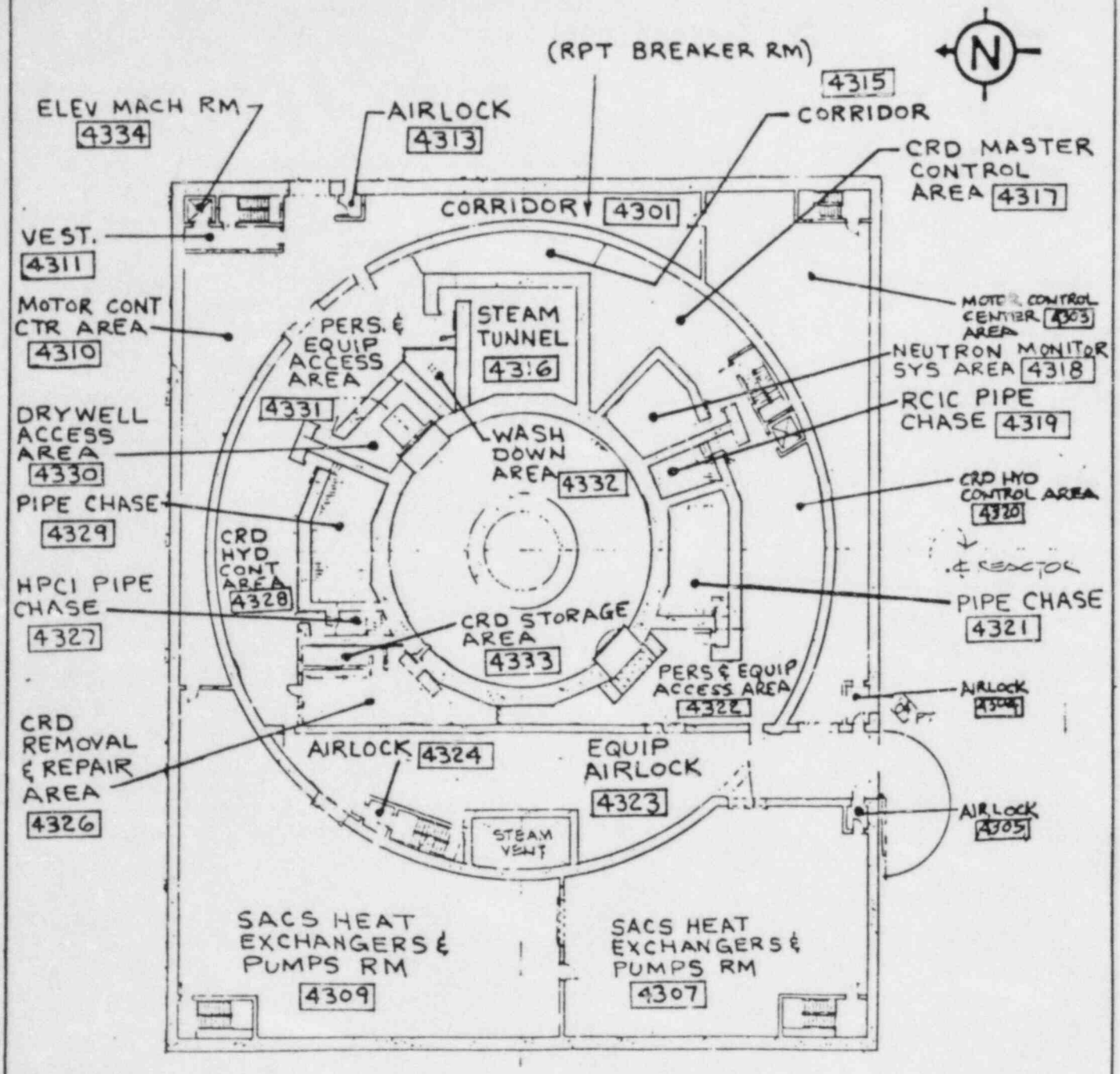
Table 5

Environmental Conditions Inside Primary Containment for the Design Basis Event

Drywell

Time	Temperature (Degrees F)	Pressure (psig)	Humidity (%)
0 - 20 sec	340	0 - 62	100
20 sec - 5 min	340	62	100
5 min - 3 hr	340	40	100
3 - 6 hr	320	40	100
6 - 24 hr	250	25	100
1 - 4 days	200	25	100
4 - 100 days	200	10	100

FIG. 2c



NOTE

1. ENVIRONMENTAL CONDITIONS FOR ROOMS 4301, 4303 THRU 4305, 4307, 4309 THRU 4311, 4313, 4315 THRU 4324 AND 4326 THRU 4334 SHOWN ABOVE APPEAR ON FSAR TABLE 3.11-1a (FIG 3a & 3b).

PUBLIC SERVICE ELECTRIC & GAS COMPANY
HOPE CREEK GENERATING STATION

DRN	EQUIPMENT QUALIFICATION HARSH ENVIRONMENT REACTOR BUILDING EL. 102'
CHK	
APPR	
DATE	

JOB NO.	DRAWING NUMBER	REV
	FIG. 3	

TABLE 3.11-1a

ENVELOPING PLANT ENVIRONMENTAL CONDITIONS - REACTOR BUILDING

	Normal Operating Conditions					Abnormal Conditions			DBE Conditions				
Area Description & Room Number	Press Max/Min, Mg	Temp, °F Test/Max/Ave/Min	% Rel Humidity Max/Min	Max Dose Rate, Rad/h	Integr Dose, Rad (1)	Press psig	Temp °F	% Rel Humidity Max/Min	Press, psig (2)	Temp °F (2)	% Rel Humidity	Max LOCA Dose Rate, Rad/h (5,7)	LOCA Integr Dose, Rad (6,7)
Reactor Building, el 102'													
Steam tunnel 4316	1/-0.25	-/97/86/40	90/20	10.0	3.3E6	Atm	129	100/20	18-30 min (3)	340-30 min (4)	100	gamma 1.9E7 beta 3.1E8	3E7 1E9
North pipe chase 4329	1/-0.25	-/103/94/40	90/20	0.715	2.5E5	Atm	129	100/20	3-30 min (3)	340-30 min (4)	100	1.1E5	4E6
South pipe chase 4321	1/-0.25	-/91/81/40	90/20	1.0	1.3E6	Atm	119	100/20	3-30 min (3)	340-30 min (4)	100	1.1E5	4E6
HPCI pipe chase 4327	1/-0.25	-/71/62/40	90/20	2.5	9.1E3	Atm	106	100/20	5-30 min (3)	340-30 min (4)	100	7.7E4	4E4 24 h
RCIC pipe chase 4319	1/-0.25	-/71/62/40	90/20	1.5	6.5E3	Atm	105	100/20	3-30 min (3)	340-30 min (4)	100	3.5E4	6E4 24 h
Personnel & equipment access area 4322, 4331	1/-0.25	-/92/82/40	90/20	0.0025	8.8E2	Atm	115	100/20	3-30 min (3)	148	100	1.2E1	4E3
Neutron monitoring system 4318	1/-0.25	-/99/90/40	90/20	250.0	1.1E6	Atm	118	100/20	3-30 min (3)	148	100	1.8E2	3E2
CRD hydraulic 4320	1/-0.25	-/92/82/40	90/20	0.0025	8.8E2	Atm	115	100/20	3-30 min (3)	148	100	8.4E2 at 36 h	6E4
CRD master control area & corridor 4317, 4315	1/-0.25	-/92/82/40	90/20	0.0025	8.8E2	Atm	115	100/20	3-30 min	148	100	9.6E0	4E3
Washdown area 4332	1/-0.25	-/92/82/40	90/20	0.0025	8.8E2	Atm	115	100/20	3-30 min (3)	148	100	1.2E1	4E3
Equipment air lock 4304, 4305, 4313	1/-0.25	-/104/-/40	90/20	0.0025	8.8E2	-	-	-	3-30 min (3)	148	100	1.5E-2	2E1
Motor control center 4310	1/-0.25	-/91/77/40	90/20	0.0025	8.8E2	Atm	122	100/20	3-30 min (3)	148	100	1.5E	5E0
Motor control center 4303	1/-0.25	-/85/74/40	90/20	0.0025	8.8E2	Atm	115	100/20	3-30 min (3)	148	100	4.5E2	3E2
RACS pump & HX room 4307, 4309	1/-0.25	-/94/87/40	90/20	0.0025	8.8E2	Atm	95	100/20	3-30 min (3)	148	100	2.7E1	5E2

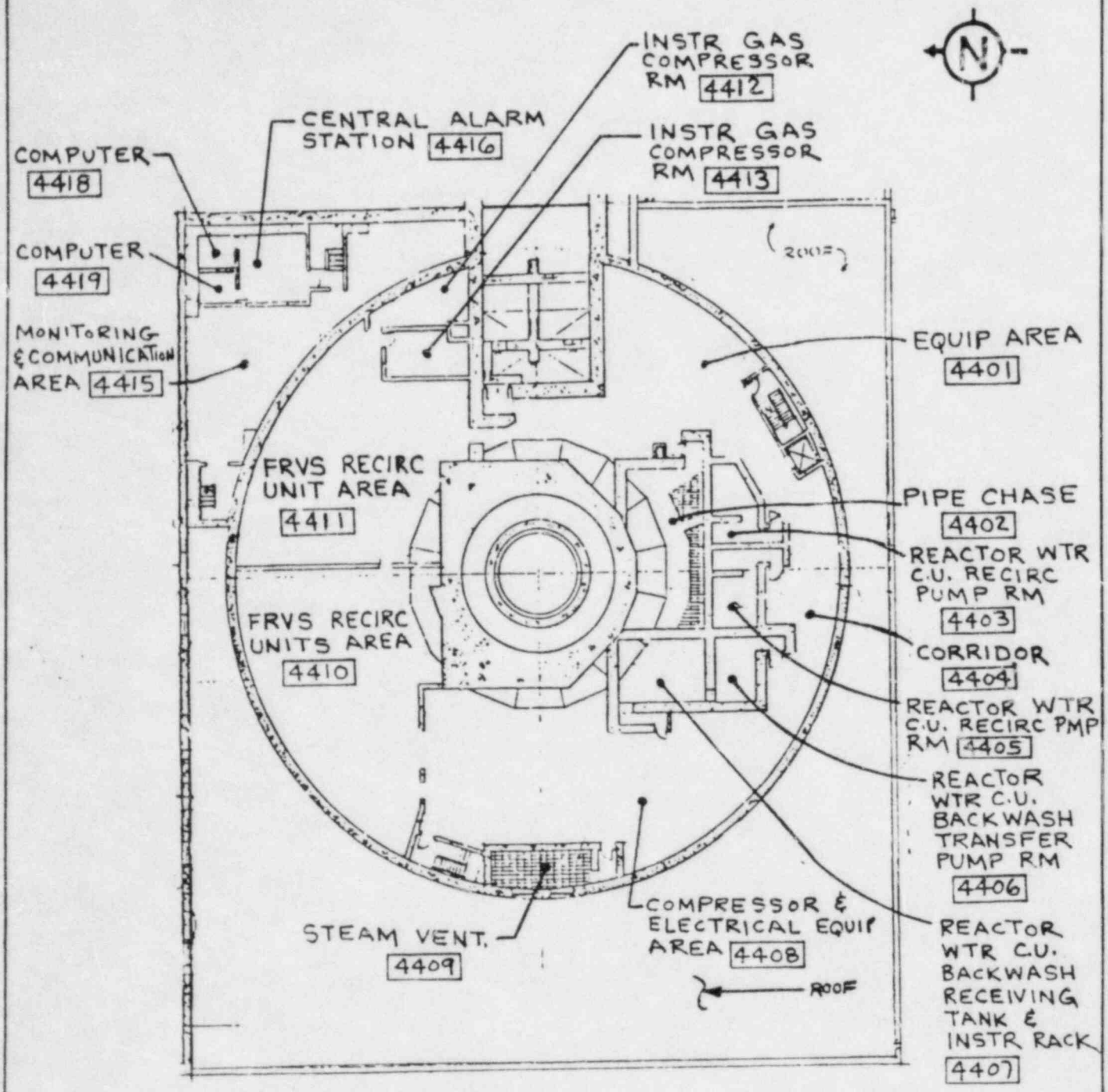
FIG. 3a

TABLE 3.11-1a

ENVELOPING PLANT ENVIRONMENTAL CONDITIONS - REACTOR BUILDING

Area Description & Room Number	Normal Operating Conditions: Press Max/Min, Hg	Normal Operating Conditions: Temp, °F Test/Max/Ave/Min	Normal Operating Conditions: % Rel Humidity Max/Min	Normal Operating Conditions: Max Dose Rate, Rad/h	Normal Operating Conditions: Integr Dose, Rad (1)	Abnormal Conditions: Press psig	Abnormal Conditions: Temp °F	Abnormal Conditions: % Rel Humidity Max/Min	DBE Conditions: Press, psig (2)	DBE Conditions: Temp °F (2)	DBE Conditions: % Rel Humidity	DBE Conditions: Max LOCA Dose Rate, Rad/h (5,7)	DBE Conditions: LOCA Integr Dose, Rad (6,7)
CRD removal & repair 4326	1/-0.25	-/104/-/40	90/20	0.0025	8.8E2	-	-	-	3-30 min (3)	148	100	9.6E1	4E3
CRD storage 4333	1/-0.25	-/104/-/40	90/20	0.10	3.5E4	-	-	-	3-30 min (3)	148	100	9.6E1	4E3
Vestibule & elev machine room 4311, 4334	1/-0.25	-/104/-/40	90/20	0.0025	8.8E2	-	-	-	3-30 min (3)	148	100	1.5E2	2E1
Drywell access room 4330	1/-0.25	-/104/-/40	90/20	2.5	8.8E5	-	-	-	3-30 min (3)	148	100	gamma 1.9E7 beta 3.1E8	3E7 1E9
RPT breaker room 4301	1/-0.25	-/91/77/40	90/20	0.0025	8.8E2	Atm	122	100/20	3-30 min (3)	148	100	1.5E-2	2E1
Equipment air lock, 4323	1/-0.25	-/84/74/40	90/20	0.0025	8.8E2	Atm	107	100/20	3-30 min (3)	148	100	9.6E0	4E3
Equipment air lock, 4324	1/-0.25	-/104/-/40	90/20	0.0025	8.8E2	-	-	-	3-30 min (3)	148	100	9.6E0	4E3
CRD hydraulic 4328	1/-0.25	-/92/82/40	90/20	0.02	7.0E3	Atm	115	100/20				1.1E5	4E6

FIG. 3b



NOTES

1. ENVIRONMENTAL CONDITIONS FOR ROOMS 4401 THRU 4413, 4415, 4416, 4418 & 4419 SHOWN ABOVE APPEAR ON FSAR TABLE 3.11-1a. (FIG. 4a)

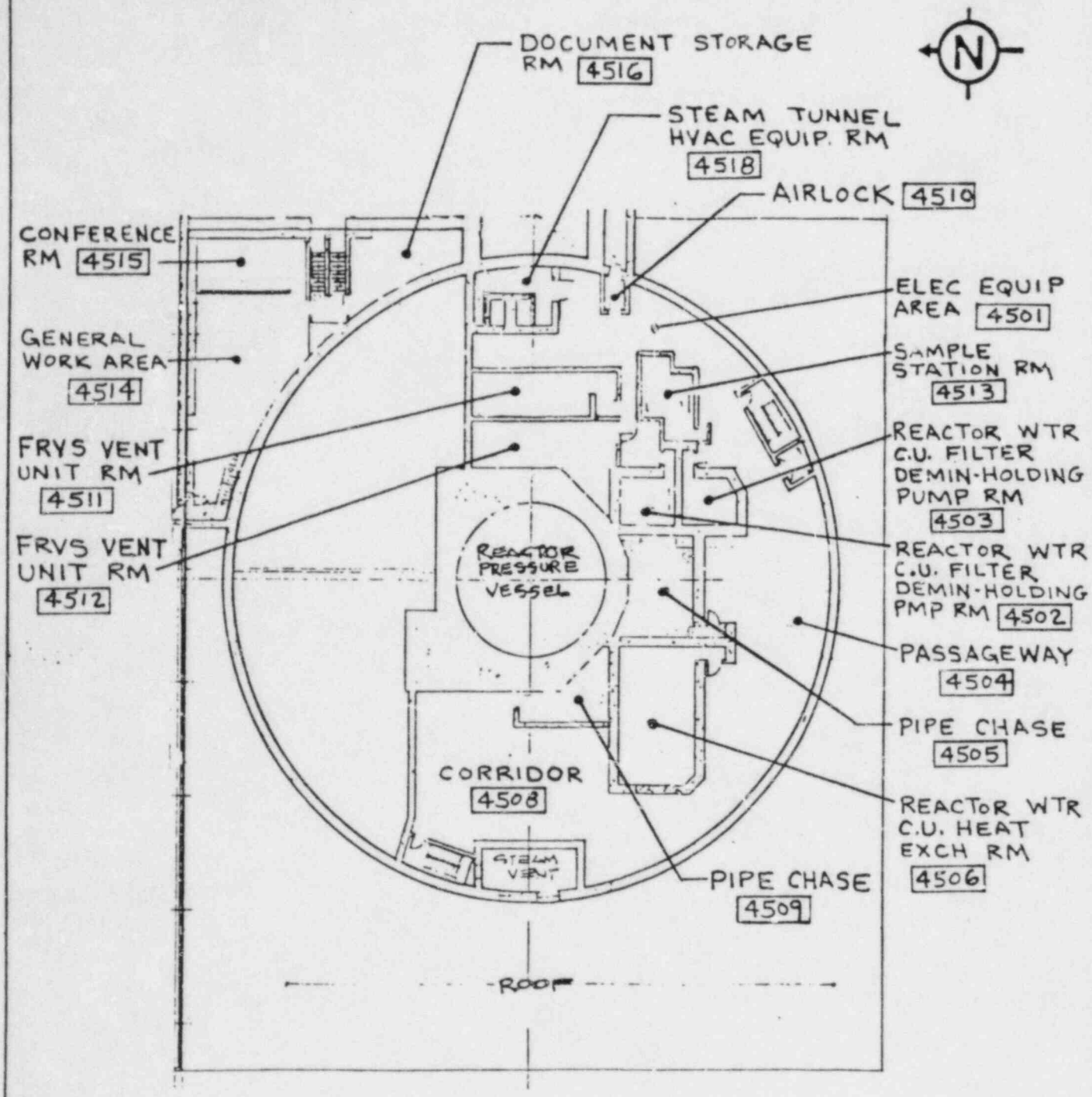
PUBLIC SERVICE ELECTRIC & GAS COMPANY HOPE CREEK GENERATING STATION	
DRN CHK APPR DATE	EQUIPMENT QUALIFICATION HARSH ENVIRONMENT REACTOR BUILDING EL. 132'
JOB NO.	DRAWING NUMBER / REV
	FIG. 4

TABLE 3.11-1a

ENVELOPING PLANT ENVIRONMENTAL CONDITIONS - REACTOR BUILDING

	Normal Operating Conditions					Abnormal Conditions					DBE Conditions		
Area Description & Room Number	Press Max/Min, Hg	Temp, °F Test/Max/Ave/Min	% Rel Humidity Max/Min	Max Dose Rate, Rad/h	Integr Dose, Rad (1)	Press psig	Temp °F	% Rel Humidity Max/Min	Press, psig (2)	Temp °F (2)	% Rel Humidity	Max LOCA Dose Rate, Rad/h (5,7)	LOCA Integr Dose, Rad (6,7)
Reactor Building, el 132'													
RWCU recirc pump room 4403, 4405	1/-0.25	-/104/-/40	90/20	92.0	1.1E6	-	-	-	6-30 min (3)	250-30 min (4)	100	1.5E-2	2E1
RWCU backwash pump room 4406	1/-0.25	-/104/-/40	90/20	55.0	1.1E6	-	-	-	6-30 min (3)	250-30 min (4)	100	1.5E-2	2E1
RWCU backwash recirc tank 4407	1/-0.25	-/104/-/40	90/20	1.19E2	4.2E7	-	-	-	6-30 min (3)	250-30 min (4)	100	1.5E-2	2E1
South pipe chase 4402	1/-0.25	-/91/79/40	90/20	89.0	2.0E6	Atm	119	100/20	6-30 min (3)	340-30 min (4)	100	8.4E2 at 36 h	6E4
FRVS recirc 4410, 4411	1/-0.25	-/80/69/40	90/20	0.0025	8.8E2	Atm	110	100/20	0	148	100	2.1E3 at 10 days	2E6
Equipment area 4401	1/-0.25	-/76/65/40	90/20	0.0025	8.8E2	Atm	105	100/20	3-30 min (3)	148	100	1.5E-2	2E1
Corridor 4404	1/-0.25	-/104/-/40	90/20	0.0025	8.8E2	Atm	105	100/20	3-30 min (3)	148	100	1.5E-2	2E1
Compressor & elect equip area 4408	1/-0.25	-/104/-40	90/20	0.0025	8.8E2	Atm	105	100/20	3-30 min (3)	148	100	4.7E-2 at 10 days	7E1
Instrument gas compressor room 4412, 4413	1/-0.25	-80/67/40	90/20	0.0025	8.8E2	Atm	110	100/20	3-30 min (3)	148	100	2.0E0 at 10 days	3E3
Entrance to steam vent 4409	1/-0.25	-/88/75/40	90/20	0.0025	8.8E2	Atm	108	100/20	3-30 min (3)	340-30 min (4)	100	2.0E2	6E3
Central alarm station 4416	.25/-0.25	-/104/-/40	90/20	0.0005	2E2				-	-		-	-
Monitoring and communication area 4415	.25/-0.25	-/104/-/40	90/20	0.0005	2E2				-	-		-	-
Computer Room 4418, 4419	.25/-0.25	-/104/-/40	90/20	0.0005	2E2				-	-		-	-

Fig. 4a



NOTE

1. ENVIRONMENTAL CONDITIONS FOR ROOMS 4501 THRU 4506 AND 4508 THRU 4513, 4515, 4516 AND 4518 SHOWN ABOVE APPEAR ON FSAR TABLE 3.11-1a. (FIG. 5a)

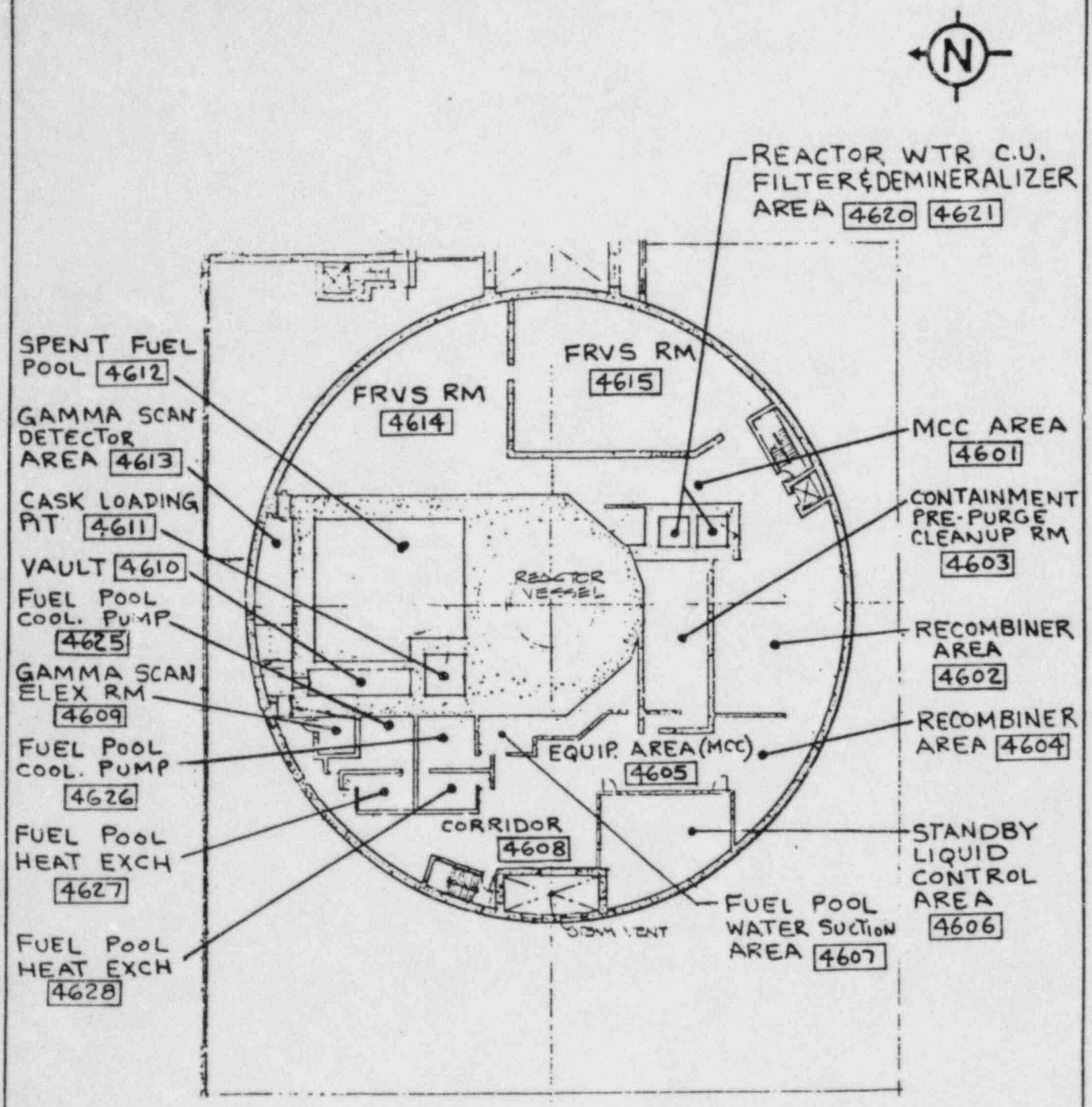
PUBLIC SERVICE ELECTRIC & GAS COMPANY HOPE CREEK GENERATING STATION	
DRN CHK APPR DATE	EQUIPMENT QUALIFICATION HARSH ENVIRONMENT REACTOR BUILDING EL. 145'
JOB NO.	DRAWING NUMBER / REV
	FIG. 5

TABLE 3.11-1a

ENVELOPING PLANT ENVIRONMENTAL CONDITIONS - REACTOR BUILDING

Area Description & Room Number	Normal Operating Conditions: Press Max/Min, Mg	Temp, °F Test/Max/Ave/Min	% Rel Humidity Max/Min	Max Dose Rate, Rad/h	Integr Dose, Rad (1)	Abnormal Conditions: Press psig	Temp °F	% Rel Humidity Max/Min	DBE Conditions: Press, psig (2)	Temp °F (2)	% Rel Humidity	Max LOCA Dose Rate, Rad/h (5,7)	LOCA Integr Dose, Rad (6,7)
Reactor Building, el 145'													
RWCU HX 4506	1/-0.25	-/110/-/40	90/20	5.7	2E6	Atm	148	100/20	6.25-30 min (3)	300-30 min (4)	100	8.4E2 at 36 h	6E4
South pipe chase 4505	1/-0.25	-/91/79/40	90/20	55.0	2.0E6	Atm	119	100/20	6-30 min (3)	250-30 min (4)	100	8.4E2 at 36 h	6E4
Cleanup filter & holdup pump room 4502, 4503	1/-0.25	-/94/83/40	90/20	0.0025	8.8E2	Atm	126	100/20	6-30 min (3)	250-30 min (4)	100	1.5E-2	2E1
Corridor 4508	1/-0.25	-/94/83/40	90/20	0.0025	8.8E2	Atm	126	100/20	0	148	100	4.7E-2 at 10 days	7E1
West pipe chase 4509	1/-0.25	-/94/83/40	90/20	0.015	5.5E3	Atm	126	100/20	0	148	100	8.4E2 at 36 h	6E4
Electrical equipment area 4501	1/-0.25	-/94/83/40	90/20	0.0025	8.8E2	Atm	126	100/20	0	148	100	5.2E-2 at 10 days	7E1
Airlock 4510	1/-0.25	-/104/91/40	90/20	0.0025	8.8E2	Atm	122	100/20	0	148	100	1.5E-2	2E1
FRVS vent room 4511, 4512	1/-0.25	-/160/90/40	90/20	0.0025	8.8E2	Atm	128	100/20	0	148	100	1.4E0 at 10 days	1E3
Sample station room 4513	1/-0.25	-/104/91/40	90/20	0.0025	8.8E2	Atm	122	100/20	0	148	100		
General work area 4514	1/-0.25	-/78/73/68	90/20	0.0025	8.8E2	Atm	104	100/20	0	148	100		
Conference room 4515	1/-0.25	-/78/73/68	90/20	0.0025	8.8E2	Atm	95	100/20	0	148	100		
Document storage room 4516	1/-0.25	-/78/73/68	90/20	0.0025	8.8E2	Atm	99	100/20	0	148	100	-	-
Stairwell 4517 area 4514	1/-0.25	-/78/73/68	90/20	0.0025	8.8E2	Atm	195	100/20	0	148	100	-	-
HVAC duct 4518 space	1/-0.25	-/104/90/60	90/20	0.0025	8.8E2	Atm	109	100/20	0	148	100		
Corridor 4504	1/-0.25	-/94/83/40	90/20	0.0025	8.8E2	Atm	126	100/20	0	148	100	8.4E2 at 36 h	6E4

FIG. 5a



NOTE

1. ENVIRONMENTAL CONDITIONS FOR ROOMS 4601 THRU 4615, 4620, 4621 AND 4625 THRU 4628 SHOWN ABOVE APPEAR ON FSAR TABLE 3.11-1a. (FIG. 6a & 6b)

PUBLIC SERVICE ELECTRIC & GAS COMPANY
HOPE CREEK GENERATING STATION

DRN	EQUIPMENT QUALIFICATION
CHK	HARSH ENVIRONMENT
APPR	REACTOR BUILDING EL. 162'
DATE	

JOB NO.	DRAWING NUMBER	REV
	FIG. 6	

TABLE 3.11-1a

ENVELOPING PLANT ENVIRONMENTAL CONDITIONS - REACTOR BUILDING

Area Description & Room Number	Normal Operating Conditions					Abnormal Conditions			DBE Conditions				
	Press Max/Min, Wg	Temp, °F Test/Max/Ave/Min	% Rel Humidity Max/Min	Max Dose Rate, Rad/h	Integr Dose, Rad (1)	Press psig	Temp °F	% Rel Humidity Max/Min	Press, psig (2)	Temp °F (2)	% Rel Humidity	Max LOCA Dose Rate, Rad/h (5,7)	LOCA Integr Dose, Rad (6,7)
Reactor Buiding, el 162' & 178'													
Gamma scan detector area 4613	1/-0.25	-/100/93/40	90/20	0.001	3.5E2	Atm	119	100/20	0	148	100	1.5E-2	2E1
Cask loading area 4611	1/-0.25	-/104/-/40	90/20	0.10	3.5E4	-	-	-	0	148	100	1.5E-2 at 10 days	2E1
Containment pre-purge cleanup rm 4603	1/-0.25	-/104/91/40	90/20	0.10	3.5E4	-	-	-	0	148	100	4.8E3	7E3
Motor control center 4601	1/-0.25	-/101/89/40	90/20	0.0025	8.8E2	Atm	124	100/20	0	148	100	2.3E1 at 10 days	2E4
Recombiner (Post LOCA) 4602,4604	1/-0.25	-/104/74/40	90/20	0.0025	8.8E2	Atm	109	100/20	0	148	100	8.4E2 at 36 h	6E4
FRVS units 4615, 4617	1/-0.25	-/83/73/40	90/20	0.0025	8.8E2	Atm	108	100/20	0	148	100	2.1E3 at 15 days	2E6
Corridor 4608	1/-0.25	-/100/93/40	90/20	0.0025	8.8E2	Atm	119	100/20	0	148	100	5.5E-1 at 36 h	4E1
New fuel vault 4610	1/-0.25	-/104/91/40	90/20	0.10	3.5E4	-	-	-	0	148	100	1.5E-2	2E1
Cask loading area 4611	1/-0.25	-/104/91/40	90/20	0.10	3.5E4	-	-	-	0	148	100	1.5E-2	2E1
Gamma scan electronics rm 4609	1/-0.25	-/100/93/40	90/20	0.001	3.5E2	Atm	119	100/20	0	148	100	1.5E-2	2E1
Spent fuel pool 4612	1/-0.25	-/104/91/40	90/20	0.0025	8.8E7	-	-	-	0	148	100	1.5E-2	2E1
Bottom of spent fuel pool 4612	1/-0.25	-/212/125/60	100	3.07E4	1.0E10	-	-	-	0	148	100	1.5E-2	2E1
Spent fuel pool gate 4612	1/-0.25	-/212/125/60	100	3.07E4	1.7E7	-	-	-	0	148	100	1.5E-2	2E1
Motor control center, 4605	1/-0.25	-/101/91/40	90/20	0.0025	8.8E2	Atm	124	100/20	0	148	100	8.4E2 at 36 h	6E4

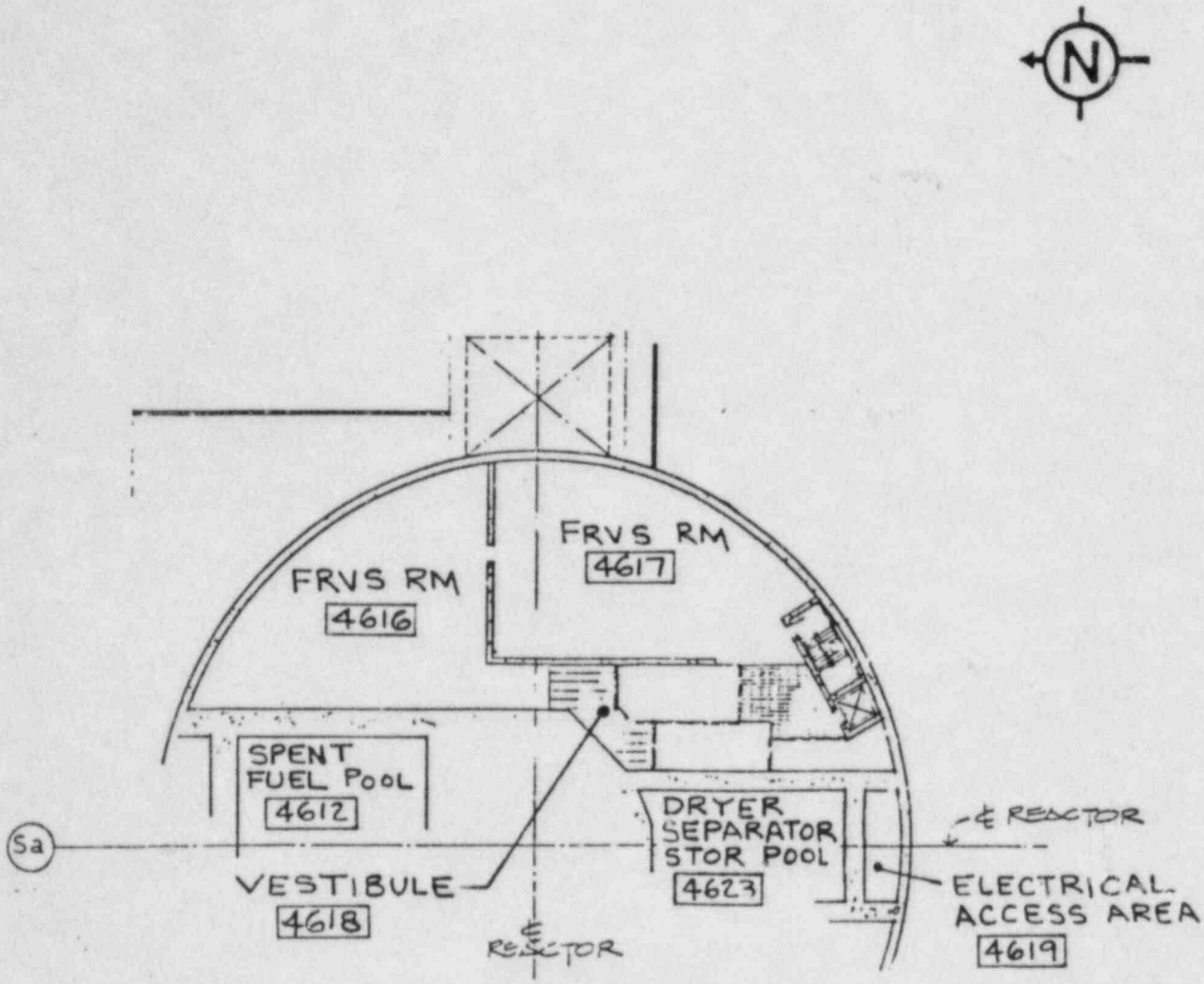
FIG. 6a

TABLE 3.11-1a

ENVELOPING PLANT ENVIRONMENTAL CONDITIONS - REACTOR BUILDING

Area Description & Room Number	Normal Operating Conditions: Press Max/Min, Wg	Temp, °F Test/Max/Ave/Min	% Rel Humidity Max/Min	Max Dose Rate, Rad/h	Integr Dose, Rad (1)	Abnormal Conditions: Press psig	Temp °F	% Rel Humidity Max/Min	DBE Conditions: Press, psig (2)	Temp °F (2)	% Rel Humidity	Max LOCA Dose Rate, Rad/h (5,7)	LOCA Integr Dose, Rad (6,7)
Elect access area 4619	1/-0.25	-/104/91/40	90/20	0.0025	8.8E2	Atm	122	100/20	0	148	100	1.5E-2	2E1
SLC room 4606	1/-0.25	-/101/91/60	90/20	0.0025	8.8E2	Atm	124	100/20	0	148	100	6.9E-2	5E0
FMCU F/D rm 4620, 4621	1/-0.25	-/104/91/40	90/20	7.3E2	2.6E8	Atm	122	100/20	6.7-30 min (3)	225-30 min (4)	100	1.5E-2	2E1
Fuel pool cooling pump room 4625, 4626	1/-0.25	-/100/93/40	90/20	0.15	5.3E4	Atm	119	100/20	0	148	100	1.5E-2	2E1
Dryer separator pool 4622	1/-0.25	-/104/91/40	90/20	0.0025	8.8E2	Atm	122	100/20	0	148	100	1.5E-2	2E1
Bottom of dryer separator pool	1/-0.25	-/115/-/40	100	10	3.2E5	Atm	112	100/20	0	148	100	1.5E-2	2E1
Fuel pool HX room 4627, 4628	1/-0.25	-/100/93/40	90/20	0.5	1.8E5	Atm	119	100/20	3	250-30 min (4)	100	1.5E-2	2E1
Isolation valve room 4624	1/-0.25	-/110/90/40	90/20	0.0025	8.8E2	Atm	122	100/20	0	148	100	4.7E-2 at 10 days	7E1
FRVS recirc unit room 4614, 4616	1/-0.25	-/104/91/40	90/20	0.0025	8.8E2	Atm	100	100/20	0	148	100	2.1E3 at 10 days	2E6
Fuel pool water section area 4607	1/-0.25	-/104/91/40	90/20	0.140	5.2E4	Atm	122	100/20	0	148	100	1.5E-2	2E1
Vestibule 4618				0.0025	8.8E2							2.1E3 at 10 days	2E6

FIG. 6b



NOTE

1. ENVIRONMENTAL CONDITIONS FOR ROOMS 4616 THRU 4619, AND 4623 SHOWN ABOVE APPEAR ON FSAR TABLE 3.11-1a. (FIG. 7a & 7b)

PUBLIC SERVICE ELECTRIC & GAS COMPANY
HOPE CREEK GENERATING STATION

DRN	EQUIPMENT QUALIFICATION HARSH ENVIRONMENT REACTOR BUILDING EL. 178'-6"	
CHK		
APPR		
DATE		
JOB NO.	DRAWING NUMBER	REV
	FIG. 7	

ENVELOPING PLANT ENVIRONMENTAL CONDITIONS - REACTOR BUILDING

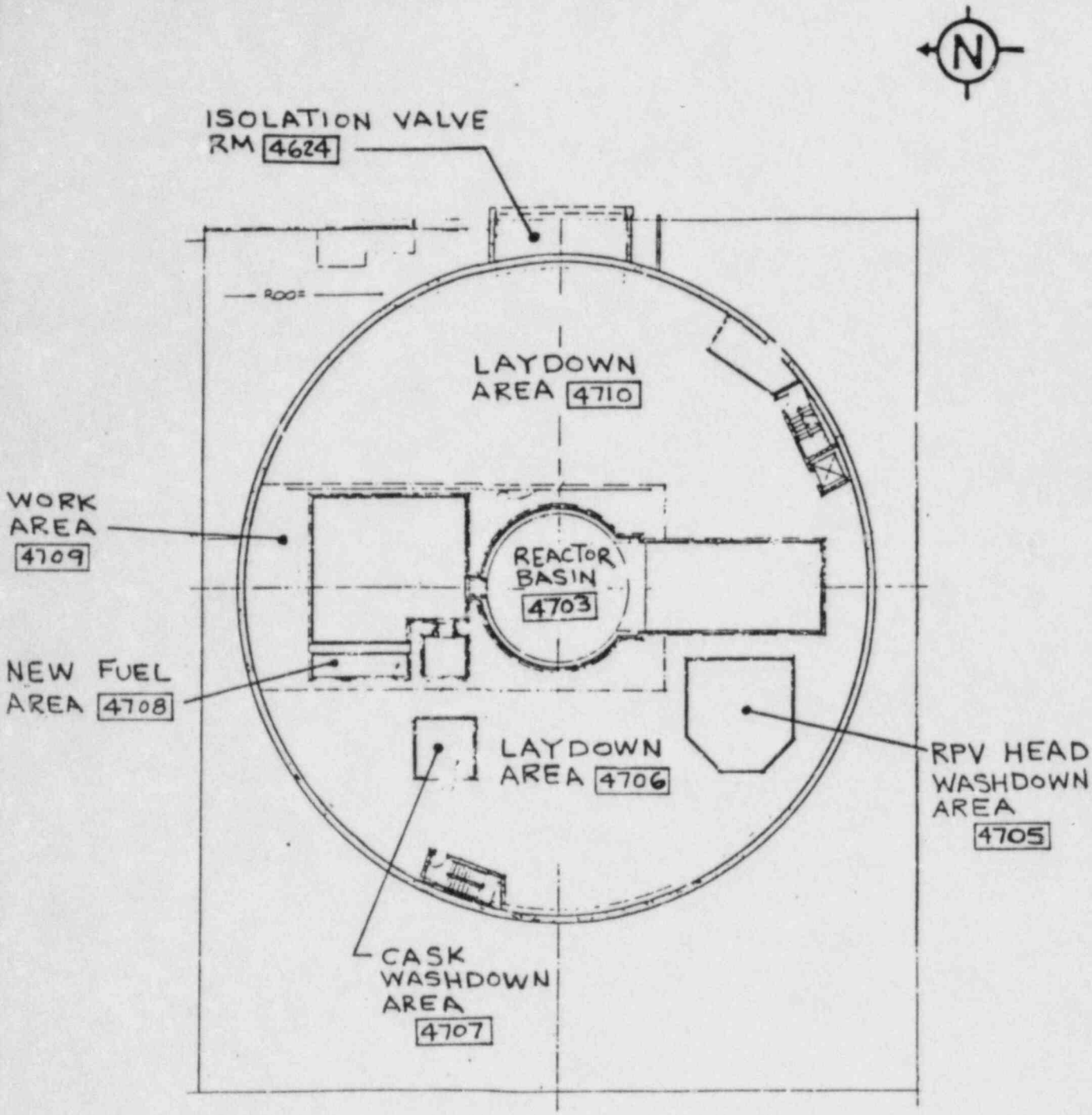
Area Description & Room Number	Normal Operating Conditions: Press Max/Min, Mg	Temp, °F Test/Max/Ave/Min	% Rel Humidity Max/Min	Max Dose Rate, Rad/h	Integr Dose, Rad (1)	Abnormal Conditions: Press psig	Temp °F	% Rel Humidity Max/Min	DBE Conditions: Press, psig (2)	Temp °F (2)	% Rel Humidity	Max LOCA Dose Rate, Rad/h (5,7)	LOCA Integr Dose, Rad (6,7)
Reactor Buiding, el 162' & 178'													
Gamma scan detector area 4613	1/-0.25	-/100/93/40	90/20	0.001	3.5E2	Atm	119	100/20	0	148	100	1.5E-2	2E1
Cask loading area 4611	1/-0.25	-/104/-/40	90/20	0.10	3.5E4	-	-	-	0	148	100	1.5E-2 at 10 days	2E1
Containment pre-purge cleanup rm 4603	1/-0.25	-/104/91/40	90/20	0.10	3.5E4	-	-	-	0	148	100	4.8E3	7E3
Motor control center 4601	1/-0.25	-/101/89/40	90/20	0.0025	8.8E2	Atm	124	100/20	0	148	100	2.3E1 at 10 days	2E4
Recombiner (Post LOCA) 4602,4604	1/-0.25	-/104/74/40	90/20	0.0025	8.8E2	Atm	109	100/20	0	148	100	8.4E2 at 36 h	6E4
PRVS units 4615, 4617	1/-0.25	-/83/73/40	90/20	0.0025	8.8E2	Atm	108	100/20	0	148	100	2.1E3 at 10 days	2E6
Corridor 4608	1/-0.25	-/100/93/40	90/20	0.0025	8.8E2	Atm	119	100/20	0	148	100	5.5E-1 at 36 h	4E1
New fuel vault 4610	1/-0.25	-/104/91/40	90/20	0.10	3.5E4	-	-	-	0	148	100	1.5E-2	2E1
Cask loading area 4611	1/-0.25	-/104/91/40	90/20	0.10	3.5E4	-	-	-	0	148	100	1.5E-2	2E1
Gamma scan electronics rm 4609	1/-0.25	-/100/93/40	90/20	0.001	3.5E2	Atm	119	100/20	0	148	100	1.5E-2	2E1
Spent fuel pool 4612	1/-0.25	-/104/91/40	90/20	0.0025	8.8E2	-	-	-	0	148	100	1.5E-2	2E1
Bottom of spent fuel pool 4612	1/-0.25	-/212/125/60	100	3.07E4	1.0E10	-	-	-	0	148	100	1.5E-2	2E1
Spent fuel pool gate 4612	1/-0.25	-/212/125/60	100	3.07E4	1.7E7	-	-	-	0	148	100	1.5E-2	2E1
Motor control center, 4605	1/-0.25	-/101/91/40	90/20	0.0025	8.8E2	Atm	124	100/20	0	148	100	8.4E2 at 36 h	6E4

FIG. 7a

ENVELOPING PLANT ENVIRONMENTAL CONDITIONS - REACTOR BUILDING

	Normal Operating Conditions					Abnormal Conditions			DBE Conditions				
Area Description & Room Number	Press Max/Min, Hg	Temp, °F Test/Max/Avg/Min	% Rel Humidity Max/Min	Max Dose Rate, Rad/h	Integr Dose, Rad (1)	Press psig	Temp °F	% Rel Humidity Max/Min	Press, psig (2)	Temp °F (2)	% Rel Humidity	Max LOCA Dose Rate, Rad/h (5,7)	LOCA Integr Dose, Rad (6,7)
Elect access area 4619	1/-0.25	-/104/91/40	90/20	0.0025	8.8E2	Atm	122	100/20	0	140	100	1.5E-2	2E1
SLC room 4606	1/-0.25	-/101/91/60	90/20	0.0025	8.8E2	Atm	124	100/20	0	140	100	6.9E-2	5E0
RMCU F/D rm 4620, 4621	1/-0.25	-/104/91/40	90/20	7.3E2	2.6E8	Atm	122	100/20	6.7-30 min (3)	225-30 min (4)	100	1.5E-2	2E1
Fuel pool cooling pump room 4625, 4626	1/-0.25	-/100/93/40	90/20	0.15	5.3E4	Atm	119	100/20	0	140	100	1.5E-2	2E1
Dryer separator pool 4623	1/-0.25	-/104/91/40	90/20	0.0025	8.8E2	Atm	122	100/20	0	140	100	1.5E-2	2E1
Bottom of dryer separator pool	1/-0.25	-/115/-/40	100	10	3.2E5	Atm	122	100/20	0	140	100	1.5E-2	2E1
Fuel pool HX room 4627, 4628	1/-0.25	-/100/93/40	90/20	0.5	1.6E5	Atm	111	100/20	3	250-30 min (4)	100	1.5E-2	2E1
Isolation valve room 4624	1/-0.25	-/110/90/40	90/20	0.0025	8.8E2	Atm	122	100/20	0	140	100	4.7E-2 at 10 days	7E1
FRVS recirc unit room 4614, 4616	1/-0.25	-/104/91/40	90/20	0.0025	8.8E2	Atm	100	100/20	0	140	100	2.1E3 at 10 days	2E6
Fuel pool water suction area 4607	1/-0.25	-/104/91/60	90/20	0.140	5.26E4	Atm	122	100/20	0	140	100	1.5E-2	2E1
Vestibule 4618				0.0025	8.8E2							2.1E3 at 10 days	2E6

FIG. 7b



1. ENVIRONMENTAL CONDITIONS FOR ROOMS 4624, AND 4703 THRU 4710 SHOWN ABOVE APPEAR ON FSAR TABLE 3.11-1a. (FIG. 8a)

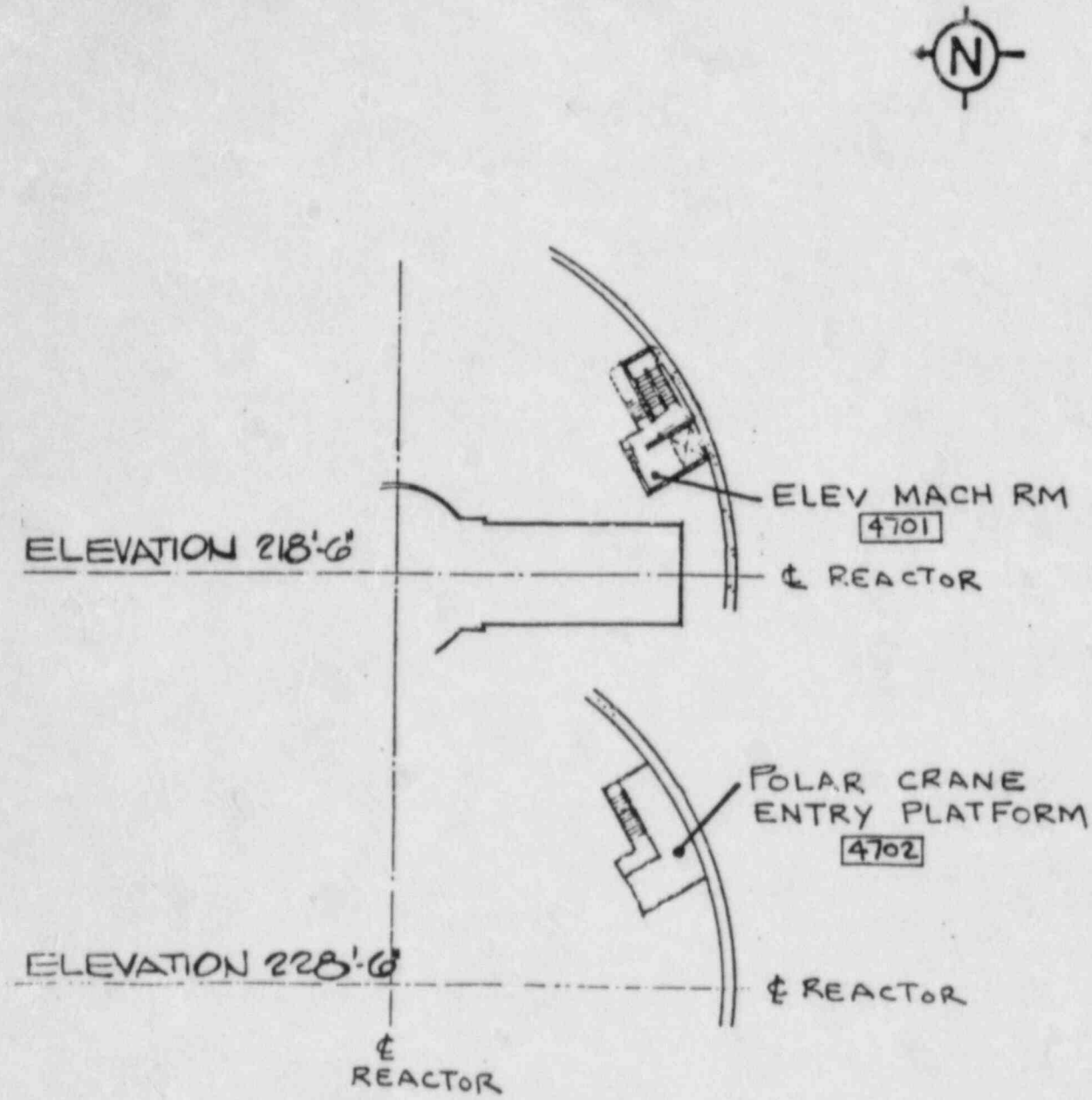
PUBLIC SERVICE ELECTRIC & GAS COMPANY HOPE CREEK GENERATING STATION	
DRN CHK APPR DATE	EQUIPMENT QUALIFICATION HARSH ENVIRONMENT REACTOR BUILDING EL. 201'
JOB NO.	DRAWING NUMBER / REV
	FIG. 8

TABLE 3.11-1a

ENVELOPING PLANT ENVIRONMENTAL CONDITIONS - REACTOR BUILDING

	Normal Operating Conditions					Abnormal Conditions			DBE Conditions				
Area Description & Room Number	Press Max/Min, Hg	Temp, °F Test/Max/Ave/Min	% Rel Humidity Max/Min	Max Dose Rate, Rad/h	Integr Dose, Rad (1)	Press psig	Temp °F	% Rel Humidity Max/Min	Press, psig (2)	Temp °F (2)	% Rel Humidity	Max LOCA Dose Rate, Rad/h (5,7)	LOCA Integr Dose, Rad (6,7)
Reactor Building, el 201'													
Elevator machine 4701	1/-0.25	-/105/92/40	90/20	0.0025	8.8E2	Atm	122	100/20	0	148	100	1.5E-2	2E1
Polar crane entry platform 4702	1/-0.25	-/105/92/40	90/20	0.0025	8.8E2	Atm	122	100/20	0	148	100	1.5E-2	2E1
RPV head washdown area 4705	1/-0.25	-/105/92/40	90/20	0.025	1.6E3	Atm	122	100/20	0	148	100	1.5E-2	2E1
Laydown area 4706	1/-0.25	-/105/92/40	90/20	0.0025	8.8E2	Atm	120	100/20	0	148	100	1.5E-2	2E1
Cask washdown area 4707	1/-0.25	-/105/92/40	90/20	0.0025	8.8E2	Atm	122	100/20	0	148	100	1.5E-2	2E1
New fuel storage 4708	1/-0.25	-/105/92/40	90/20	0.0025	8.8E2	Atm	120	100/20	0	148	100	1.5E-2	2E1
Work area 4709	1/-0.25	-/105/92/40	90/20	0.0025	8.8E2	Atm	122	100/20	0	148	100	1.5E-2	2E1
Laydown area 4710	1/-0.25	-/105/92/40	90/20	0.0025	8.8E2	Atm	120	100/20	0	148	100	4.7E-2 at 10 days	7E1
Reactor Area 4703	1/-0.25	-/105/92/40	90/20	0.0025	8.8E2	Atm	120	100/20	0	148	100	1.5E-2	2E1

Fig. 8a



NOTE

1. ENVIRONMENTAL CONDITIONS FOR ROOMS 4701 AND 4702 SHOWN ABOVE APPEAR ON FSAR TABLE 3.11-1a. (FIG. 9a)

PUBLIC SERVICE ELECTRIC & GAS COMPANY HOPE CREEK GENERATING STATION	
DRN CHK APPR DATE	EQUIPMENT QUALIFICATION HARSH ENVIRONMENT REACTOR BUILDING EL. 218'-6" & 228'-6"
JOB NO.	DRAWING NUMBER / REV
	FIG. 9

TABLE 3.11-1a

ENVELOPING PLANT ENVIRONMENTAL CONDITIONS - REACTOR BUILDING

	Normal Operating Conditions					Abnormal Conditions			DBE Conditions				
Area Description & Room Number	Press Max/Min, Hg	Temp, °F Test/Max/Ave/Min	% Rel Humidity Max/Min	Max Dose Rate, Rad/h	Integr Dose, Rad (1)	Press psig	Temp °F	% Rel Humidity Max/min	Press, psig (2)	Temp °F (2)	% Rel Humidity	Max LOCA Dose Rate, Rad/h (5,7)	LOCA Integr Dose, Rad (6,7)
Reactor Building, el 201'													
Elevator machine 4701	1/-0.25	-/105/92/40	90/20	0.0025	8.8E2	Atm	122	100/20	0	148	100	1.5E-2	2E1
Polar crane entry platform 4702	1/-0.25	-/105/92/40	90/20	0.0025	8.8E2	Atm	122	100/20	0	148	100	1.5E-2	2E1
RPV head washdown area 4705	1/-0.25	-/105/92/40	90/20	0.025	1.6E3	Atm	122	100/20	0	148	100	1.5E-2	2E1
Laydown area 4706	1/-0.25	-/105/92/40	90/20	0.0025	8.8E2	Atm	120	100/20	0	148	100	1.5E-2	2E1
Cask washdown area 4707	1/-0.25	-/105/92/40	90/20	0.0025	8.8E2	Atm	122	100/20	0	148	100	1.5E-2	2E1
New fuel storage 4708	1/-0.25	-/105/92/40	90/20	0.0025	8.8E2	Atm	120	100/20	0	148	100	1.5E-2	2E1
Work area 4709	1/-0.25	-/105/92/40	90/20	0.0025	8.8E2	Atm	122	100/20	0	148	100	1.5E-2	2E1
Laydown area 4710	1/-0.25	-/105/92/40	90/20	0.0025	8.8E2	Atm	120	100/20	0	148	100	4.7E-2 at 10 days	7E1

FIG. 9a

VII. SYSTEM/COMPONENT IDENTIFICATION

The systems determined to be required to operate during and following a DBA to mitigate the consequences of and follow the course of the DBA, as well as to maintain the plant in a safe shutdown condition, were those safety related systems defined in Section 7, "Instrumentation and Controls", and Section 8, "Electric Power", of the HCGS FSAR.

Specifically, these systems were defined and separated into the following categories and are inclusive of the electrical power systems that supply them:

- **Protection Systems** - the protection systems initiate safety actions to mitigate the consequences of a DBA and include the Reactor Protection System (RPS) and the initiation functions of the Engineered Safety Features (ESF).

- **Engineered Safety Features** - the ESF includes both the operational and control elements which ensure proper cooling of the reactor plant as well as core protection and isolation of the reactor plant during and following a DBA.

- **Safe Shutdown Systems** - the safe shutdown systems are those operational and control systems used to achieve and maintain the plant in a safe shutdown condition following a DBA and include core cooling, remote shutdown capability and required support systems.

- **Safety Related Display Instrumentation** -this display instrumentation provides the operator with information critical in determining the status and proper functioning of safety related systems to enable the operator to initiate manual action to mitigate operational transients and/or anomalies. This display includes the status of bypassed or inoperable systems important to safety as well as Post Accident Monitoring Instrumentation as delineated in HCGS FSAR Section 1.8.1.97.

As is noted in FSAR Sections 7 and 8, these safety systems are designed to meet the criteria for design, fabrication, construction, testing and performance as delineated in the HCGS applicable CFR's, Reg. Guides, NUREG, IEEE Standards, BTP's, SRP's, etc. Included in these criteria are the EQ requirements for these safety related systems.

The HCGS EQ program is designed to ensure that the systems and related components listed in the applicable aforementioned FSAR sections are qualified to correctly perform their defined safety functions in their anticipated environmental conditions during and following a DBA.

A. System List

The HCGS project "Q" list (maintained throughout the project life) was established in accordance with the requirements of Appendix B to 10CFR50 as the controlling document identifying the safety-related structures, systems, and components required to assure:

- Integrity of the reactor coolant boundary.
- Capability to achieve and maintain a safe shutdown.
- Capability to prevent or mitigate the consequences of an accident which could result in potential off-site exposure comparable to the guidelines of 10CFR Part 100.
- Retaining of fuel temperature within design limits by maintaining fuel coolant inventory and temperature within design limits.
- Control the concentration of combustible gases in the containment system within established limits.

All structures, systems and components are evaluated by PSE&G and Bechtel Power Corporation to determine those which are required to achieve the above safety functions in accordance with the criteria listed in 10CFR50, Appendix A. The Q-list is updated as required to reflect design changes and is thoroughly reviewed by both engineering organizations to ensure that structures, systems and components have been correctly classified.

The following is a listing of the safety related systems determined to be required to operate during and/or after a DBA as a result of the analyses. This listing includes the system designators (in parenthesis).

1. **PROTECTION SYSTEMS**

1.1 Reactor Protection System (RPS).
1.2 Engineered Safety Feature System (ESF)-Initiation.

2. ENGINEERED SAFETY FEATURE SYSTEMS (ESF)

2.1 Emergency Core Cooling System (ECCS).
- 2.1.1 High Pressure Coolant Injection System (HPCI).
- 2.1.2 Automatic Depressurization System (ADS).
- 2.1.3 Core Spray System (CS).
- 2.1.4 Residual Heat Removal System (RHR) Low Pressure Coolant Injection (LPCI) Mode.

2.2 Primary Containment and Reactor Vessel Isolation Control System (PCRVICS).

2.3 Residual Heat Removal (RHR) -Containment Spray Cooling Mode (CSCM).

2.4 Residual Heat Removal (RHR) - Suppression Pool Cooling Mode (SPCM).

2.5 Primary Containment Isolation System(PCIS).

2.6 Containment Atmosphere Control System(CACS).
- 2.6.1 Containment Hydrogen Recombination System (CHRS).
- 2.6.2 Vacuum Relief Valve System(VRVS).

2.7 Main Control Room Habitability and Isolation System (MCRHIS).

2.8 Main Steam Isolation Valve Sealing System-(MSIVSS).

2.9 Filtration, Recirculation, and Ventilation System (FRVS).

2.10 Reactor Building Ventilation Isolation System (RBVIS).

2.11 Essential Auxiliary Supporting Systems(EASS).
- 2.11.1 Station Service Water System(SSWS).
- 2.11.2 Safety Auxiliaries Cooling System (SACS).
- 2.11.3 Class 1E Power Systems.
- 2.11.4 Primary Containment Instrument Gas System (PCIGS).
- 2.11.5 Engineered Safety Feature- Equipment Area Cooling System (ESF-EACS).
- 2.11.6 Control Area Chilled Water System (CACWS).

3. **SAFE SHUTDOWN SYSTEMS**

3.1 Reactor Core Isolation Cooling System (RCIC).

3.2 Standby Liquid Control System (SLC).

3.3 Residual Heat Removal - Reactor Shutdown Cooling Mode (RHR-RSCM).

3.4 Remote Shutdown Facility (RSF).

3.5 Essential Auxiliary Supporting Systems -Safe Shutdown (EASS-SS).

3.5.1 Station Service Water System (SSWS).
3.5.2 Safety Auxiliary Cooling System (SACS).
3.5.3 Class 1E Power Systems.
3.5.4 Safe Shutdown Equipment Ventilation Systems (SSVS).

4. **SAFETY-RELATED DISPLAY INSTRUMENTATION**

4.1 Control Rod Position Indication System (CRPIS).

4.2 Bypassed and Inoperable Status Indication System (BISIS).

4.3 Control Room Integrated Display System (CRIDS).

4.3.1 Plant Operating Displays.
4.3.2 Safety Parameter Display System (SPDS).
4.3.3 Emergency Response Facilities Display System (ERFDS).
4.3.3.1 Technical Support Center Display System (TSC).
4.3.3.2 Emergency Operation Facilities Displays (EOF).

4.4 Post Accident Monitoring Instrumentation (PAMI).

5. **OTHER INSTRUMENTATION SYSTEMS REQUIRED FOR SAFETY**

5.1 Process Radiation Monitoring System (PRMS).

5.2 High Pressure/Low Pressure System Interlocks (HPLPSI).

5.3 Leak Detection System (LDS).

5.4 Neutron Monitoring System (NMS).

5.5 Recirculation Pump Trip (RPT) Controls and Instruments.

5.6 Main Steam Safety/Relief Valves (SRV) -Relief Function.

5.7 Redundant Reactivity Control System (RRCS).

5.8 Safety System/Non Safety System Isolation-(SSNSSI).

Plant structures, systems, and components, including their foundations and supports, designed to remain functional in the event of a safe shutdown earthquake (SSE) are designed as Seismic Category I, as indicated in HCGS FSAR Table 3.2-1.

Those portions of structures, systems, or components whose continued function is not required but whose failure could reduce the functioning of any Seismic Category I plant feature to an unacceptable safety level are verified so that an SSE would not cause such a failure. These items are classified as Seismic Category II/I, as indicated in FSAR Table 3.2-1.

All systems listed in FSAR Table 3.2-1 which are not included in FSAR Tables 3.11-5 or 3.11-6 are contained in the attached FSAR Table 3.11-8. Table 3.11-8 includes a description of the system, its reference to Table 3.2-1 and the reason as to why it is not included in Table 3.11-5 or 3.11-6.

B. Functional System Reviews

HCGS has established a comprehensive, systematic program identifying electrical equipment required to be environmentally qualified. Safety-related equipment has been identified according to the safety function objectives of 10CFR50.49(b)(1), and placed on the HCGS project Q-list.

For non-safety-related electrical equipment whose failure could prevent achieving these safety objectives (paragraph (b)(2) of 10CFR50.49), a review of systems interactions had been performed to ascertain which components fall into this category. This systems interactions review took into account the following studies and analyses:

1. Separation Review Program

A separation review analysis and corresponding plant walkdown has been conducted on a room-by-room basis in the auxiliary and reactor buildings. The review identified the safety related systems and components required to meet the separation criteria provided in 10CFR100. The review/walkdown was conducted by engineering personnel familiar with areas and systems under review. Conflicts in separation criteria will be reviewed and resolved. The separation review considered the following internally generated hazards:

a. Pipe break effects (high or moderate energy) including pipe whip, jet impingement, steam/water flooding, subcompartment pressurization and water spray.

b. Internally generated missiles resulting from explosions or pressurized components with single retaining devices.

c. Fires including electrical, installed combustibles or transient combustibles (in accordance with 10CFR50, Appendix R).

d. Seismic II/I (two over one) effects on equipment, piping, or structures.

2. Common Sensor Failure Study.

3. Control Systems Failure Study.

4. Reactor Vessel Water Level Instrumentation Study.

5. Nuclear Safety Operational Analysis

6. Control Room Design Review

7. Effect of High Energy Line Breaks on Control Systems.

Any components identified by these studies whose failure could prevent attainment of the safety function objective have been included on the project Q-list.

A separate HCGS program to verify that all safety-related equipment for both the NSS and BOP systems and components have been properly classified was completed. This classification program involved a re-review of the following documents:

- FSAR
- P&IDs, Elementaries
- Systems Descriptions and Operating Manuals
- Logic/Loop Diagrams
- Instrument, Equipment and Valve Indices
- Electrical Drawings

The P&ID is the basic lead design document and was developed by the use of the system descriptions, which are based on multi-discipline design standards, the logic/loop diagrams identifying the process control/indication required and in some systems, a process flow diagram was developed. From the P&ID, PSAR and later, FSAR, commitments are made, the Q-list updated, all inputs to the indices are made, and all required components are purchased for the design depicted. Later receipt of the supplier drawings and components completes that portion of the design furnished by the supplier. All the information developed was entered into the Master Equipment List (MEL) for maintenance, surveillance and spare parts accountability.

The postulated event analyses in Chapter 15 of the FSAR were reviewed to identify systems which have a safety-related function or support in any manner a safety-related function. The Q list was updated to reflect any systems and components identified in the Chapter 15 analysis.

The following information describes the interface activities between Bechtel and PSE&G which were performed to assure that all components requiring qualification were identified.

(1) Bechtel furnished, for PSE&G review and comment, a listing of both safety and non-safety related components used at HCGS. The safety related components were further subdivided into those that require actuation during or following the DBA ("active") as well as those not requiring actuation to mitigate or follow a DBA ("passive").

(2) This list was used to develop a safety related components list for both active and passive components. Included in this listing by Bechtel was the physical location on a component-by-component basis which was determined from review of HCGS arrangement drawings, instrument location drawings and HVAC location drawings.

(3) Bechtel reviewed the environmental effects of the worst case postulated DBA and determined which locations at HCGS would be subjected to a harsh environment. Areas found not to be affected were designated as mild environment locations.

(4) Comparison of the areas identified as being subjected to a harsh environment to the list of safety related components developed in Item #2 resulted in the determination of which active safety related components required qualification for harsh environment. Safety related mechanical components which could be shown to have no age related failure mechanisms that could impair the components ability to perform its defined safety function were considered exempt from EQ requirements. Their qualified life was assumed to be equal to the stated service life. Passive safety related components were not included as they were assumed to fail "as is" and were determined not to require actuation to perform either short or long term monitoring or control functions.

(5) During the course of identifying the equipment which requires qualification, safety related equipment was identified which is both subject to a harsh environment and for which exception is taken with respect to qualification to that harsh environment. In these instances the equipment meets one or more of the following conditions:

- Equipment is required to perform its safety function to mitigate the effects of a specific DBA, but is not subjected to a harsh environment as a result of that DBA.

- Equipment performs its function before its exposure to the harsh environment, and the adequacy of the time margin provided is justified; subsequent failure of the equipment as a result of the harsh environment will not degrade other safety functions or mislead the operator.

- Equipment is exposed to environmental conditions during a DBA which do not require the equipment to operate and for which the equipment is not qualified to operate. In some cases, the equipment is protected by redundant, qualified isolation devices which are not subject to the same DBA environment. This design does not affect the concepts of

redundancy and diversity since the isolated equipment in these cases is permitted to fail with no resultant effect on the safety function. A list of the equipment which meets this EQ exemption criteria is attached as FSAR Table 3.11-6.

- The safety function can be accomplished by some other designated equipment that has been adequately qualified and satisfies the single-failure criterion.

Appropriate justification for the determination of one of the above categories is provided on an equipment-specific basis.

(6) All safety related devices which were determined to be required to operate during and/or following a DBA but which were located in a mild environmental area, were also determined.

(7) The above activities resulted in FSAR Tables 3.11-4 (mechanical) and 3.11-5 (electrical) which include all NSSS and non-NSSS components requiring qualification for a harsh environment. Table 3.11-5 is also inclusive of components required for post accident monitoring per Reg. Guide 1.97, Revision 2 (HCGS FSAR Section 1.8.1.97) and post TMI-2 action items. In accordance with the guidance contained in Appendix E of NUREG 0588, PSE&G performed a further analysis to determine the safety related function of each component listed on Table 3.11-5. This categorization included:

(a) Equipment that will experience the environmental conditions of design basis accidents for which it must function to mitigate said accidents, and that will be qualified to demonstrate operability in the accident environment for the time required for accident mitigation with safety margin to failure.

(b) Equipment that will experience environmental conditions of design basis accidents through which it need not function for mitigation of said accidents, but through which it must not fail in a manner detrimental to plant safety or accident mitigation, and that will be qualified to demonstrate the capability to withstand any accident environment for the time during which it must not fail with safety margin to failure.

(c) Equipment that will experience environmental conditions of design basis accidently but whose sole purpose is to supply supplemental information to the control room operator to monitor system/equipment operation.

The results of this review are included in the EQ summary sheets.

(8) Additional verification that a particular component listed in Tables 3.11-4 & 5 existed and that it was correctly identified as being safety related was performed by again re-reviewing relevant documentation such as the instrument index, P&ID's, loop diagrams, electrical drawings, FSAR sections, Systems Descriptions, the electrical device list, and other design documents.

C. Preventative Features

1. **ENVIRONMENTAL SEALING OF QUALIFIED DEVICES**

The design of wiring terminations at the environmentally qualified devices is based on the qualification program, test configurations, the specific manufacturer instructions, and the environmental conditions of the area where the devices are located. The guidelines for the design are summarized below:

a. Devices Located Inside the Containment

(i) Devices that are qualified without sealing fittings are installed in accordance with the manufacturer's instructions without any sealing fittings.

(ii) Suitable Conax sealing connectors are provided on devices that are qualified with sealing fittings and are in accordance with the manufacturer's instructions.

(iii) Suitable Conax sealing connectors are provided on devices that are qualified without exposing the internal parts to the DBE environmental conditions.

(iv) No sealing fittings will be used on terminal boxes with qualified cable splices (Raychem splices).

(v) Limitorque valve operators are installed with breather T-drain plugs and are in accordance with the manufacturer's instructions.

b. Devices Located in the Reactor Building And Steam Tunnel

(i) Devices that are qualified without sealing fittings are installed in accordance with the manufacturer's instructions without any sealing fittings.

(ii) Qualified Conax sealing fittings are provided on devices that are qualified with sealing fittings and are in accordance with the manufacturer's instructions.

(iii) In HELB areas and in the steam tunnel areas, the qualified Conax sealing fittings are provided on devices that are qualified without exposing the internal parts to the DBE environmental conditions.

(iv) Conax type PG sealing fittings are provided on devices located in the Reactor Building pump room areas, except those that are in the HELB areas covered under Item (b)(iii) above.

(v) Terminal boxes with low voltage/small signal (such as 4-48Vdc/4-20ma) wire terminations are sealed with qualified Conax sealing fittings. No sealing fittings are used on terminal boxes with qualified cable terminations of 120V and above or on those with qualified splices.

(vi) Limitorque valve operators are installed with breather T-drain plugs and are in accordance with the manufacturer's instructions.

2. **WATER SPRAY/JET IMPINGEMENT/SUBMERGENCE**

a. Class 1E components that are susceptible to water spray/submergence are identified and protected or electrically isolated from the Class 1E power supply, or qualified using a system evaluation for safe shutdown.

b. A hazards walkdown is to be performed in accordance with guidelines to identify Class 1E components that may be subjected to jet impingement. The components that may be susceptible to jet impingement are to be identified and protected or relocated, except for components that are not needed to mitigate the event and can be rendered inoperative without degrading any other safety related systems that may be required to mitigate the accident.

D. System Component Listing

The listing of safety related components in the harsh environment requiring environmental qualification are shown in the attached tables:

Table 3.11-4	Mechanical Components
Table 3.11-5	Electrical Components

The listing of safety related components in the harsh environment for which environmental qualification is taken exception to is included in attached Table 3.11-6.

FSAR TABLE 3.11-4

P.O. # M001 Component: Safety Relief Valves (B21-F013) Manufacturer: Target Rock Corp.

I.D. No.	Model No.	Functional Description (Typical for all Valves on this Sheet)	Location
1SN PSV F013A	7567F Gen'l. Config. (7567F-010-10)	Dual function safety and relief valves: self actuating at the spring safety set pressure (safety mode) and permit remote manual or automatic relief opening at pressure below the set point with the electro-pneumatic actuator. Safety Functions: To open to its ASME rated capacity position, as a minimum, and permit depressurization of the reactor pressure vessel to provide: 1. Operation of the valve at a vessel pressure at or above the valve's (inlet pressure) spring safety set point (safety mode) to provide overpressure protection. 2. A manual means of relieving steam generated by core decay heat to the suppression pool in the event that the main condenser is not available as a heat sink after reactor shutdown and until the RHR steam condensing mode of operation is initiated (relief mode). 3. Automatic depressurization (ADS) of the reactor pressure vessel under an assumed loss-of-coolant condition (relief mode). 4. An alternate means to cool and shutdown the reactor by passing water from the reactor to the suppression pool in the unlikely event that the RHR shutdown suction line is not available to transmit water from the reactor to the RHR heat exchanger while the RHR/LPCI pumps are injecting water into the reactor (relief mode).	Reactor Bldg. EL 121'
1SN PSV F013B	7567F Gen'l. Config. (7567F-010-10)		Reactor Bldg. EL 121'
1SN PSV F013C	7567F Gen'l. Config. (7567F-010-10)		Reactor Bldg. EL 121'
1SN PSV F013D	7567F Gen'l. Config. (7567F-010-10)		Reactor Bldg. EL 121'
1SN PSV F013E	7567F Gen'l. Config. (7567F-010-10)		Reactor Bldg. EL 121'
1AB PSV F013F	7567F Gen'l. Config. (7567F-010-10)		Reactor Bldg. EL 121'
1AB PSV F013G	7567F Gen'l. Config. (7567F-010-10)		Reactor Bldg. EL 121'
1AB PSV F013H	7567F Gen'l. Config. (7567F-010-10)		Reactor Bldg. EL 121'
1AB PSV F013J	7567F Gen'l. Config. (7567F-010-10)		Reactor Bldg. EL 121'
1AB PSV F013K	7567F Gen'l. Config. (7567F-010-10)		Reactor Bldg. EL 121'
1AB PSV F013L	7567F Gen'l. Config. (7567F-010-10)		Reactor Bldg. EL 121'
1AB PSV F013M	7567F Gen'l. Config. (7667F-010-10)		Reactor Bldg. EL 121'
1AB PSV F013P	7567F Gen'l. Config. (7567F-010-10)		Reactor Bldg. EL 121'
1AB PSV F013R	7567F Gen'l. Config. (7567F-010-10)		Reactor Bldg. EL 121'

TABLE 3.11-4

MECHANICAL EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P.O. # M001 Component: Main Steam Isolation Valves (B21-F022/F028) Manufacturer: Atwood & Morrill Co.

I.D. No.	Model No.	Functional Description	Location
1AB HV F022A	21362H	Inboard: (Typical) (of 4) To remain open throughout the normal plant operation. In case of small line break accident, the operator may keep the MSIV's open to utilize the main condenser. In case of a DBE, the MSIV's will be closed within the first hour of the accident and maintained in the closed position throughout the post-accident period. The MSIV's are to limit the leakage through the valve seat. The MSIV's are equipped with limit switches to provide safety signals to the reactor protection system.	Reactor Bldg. EL 102'
1AB HV F022B	21362H		Reactor Bldg. EL 102'
1AB HV F022C	21362H		Reactor Bldg. EL 102'
1AB HV F022D	21362H		Reactor Bldg. EL 102'
1AB HV F028A	21362H	Outboard: (Typical) (of 4) To remain open throughout the normal plant operation. In case of small line break accident, the operator may keep the MSIV's open to utilize the main condenser. In case of a DBE, the MSIV's will be closed within the first hour of the accident and maintained in the closed position throughout the post-accident period. The MSIV's are to limit the leakage through the valve seat. The MSIV's are equipped with limit switches to provide safety signals to the reactor protection system.	Reactor Bldg. EL 102'
1AB HV F028B	21362H		Reactor Bldg. EL 102'
1AB HV F028C	21362H		Reactor Bldg. EL 102'
1AB HV F028D	21362H		Reactor Bldg. EL 102'

P.O. # M001 Component: Recirculation Pumps (B31-C001) Manufacturer: Byron Jackson Pump Co.

I.D. No.	Model No.	Functional Description	Location
1BB AP 201	28X28X35EVSS	To provide flow to the jet pump which provides forced coolant flow through the Reactor Core.	Reactor Bldg. EL 077' (Drywell)
1BB BP 201	28X28X35EVSS		Reactor Bldg. EL 077' (Drywell)

TABLE 3.11-4

MECHANICAL EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P.O. # M001 Component: Recirculation System Valves (B31-F023/F031 Manufacturer: Lunkenheimer

I.D. No.	Model No.	Functional Description	Location
1BB HV F023A	D-12925	Suction: *	Reactor Bldg. EL 077'
1BB HV F023B	D-12925	Suction: *	Reactor Bldg. EL 077'
1BB HV F031A	D-12926	Discharge: *	Reactor Bldg. EL 100'
1BB HV F031B	D-12926	Discharge: *	Reactor Bldg. EL 100'

*The recirculation block valves stay opened throughout the normal plant operation. They are closed only for recirculation pump maintenance. After a confirmed ATWS, it is desirable that one of the block valves stay operable. The valve will be closed to route the shutdown cooling water to the jet pump inlet, but this is not a safety function. These valves have no active safety function they shall maintain pressure integrity of the reactor coolant boundary.

P.O. # M001 Component: CRD Hydraulic Control Units C11-D001 Manufacturer: General Electric Co.

I.D. No.	Model No.	Functional Description	Location
1BF OU 202 (Typical for 185) (Units.) (Each HCU is identified by the appropriate control rod, which has been assigned a coordinate number that defines the location of the rod within the core. All coordinate numbers consist of four digits: Two for row and two for column. Rows are assigned odd numbers and columns assigned even numbers)	761E500G007	Modular assembly of Control Rod Drive directional Control Valve, Scram Valve, and accumulator.	Reactor Bldg. EL 102'

TABLE 3.11-4

MECHANICAL EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P.O. # M001 Component: CRD Vent Valves and Drain Valves C11-F010/F180/F011/F/181 Manufacturer: Hammel Dehl

I.D. No.	Model No.	Functional Description	Location
1 BF HV F010	522FRR62HAZ9	Inboard: *	Reactor Bldg. EL 102'
1 BF HV F180	522FRR62HAZ9	Outboard: *	Reactor Bldg. EL 102'
1 BF HV F011	522JRR62HAZ9	Inboard: *	Reactor Bldg. EL 102'
1 BF HV F181	522JRR62HAZ9	Outboard: *	Reactor Bldg. EL 077'

*Air operated globe valves utilized to facilitate proper venting and draining of the SDV header, except during scram when the valves are closed to conserve reactor water.

The valves are required to operate and isolate the SDV vent and drain lines within 12 hours after a small break accident (SBA) occurs and remain closed for the post accident duration. After a LOCA, the valves may be delayed up to 40 seconds prior to required operation.

TABLE 3.11-4
MECHANICAL EQUIPMENT SELECTED FOR HARSH
ENVIRONMENT QUALIFICATION

P.O. # M001 Component: Standby Liquid Control Pumps (C41-C001) Manufacturer: Union Pump Co.

I.D. No.	Model No.	Functional Description	Location
1 BH AP 208	2X3,TD-60 Triplex	To pump a neutron absorber solution (sodium pentaborate) from the system storage tank into the reactor vessel. Provides all independent backup capability to shutdown the reactor and keep it subcritical as it cools.	Reactor Bldg. EL 162'
1 BH BP 208	2X3,TD-60 Triplex		Reactor Bldg. EL 162'

TABLE 3.11-4

MECHANICAL EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P.O. # M001 Component: RHR Heat Exchanger (E11-B001) Manufacturer: Delta Southern Co.

I.D. No.	Model No.	Functional Description	Location
1 BC AE 205	ΔEU	The functions of the RHR Heat Exchanger, depending on operating mode are:	Reactor Bldg. EL 054'
1 BC BE 205	ΔEU	1. Provides containment cooling during containment spray. 2. Fuel Pool cooling. 3. Suppression pool cooling. 4. Condensation of reactor vessel steam produced by reactor decay heat while the reactor is on hot standby. 5. Reactor water cooling during reactor shutdown. Safety Functions Containment cooling during containment spray and pool cooling operations.	Reactor Bldg. EL 054'

TABLE 3.11-4
MECHANICAL EQUIPMENT SELECTED FOR HARSH
ENVIRONMENT QUALIFICATION

P.O. # M001 Component: RHR Pumps(E11-C002 A, B, C, D) Manufacturer: Ingersoll Rand

I.D. No.	Model No.	Functional Description	Location
1 BC AP 202	34APKD	Provide emergency cooling to the reactor core.	Reactor Bldg. EL 054'
1 BC BP 202	34APKD	Provide emergency cooling to the reactor core.	Reactor Bldg. EL 054'
1 BC CP 202	34APKD	Provide emergency cooling to the reactor core.	Reactor Bldg. EL 054'
1 BC DP 202	34APKD	Provide emergency cooling to the reactor core.	Reactor Bldg. EL 054'

TABLE 3.11-4
MECHANICAL EQUIPMENT SELECTED FOR HARSH
ENVIRONMENT QUALIFICATION

P.O. # M001 Component: RHR (LPCI) Check Valves (Testable) (E11-F041/F050 Manufacturer: Atwood & Morrill Co.

I.D. No.	Model No.	Functional Description (Typical for All Components on this Sheet)	Location
1 BC HV F050A	(14053-01-H)*	To prevent backflow of reactor water in event of a pipe rupture upstream of valve. The solenoid-controlled air cylinder is used as a positive means of opening the valve at zero pressure differential, but is not capable of closing the valve or holding the valve open against reverse flow. The actuator and related linkages and components are designed to preclude any damage as a result of applying maximum pneumatic pressure to the actuator in the opening or closing direction while the valve disc is positioned by system fluid forces.	Reactor Bldg. EL 100'
1 BC HV F050B	(14053-01-H)*		Reactor Bldg. EL 100'
1 BC HV F041A	(14053-01-H)*		Reactor Bldg. EL 100'
1 BC HV F041B	(14053-01-H)*		Reactor Bldg. EL 100'
1 BC HV F041C	(14053-01-H)*		Reactor Bldg. EL 100'
1 BC HV F041D	(14053-01-H)*		Reactor Bldg. EL 100'

*Drawing No.

P.O. # M001 Component: LPCS Check Valves (Testable) (E21-F006) Manufacter: Atwood & Morrill Co.

I.D. No.	Model No.	Functional Description	Location
1 BE HV F006A 1 BE HV F006B	(Drawing 14053-01-H) (Drawing 14053-01-H)	To prevent backflow of reactor water in event of pipe rupture upstream of valve. The solenoid-controlled air cylinder is used as a positive means of opening the valve at zero pressure differential, but is not capable of closing the valve or holding the valve open against reverse flow. The actuator and related linkages and components are designed to preclude any damage as a result of applying maximum pneumatic pressure to the actuator in the opening or closing direction while the valve disc is positioned by system fluid forces.	Reactor Bldg. EL 100'

TABLE 3.11-4
MECHANICAL EQUIPMENT SELECTED FOR HARSH
ENVIRONMENT QUALIFICATION

P.O. # M001 Component: LPCS Core Spray Pumps (E21-C001) Manufacturer: Ingersoll Rand

I.D. No.	Model No.	Functional Description (Typical for all components on this Sheet)	Location
1 BE AP 206	25APKD	Provide emergency cooling flow to the reactor core. Provide makeup water in the event of a loss of reactor coolant in order to prevent fuel damage should the core become uncovered. The pumps operate only when the reactor is depressurized.	Reactor Bldg. EL 054'
1 BE BP 206	25APKD		Reactor Bldg. EL 054'
1 BE CP 206	25APKD		Reactor Bldg. EL 054'
1 BE DP 206	25APKD		Reactor Bldg. EL 054'

TABLE 3.11-4
MECHANICAL EQUIPMENT SELECTED FOR HARSH
ENVIRONMENT QUALIFICATION

P.O. # M001 Component: HPCI Pump Assembly (E41-C001) Manufacturer: *Byron Jackson Co.

I.D. No.	Model No.	Functional Description	Location
1 BJ OP 217	12X14X23DVS	Booster Pump: *	Reactor Bldg. EL 054'
1 BJ OP 204	10X12X15DVS, 2STG MVMX	Main Pump: *	Reactor Bldg. EL 054'

*To supply demineralized make-up from the condensate storage tank or suppression pool water to the reactor vessel, to provide that adequate core cooling takes place to avoid overheating of the reactor fuel, in the event of, a loss-of-coolant accident (LOCA), an Anticipated Transient Without Scram (ATWS), or reactor isolation and failure of the Reactor Core Isolation Cooling (RCIC) system.

TABLE 3.11-4

MECHANICAL EQUIPMENT SELECTED FOR HAPSH ENVIRONMENT QUALIFICATION

P.O. # M001 Component: RCIC Pump (E51-C001) Manufacturer: Bingham Willamatte Pump Co.

I.D. No.	Model No.	Functional Description	Location
1 BD OP203	6X6X10-1/2CP	The RCIC pump is directly connected to the RCIC turbine driver and supplies water to the reactor vessel during isolation conditions accomplished with the loss of normal feedwater.	Reactor Bldg. EL 054'

TABLE 3.11-4
MECHANICAL EQUIPMENT SELECTED FOR HARSH
ENVIRONMENT QUALIFICATION

P.O. # M001 Component: TIP Valve, Guide Tube Assembly (C51-J004) Manufacturer: Consolidation Controls Corp.

I.D. No.	Model No.	Functional Description	Location
1 SE XV J004B1	136B1302G002	A squibb fired isolation valve for the tube containing the in-core monitoring calibration detector.	Reactor Bldg. EL 102'
1 SE XV J004B2	136B1302G002	A squibb fired isolation valve for the tube containing the in-core monitoring calibration detector.	Reactor Bldg. EL 102'
1 SE XV J004B3	136B1302G002	A squibb fired isolation valve for the tube containing the in-core monitoring calibration detector.	Reactor Bldg. EL 102'
1 SE XV J004B4	136B1302G002	A squibb fired isolation valve for the tube containing the in-core monitoring calibration detector.	Reactor Bldg. EL 102'
1 SE XV J004B5	136B1302G002	A squibb fired isolation valve for the tube containing the in-core monitoring calibration detector.	Reactor Bldg. EL 102'

TABLE 3.11-4
MECHANICAL EQUIPMENT SELECTED FOR HARSH
ENVIRONMENT QUALIFICATION

P.O. # M001 Component: Reactor Core Isolation Cooling Turbine Assembly E51-C002 Manufacturer: Terry Corporation

I.D. No.	Model No.	Functional Description	Location
1 FC 0S212	GS-2	Provides the motive power for driving the RCIC pump.	Reactor Bldg. EL 054'

P.O. # M070(Q) Component: Pumps, SACS

Manufacturer: Ingersoll Rand

SHEET 1 of 1

I.D. No.	Model No.	Functional Description	Location
1 EG AP 210	14X23S (volute)	To provide flow for safety auxiliaries cooling (closed loop) system.	Reactor Bldg. EL 102'
1 EG BP 210	14X23S (volute)	To provide flow for safety auxiliaries cooling (closed loop) system.	Reactor Bldg. EL 102'
1 EG CP 210	14X23S (volute)	To provide flow for safety auxiliaries cooling (closed loop) system.	Reactor Bldg. EL 102'
1 EG DP 210	14X23S (volute)	To provide flow for safety auxiliaries cooling (closed loop) system.	Reactor Bldg. EL 102'

P.O. # M082(Q) Component: Horizontal Centrifugal Pumps Manufacturer: Hayward Tyler

SHEET 1 of 1

I.D. No.	Model No.	Functional Description	Location
1 EC AP 211	4X6X10 NHSH	Fuel Pool Cooling Pump	Reactor Bldg. EL 162
1 EC BP 211	4X6X10 NHSH	Fuel Pool Cooling Pump	Reactor Bldg. EL 162'

P.O. # M141(Q) Component: Nuclear Relief Valves Manufacturer: Crosby Valve & Gage Company

SHEET 1 of 9

I.D. No.	Model No.	Functional Description	Location
1 AB PSV F037A	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV F037B	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV F037C	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV F037D	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV F037E	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV F037F	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV F037G	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV F037H	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV F037J	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV F037K	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV F037L	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV F037M	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV F037P	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV F037R	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'

P.O. # M141(Q) Component: Nuclear Relief Valves Manufacturer: Crosby Valve & Gage Company SHEET 2 of 9

I.D. No.	Model No.	Functional Description	Location
1 AB PSV 4500A	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV 4500B	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV 4500C	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV 4500D	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV 4500E	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV 4500F	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV 4500G	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV 4500H	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV 4500J	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV 4500K	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV 4500L	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV 4500M	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV 4500P	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'
1 AB PSV 4500R	Style: VR	Vacuum Relief - Discharge Line Vacuum Breaker	Drywell Torus, Reactor Bldg. EL 102'

P.O. # M141(Q) Component: Nuclear Relief Valves Manufacturer: Crosby Valve & Gage Company SHEET 3 of 9

I.D. No.	Model No.	Functional Description	Location
1 FD PSV F076	Style: VR	HPCI Vacuum Breaker Line	Reactor Bldg. EL 077'
1 FD PSV F077	Style: VR	HPCI Vacuum Breaker Line	Reactor Bldg. EL 077'
1 FC PSV F063	Style: VR	RICCI Turbine Exhaust Valve	Reactor Bldg. EL 077'
1 FC PSV F064	Style: VR	RICCI Turbine Exhaust Valve	Reactor Bldg. EL 077'
1 BC PSV F151A	Style: VR	Siphon Breaker - HX A to Torus	Reactor Bldg. EL 054'
1 BC PSV F151B	Style: VR	Siphon Breaker - HX B to Torus	Reactor Bldg. EL 054'
1 BC PSV F152A	Style: VR	Siphon Breaker - HX A to Torus	Reactor Bldg. EL 054'
1 BC PSV F152B	Style: VR	Siphon Breaker - HX B to Torus	Reactor Bldg. EL 054'
1 BC PSV F055A	Style: JB-56-TD	RHR Heat Exchanger A Inlet	Reactor Bldg. EL 077'
1 BC PSV F055B	Style: JB-56-TD	RHR Heat Exchanger B Inlet	Reactor Bldg. EL 077'
1 BF PSV 4003	Style: VR	Disch. Vol. Vent'n (Vac. Bkr.)	Reactor Bldg. El. 102'
1 KP PSV 5832A	Style: JMBU	MSIV Inboard Seal Gas Supply	Reactor Bldg. EL 102'
1 KP PSV 5832B	Style: JMBU	MSIV Outboard Seal Gas Supply	Reactor Bldg. EL 102'

P.O. # M141(Q) Component: Nuclear Relief Valves Manufacturer: Crosby Valve & Gage Company SHEET 4 of 9

I.D. No.	Model No.	Functional Description	Location
1 AB PSV 4504A	JO-25-SPL +	SRV PSV F013A Acc. Relief Valve	Drywell Torus, Reactor Bldg. El. 121'
1 AB PSV 4504B	JO-25-SPL +	SRV PSV F013B Acc. Relief Valve	Drywell Torus, Reactor Bldg. El. 121'
1 AB PSV 4504C	JO-25-SPL +	SRV PSV F013C Acc. Relief Valve	Drywell Torus, Reactor Bldg. El. 121'
1 AB PSV 4504D	JO-25-SPL +	SRV PSV F013D Acc. Relief Valve	Drywell Torus, Reactor Bldg. El. 121'
1 AB PSV 4504E	JO-25-SPL +	SRV PSV F013E Acc. Relief Valve	Drywell Torus, Reactor Bldg. El. 121'
1 AB PSV 4504F	JO-25-SPL +	SRV PSV F013F Acc. Relief Valve	Drywell Torus, Reactor Bldg. El. 121'
1 AB PSV 4504G	JO-25-SPL +	SRV PSV F013G Acc. Relief Valve	Drywell Torus, Reactor Bldg. El. 121'
1 AB PSV 4504H	JO-25-SPL +	SRV PSV F013H Acc. Relief Valve	Drywell Torus, Reactor Bldg. El. 121'
1 AB PSV 4504J	JO-25-SPL +	SRV PSV F013J Acc. Relief Valve	Drywell Torus, Reactor Bldg. El. 121'
1 AB PSV 4504K	JO-25-SPL +	SRV PSV F013K Acc. Relief Valve	Drywell Torus, Reactor Bldg. El. 121'
1 AB PSV 4504L	JO-25-SPL +	SRV PSV F013L Acc. Relief Valve	Drywell Torus, Reactor Bldg. El. 121'
1 AB PSV 4504M	JO-25-SPL +	SRV PSV F013M Acc. Relief Valve	Drywell Torus, Reactor Bldg. El. 121'
1 AB PSV 4504P	JO-25-SPL +	SRV PSV F013P Acc. Relief Valve	Drywell Torus, Reactor Bldg. El. 121'

+ Model No. shown is generic identifier only.
The unique valve data sheet should be checked
for supplemental parameters and characteristics.

P.O. # M141(Q) Component: Nuclear Relief Valves Manufacturer: Crosby Valve & Gage Company SHEET 5 of 9

I.D. No.	Model No.	Functional Description	Location
1 AB PSV 4504R	JO-25-SPL +	SRV PSV F013R Acc. Relief Valve	Drywell Torus, Reactor Bldg. El. 121'
1 AB PSV 4505A	JO-25-SPL +	MSIV HV-F022A Acc. Relief Valve	Drywell Torus, Reactor Bldg. El. 102'
1 AB PSV 4505B	JO-25-SPL +	MSIV HV-F022B Acc. Relief Valve	Drywell Torus, Reactor Bldg. El. 102'
1 AB PSV 4505C	JO-25-SPL +	MSIV HV-F022C Acc. Relief Valve	Drywell Torus, Reactor Bldg. El. 102'
1 AB PSV 4505D	JO-25-SPL +	MSIV HV-F022D Acc. Relief Valve	Drywell Torus, Reactor Bldg. El. 102'
1 AB PSV 4506A	JO-25-SPL +	MSIV HV-F028A Acc. Relief Valve	Reactor Bldg. El. 102'
1 AB PSV 4506B	JO-25-SPL +	MSIV HV-F028B Acc. Relief Valve	Reactor Bldg. El. 102'
1 AB PSV 4506C	JO-25-SPL +	MSIV HV-F028C Acc. Relief Valve	Reactor Bldg. El. 102'
1 AB PSV 4506D	JO-25-SPL +	MSIV HV-F028D Acc. Relief Valve	Reactor Bldg. El. 102'
1 EG PSV 6220A	JO-35-SPL +	RHR HX AE205 Outlet	Reactor Bldg. El. 054'
1 EG PSV 6220B	JO-35-SPL +	RHR HX BE205 Outlet	Reactor Bldg. El. 054'
1 GS PSV 4986A1	JO-25-SPL +	H_2/O_2 Analyzer Bottles	Reactor Bldg. El. 162'

+ Model No. shown is generic identifier only. The unique valve data sheet should be checked for supplemental parameters and characteristics.

P.O. # M141(Q) Component: Nuclear Relief Valves Manufacturer: Crosby Valve & Gage Company SHEET 6 of 9

I.D. No.	Model No.	Functional Description	Location
1 GS PSV 4986A2	JO-25-SPL +	100% Oxygen Relief Valve	Reactor Bldg. El. 162'
1 GS PSV 4986A3	JO-25-SPL +	5% Oxygen Relief Valve	Reactor Bldg. El. 162'
1 GS PSV 4986B1	JO-25-SPL +	5% Oxygen Relief Valve	Reactor Bldg. El. 162'
1 GS PSV 4986B2	JO-25-SPL +	H_2/O_2 Analyzer Bottles	Reactor Bldg. El. 162'
1 GS PSV 4986B3	JO-25-SPL +	5% Oxygen Relief Valve	Reactor Bldg. El. 162'
1 GS PSV 5745A1	JO-25-SPL +	100% Hydrogen Relief Valve	Reactor Bldg. El. 132'
1 GS PSV 5745B1	JO-25-SPL +	100% Hydrogen Relief Valve	Reactor Bldg. El. 132'
1 GS PSV 6292A	JO-25-SPL +	Contn'm't Atm. Vlv. Opr. Acuum. A	Reactor Bldg. El. 077'
1 GS PSV 6292B	JO-25-SPL +	Contn'm't Atm. Vlv. Opr. Acuum. B	Reacator Bldg. El. 077'
1 BH PSV F029A	D2-JO-55-9-WR-S-SP	SLC Pump A Disch.	Reactor Bldg. El. 162'
1 BH PSV F029B	D2-JO-55-9-WR-S-SP	SLC Pump B Disch.	Reactor Bldg. El. 162'
1 BD PSV F017	JMB-WR-TYPE B	RCIC Pump Suction Hdr.	Reactor Bldg. El. 054'

+ Model No. shown is generic identifier only.
The unique valve data sheet should be checked for supplemental parameters and characteristics.

M P85 8/04 24-cag

P.O. # M141(Q) Component: Nuclear Relief Valves Manufacturer: Crosby Valve & Gage Company SHEET 7 of 9

I.D. No.	Model No.	Functional Description	Location
1 FC PSV F018	JMB-WR-TYPE B	RCIC Clg Water Supply Hdr	Reactor Bldg. El. 054'
1 BC PSV F030A	JMB-WR-TYPE B	RHR Pump A Suppr Pool Suction	Reactor Bldg. El. 054'
1 BC PSV F030B	JMB-WR-TYPE B	RHR Pump B Suppr Pool Suction	Reactor Bldg. El. 054'
1 BC PSV F030C	JMB-WR-TYPE B	RHR Pump C Suppr Pool Suction	Reactor Bldg. El. 054'
1 BC PSV F030D	JMB-WR-TYPE B	RHR Pump D Suppr Pool Suction	Reactor Bldg. El. 054'
1 BC PSV F029	JMB-WR-TYPE B	RHR Pump Suction Shutdn Clg	Reactor Bldg. El. 054'
1 BC PSV F025A	JMB-WR-TYPE B	LPCI Injection Line A	Reactor Bldg. El. 077'
1 BC PSV F025B	JMB-WR-TYPE B	RHR LPCI Injection Line B	Reactor Bldg. El. 077'
1 BC PSV F025C	JMB-WR-TYPE B	LPCI Injection Line C	Reactor Bldg. El. 077'
1 BC PSV F025D	JMB-WR-TYPE B	RHR LPCI Injection Line D	Reactor Bldg. El. 077'
1 BE PSV F032A	JMB-WR-TYPE B	CS Pmp AP206 Suction Relief	Reactor Bldg. El. 054'
1 BE PSV F032B	JMB-WR-TYPE B	CS Pmp BP206 Suction Relief	Reactor Bldg. El. 054'

P.O. # M141(Q) Component: Nuclear Relief Valves Manufacturer: Crosby Valve & Gage Company SHEET 8 of 9

I.D. No.	Model No.	Functional Description	Location
1 BE PSV F032C	JMB-WR-TYPE B	CS Pmp CP206 Suction Relief	Reactor Bldg. El. 054'
1 BE PSV F032D	JMB-WR-TYPE B	CS Pmp DP206 Suction Relief	Reactor Bldg. El. 054'
1 BE PSV F012A	F2-JO-35-WR	Core Spray Loop A Relief Valve	Reactor Bldg. El. 054'
1 BE PSV F012B	F2-JO-35-WR	Core Spray Loop B Relief Valve	Reactor Bldg. El. 054'
1 BJ PSV F020	JMB-WR-TYPE B	HPCI Pump Suction Hdr Relief	Reactor Bldg. El. 054'
1 FD PSV F050	JMB-WR-TYPE B	HPCI Clg. Water Supply Hdr.	Reactor Bldg. El. 054'
1 BD PSV F097	4P-6JO-25-3-WR-SPL	RHR Loops to RCIC	Reactor Bldg. El. 054'
1 PSV 2526A	JMB-WR-TYPE B	Spare	
1 PSV 2526B	JMB-WR-TYPE B	Spare	
1 EG PSV 2530A	JMB-WR-TYPE B	Fuel Pool HX AE202	Reactor Bldg. El. 162'
1 EG PSV 2530B	JMB-WR-TYPE B	Fuel Pool HX BE202	Reactor Bldg. El. 162'
1 EC PSV 4674A	JMB-WR-TYPE B	Fuel Pool HX AE202	Reactor Bldg. El. 162'

P.O. # M141(Q) Component: Nuclear Relief Valves Manufacturer: Crosby Valve & Gage Company SHEET 9 of 9

I.D. No.	Model No.	Functional Description	Location
1 EC PSV 4674B	JMB-WR-TYPE B	Fuel Pool HX BE202	Reactor Bldg. El. 162'
1 BG PSV F036	3K4-JO-25-WR	RWCU Disch to Equip Drain	Reactor Bldg. El. 077'
1 BC PSV 4425	JMB-TYPE B	React Recirc to RHR Sys	Reactor Bldg. El. 102'
1 GB PSV 9522A	JRAK-BS	Ch Wtr Loop A Supply	Drywell Torus, Reactor Bldg. El. 102'
1 GB PSV 9522B	JRAK-BS	Ch Wtr Loop B Supply	Drywell Torus, Reactor Bldg. El. 102'
1 GB PSV 9523A	JRAK-BS	Ch Wtr Loop A Rtn	Drywell Torus, Reactor Bldg. El. 102'
1 GB PSV 9523B	JRAK-BS	Ch Wtr Loop B Rtn	Drywell Torus, Reactor Bldg. El. 102'
1 FD PSV F018	G2-1/2-JO-25-WR	Glnd Seal Cond Relief	Reactor Bldg. El. 054'
1 FC PSV F033	G2-1/2-JO-25-WR	RCIC Gland Seal Cond Vac Tank	Reactor Bldg. El. 054'

TABLE 3.11-4
MECHANICAL EQUIPMENT SELECTED FOR HARSH
ENVIRONMENT QUALIFICATION

P.O. # M150(Q)^ Component: Vacuum Relief Valves Manufacturer: GPE Controls (Div. Vapor Corp.) SHEET 1 of 1

I.D. No.	Model No.	Functional Description	Location
1 GS PSV 4946A*	LD240-447 Rev. B	Suppression Chamber Vacuum Breaker	Reactor Bldg. EL 054'
1 GS PSV 4946B*	LD240-447 Rev. B	Suppression Chamber Vacuum Breaker	Reactor Bldg. EL 054'
1 GS PSV 4946C*	LD240-447 Rev. B	Suppression Chamber Vacuum Breaker	Reactor Bldg. EL 054'
1 GS PSV 4946D*	LD240-447 Rev. B	Suppression Chamber Vacuum Breaker	Reactor Bldg. EL 054'
1 GS PSV 4946E*	LD240-447 Rev. B	Suppression Chamber Vacuum Breaker	Reactor Bldg. EL 054'
1 GS PSV 4946F*	LD240-447 Rev. B	Suppression Chamber Vacuum Breaker	Reactor Bldg. EL 054'
1 GS PSV 4946G*	LD240-447 Rev. B	Suppression Chamber Vacuum Breaker	Reactor Bldg. EL 054'
1 GS PSV 4946H*	LD240-447 Rev. B	Suppression Chamber Vacuum Breaker	Reactor Bldg. EL 054'
1 GS PSV 5030	LD240-383	Reactor Bldg. Vacuum	Reactor Bldg. EL 077'
1 GS PSV 5032	LD240-383	Reactor Bldg. Vacuum	Reactor Bldg. EL 077'

*NOTE: These valves, purchased under P.O. No. 150(Q), were modified by vendor under P.O. No. 150A(Q).

P.O. # M713(Q) Component: Fans, Centrifugal Manufacturer: Buffalo Forge Company

SHEET 1 of 2

I.D. No.	Model No.	Functional Description	Location
1 GU AV 206	840 BL	Filtration, Recirculation & Vent Fan	Reactor Bldg. EL 145'
1 GU BV 206	840 BL	Filtration, Recirculation & Vent Fan	Reactor Bldg. EL 145'
1 GU AV 213	805 BL	FRVS, Recirculation Fan	Reactor Bldg. EL 132'
1 GU BV 213	805 BL	FRVS, Recirculation Fan	Reactor Bldg. EL 178'
1 GU CV 213	805 BL	FRVS, Recirculation Fan	Reactor Bldg. EL 132'
1 GU DV 213	805 BL	FRVS, Recirculation Fan	Reactor Bldg. EL 162'

P.O. # M713(Q) Component: Fans, Centrifugal Manufacturer: Buffalo Forge Company

SHEET 2 of 2

I.D. No.	Model No.	Functional Description	Location
1 GU EV 213	805 BL	FRVS, Recirculation Fan	Reactor Bldg. EL 162'
1 GU FV 213	805 BL	FRVS, Recirculation Fan	Reactor Bldg. EL 178'

P.O. # J601(Q) Component: Control Valves Manufacturer: Masoneilon Div. (McGraw Edison) SHEET 1 of 1

I.D. No.	Model No.	Functional Description	Location
1 BC LV F053A	38 20721	RHR HX A To RCIC	Reactor Bldg. EL 054'
1 BC LV F053B	38 20721	RHR HX B Disch. to Sup PL/RCIC	Reactor Bldg. EL 054'
1 EC LV 4660	38 20771	Skimmer Surge TK B Make-Up SPL	Reactor Bldg. EL 162'
1 FC LV F005	38 20771	RCIC Vacuum TK To Clean Rad. Waste	Reactor Bldg. EL 054'
1 FD LV F025	38 20771	Vac TK Cond. PMP Disch to CRW	Reactor Bldg. EL 054'
1 BC PV F051A	38 40512	HPCI STM Press Reducing	Reactor Bldg. EL 077'
1 BC PV F051B	38 40512	HPCI to RHR Heat Exch B	Reactor Bldg. EL 077'

P.O. # J605(Q) Component: Control Valves Manufacturer: Fisher Controls Corp. (Controls Ass.) SHEET 1 of 1

I.D. No.	Model No.	Functional Description	Location
1 EG V804	7670	SACS Heat Exchanger Butterfly Valve	Reactor Bldg. EL 103'
1 EG V805	7670	SACS Heat Exchanger Butterfly Valve	Reactor Bldg. EL 113'
1 EG V806	7670	SACS Heat Exchanger Butterfly Valve	Reactor Bldg. EL 103'
1 EG V807	7670	SACS Heat Exchanger Butterfly Valve	Reactor Bldg. EL 113'
1 BC HV F048A	7620	RHR Butterfly Control Valve	Reactor Bldg. EL 077'
1 BC HV F048B	7620	RHR Butterfly Control Valve	Reactor Bldg. EL 077'
1 EG TV 2517A	7620	SACS Heat Exchanger Butterfly Bypass Valve	Reactor Bldg. EL 102'
1 EG TV 2517B	7620	SACS Heat Exchanger Butterfly Bypass Valve	Reactor Bldg. EL 102'

P.O. # J703(Q) Component: Excess Flow Check Valves Manufacturer: Dragon Valve Inc.

SHEET 1 of 15

I.D. No.	Model No.	Functional Description	Location
1ABFO 3666A	12696-7L	MS Line A Instrument Line	Drywell Torus, Reactor Bldg. EL 112'
1ABFO 3666B	12696-7L	MS Line B Instrument Line	Drywell Torus, Reactor Bldg. EL 100'
1ABFO 3666C	12696-7L	MS Line C Instrument Line	Drywell Torus, Reactor Bldg. EL 100'
1ABFO 3666D	12696-7L	MS Line D Instrument Line	Drywell Torus, Reactor Bldg. EL 112'
1ABFO 3667A	12696-7L	MS Line A Instrument Line	Drywell Torus, Reactor Bldg. EL 112'
1ABFO 3667B	12696-7L	MS Line B Instrument Line	Drywell Torus, Reactor Bldg. EL 100'
1ABFO 3667C	12696-7L	MS Line C Instrument Line	Drywell Torus, Reactor Bldg. EL 100'
1ABFO 3667D	12696-7L	MS Line D Instrument Line	Drywell Torus, Reactor Bldg. EL 100'
1ABFO 3668A	12696-7L	MS Line A Instrument Line	Drywell Torus, Reactor Bldg. EL 112'
1ABFO 3668B	12696-7L	MS Line B Instrument Line	Drywell Torus, Reactor Bldg. EL 112'
1ABFO 3668C	12696-7L	MS Line C Instrument Line	Drywell Torus, Reactor Bldg. EL 100'
1ABFO 3668D	12696-7L	MS Line D Instrument Line	Drywell Torus, Reactor Bldg. EL 100'
1ABFO 3669A	12696-7L	MS Line A Instrument Line	Drywell Torus, Reactor Bldg. EL 112'
1ABFO 3669B	12696-7L	MS Line B Instrument Line	Drywell Torus, Reactor Bldg. EL 112'

P.O. # J703(Q) Component: Excess Flow Check Valves Manufacturer: Dragon Valve Inc.

SHEET 2 of 15

I.D. No.	Model No.	Functional Description	Location
1ABFO 3669C	12696-7L	MS Line C Instrument Line	Drywell Torus, Reactor Bldg. EL 100'
1ABFO 3669D	12696-7L	MS Line D Instrument Line	Drywell Torus, Reactor Bldg. EL 112'
1ABXV 3666A	12504-4	Main Steam Line A Excess Flow	Reactor Bldg. EL 077'
1ABXV 3666B	12504-4	Main Steam Line B Excess Flow	Reactor Bldg. EL 077'
1ABXV 3666C	12504-4	Main Steam Line C Excess Flow	Reactor Bldg. EL 077'
1ABXV 3666D	12504-4	Main Steam Line D Excess Flow	Reactor Bldg. EL 077'
1ABXV 3667A	12504-4	Main Steam Line A Excess Flow	Reactor Bldg. EL 077'
1ABXV 3667B	12504-4	Main Steam Line B Excess Flow	Reactor Bldg. EL 077'
1ABXV 3667C	12504-4	Main Steam Line C Excess Flow	Reactor Bldg. EL 077'
1ABXV 3667D	12504-4	Main Steam Line D Excess Flow	Reactor Bldg. EL 077'
1ABXV 3668A	12504-4	Main Steam Line A Excess Flow	Reactor Bldg. EL 077'
1ABXV 3668B	12504-4	Main Steam Line B Excess Flow	Reactor Bldg. EL 077'
1ABXV 3668C	12504-4	Main Steam Line C Excess Flow	Reactor Bldg. EL 077'
1ABXV 3668D	12504-4	Main Steam Line D Excess Flow	Reactor Bldg. EL 077'

P.O. # J703(Q) Component: Excess Flow Check Valves Manufacturer: Dragon Valve Inc.

SHEET 3 of 15

I.D. No.	Model No.	Functional Description	Location
1ABXV 3669A	12504-4	Main Steam Line A Excess Flow	Reactor Bldg. EL 077'
1ABXV 3669B	12504-4	Main Steam Line B Excess Flow	Reactor Bldg. EL 077'
1ABXV 3669C	12504-4	Main Steam Line C Excess Flow	Reactor Bldg. EL 077'
1ABXV 3669D	12504-4	Main Steam Line D Excess Flow	Reactor Bldg. EL 077'
1BBFO 3621	12696-7L	1BB-LT-3622B-Instrument Line (Spare)	Drywell Torus, Reactor Bldg. EL 145'
1BBFO 3649	12696-7L	Reac. Head Seal Leakage Det	Drywell Torus, Reactor Bldg. EL 162'
1BBFO 3725	12696-7L	Reactor Vessel Instrument Line	Drywell Torus, Reactor Bldg. EL 121'
1BBFO 3726A	12696-7L	Reactor Vessel Instrument Line	Drywell Torus, Reactor Bldg. EL 162'
1BBFO 3726B	12696-7L	Reactor Vessel Instrument Line	Drywell Torus, Reactor Bldg. EL 162'
1BBFO 3727A	12696-7L	Reactor Vessel Instrument Line	Drywell Torus, Reactor Bldg. EL 162'
1BBFO 3727B	12696-7L	Reactor Vessel Instrument Line	Drywell Torus, Reactor Bldg. EL 162'
1BBFO 3728A	12696-7L	Reactor Vessel Instrument Line	Drywell Torus, Reactor Bldg. EL 145'
1BBFO 3728B	12696-7L	Reactor Vessel Instrument Line	Drywell Torus, Reactor Bldg. EL 145'
1BBFO 3729A	12696-7L	Reactor Vessel Instrument Line	Drywell Torus, Reactor Bldg. EL 145'

P.O. # J703(Q) Component: Excess Flow Check Valves Manufacturer: Dragon Valve Inc.

SHEET 4 of 15

I.D. No.	Model No.	Functional Description	Location
1BBFO 3729B	12696-7L	Reactor Vessel Instrument Line	Drywell Torus, Reactor Bldg. EL 145'
1BBFO 3730A	12696-7L	Reactor Vessel Instrument Line	Drywell Torus, Reactor Bldg. EL 145'
1BBFO 3730B	12696-7L	Reactor Vessel Instrument Line	Drywell Torus, Reactor Bldg. EL 132'
1BBFO 3731A	12696-7L	Reactor Vessel Instrument Line	Drywell Torus, Reactor Bldg. EL 145'
1BBFO 3731B	12696-7L	Reactor Vessel Instrument Line	Drywell Torus, Reactor Bldg. EL 132'
1BBFO 3732A	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 121'
1BBFO 3732B	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 112'
1BBFO 3732C	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 121'
1BBFO 3732D	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 112'
1BBFO 3732E	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 121'
1BBFO 3732F	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 112'
1BBFO 3732G	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 121'
1BBFO 3732H	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 112'
1BBFO 3732J	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 121'

P.O. # J703(Q) Component: Excess Flow Check Valves Manufacturer: Dragon Valve Inc.

SHEET 5 of 15

I.D. No.	Model No.	Functional Description	Location
1BBFO 3732K	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 112'
1BBFO 3732L	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 121'
1BBFO 3732M	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 112'
1BBFO 3732N	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 121'
1BBFO 3732P	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 121'
1BBFO 3732R	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 121'
1BBFO 3732S	12696-7L	Jet Pump Instrument Line	Reactor Bldg. EL 077'
1BBFO 3732T	12696-7L	Jet Pump Instrument Line	Reactor Bldg. EL 077'
1BBFO 3732U	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 112'
1BBFO 3732V	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 121'
1BBFO 3732W	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 112'
1BBFO 3734A	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 112'
1BBFO 3734B	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 121'
1BBFO 3734C	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 121'

P.O. # J703(Q) Component: Excess Flow Check Valves Manufacturer: Dragon Valve Inc.

SHEET 6 of 15

I.D. No.	Model No.	Functional Description	Location
1BBFO 3734D	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 112'
1BBFO 3737A	12696-7L	1BB-PDT-N032-B21 Instrument Line	Drywell Torus, Reactor Bldg. EL 100'
1BBFO 3737B	12696-7L	Control Rod Drive Instrument Line	Drywell Torus, Reactor Bldg. EL 100'
1BBFO 3738A	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 100'
1BBFO 3738B	12696-7L	Jet Pump Instrument Line	Drywell Torus, Reactor Bldg. EL 100'
1BBFO 3783	12696-7L	Recirc. Pump A Seal Instrument Line	Reactor Bldg. EL 102'
1BBFO 3785	12696-7L	Recirc. Pump A Seal Purge Instr.	Reactor Bldg. EL 102'
1BBFO 3787	12696-7L	Recirc. Pump B Seal Instrument Line	Reactor Bldg. EL 102'
1BBFO 3789	12696-7L	Recirc. Pump Seal B Purge Instr.	Reactor Bldg. EL 102'
1BBFO 3801A	12696-7L	Recirc. Line A Instrument Line	Reactor Bldg. EL 102'
1BBFO 3801C	12696-7L	Recirc. Line A Instrument Line	Reactor Bldg. EL 102'
1BBFO 3802A	12696-7L	Recirc. Line A Instrument Line	Reactor Bldg. EL 102'
1BBFO 3802C	12696-7L	Recirc. Line A Instrument Line	Reactor Bldg. EL 102'
1BBFO 3803B	12696-7L	Recirc. Line B Instrument Line	Reactor Bldg. EL 102'

P.O. # J703(Q) Component: Excess Flow Check Valves Manufacturer: Dragon Valve Inc.

SHEET 7 of 15

I.D. No.	Model No.	Functional Description	Location
1BBFO 3803D	12696-7L	Recirc. Line B Instrument Line	Reactor Bldg. EL 102'
1BBFO 3804B	12696-7L	Recirc. Line B Instrument Line	Reactor Bldg. EL 102'
1BBFO 3804D	12696-7L	Recirc. Line B Instrument Line	Reactor Bldg. EL 102'
1BBFO 3820	12696-7L	Recirc. Pump A Discharge Instrument Line	Reactor Bldg. EL 102'
1BBFO 3821	12696-7L	Recirc. Pump A Suction Instrument Line	Reactor Bldg. EL 102'
1BBFO 3826	12696-7L	Recirc. Pump B Suction Instrument Line	Reactor Bldg. EL 102'
1BBFO 3827	12696-7L	Recirc. Pump B Discharge Instrument Line	Reactor Bldg. EL 102'
1BBXV 3621	12504-2	1BB-LT-3622B Instrument Line	Reactor Bldg. EL 145'
1BBXV 3649	12504-4	Reactor Head Seal Leakage Det	Drywell Torus, Reactor Bldg. EL 145'
1BBXV 3688	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3691A	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3691B	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3725	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 145'
1BBXV 3726A	12504-2	Excess Flow Check Valve	Reactor Bldg. EL 102'

P.O. # J703(Q) Component: Excess Flow Check Valves Manufacturer: Dragon Valve Inc.

SHEET 8 of 15

I.D. No.	Model No.	Functional Description	Location
1BBXV 3726B	12504-2	Excess Flow Check Valve	Reactor Bldg. EL 102'
1BBXV 3727A	12504-2	Excess Flow Check Valve	Reactor Bldg. EL 102'
1BBXV 3727B	12504-2	Excess Flow Check Valve	Reactor Bldg. EL 102'
1BBXV 3728A	12504-2	Excess Flow Check Valve	Reactor Bldg. EL 102'
1BBXV 3728B	12504-2	Excess Flow Check Valve	Reactor Bldg. EL 102'
1BBXV 3729A	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 102'
1BBXV 3729B	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 102'
1BBXV 3730A	12504-2	Excess Flow Check Valve	Reactor Bldg. EL 102'
1BBXV 3730B	12504-2	Excess Flow Check Valve	Reactor Bldg. EL 102'
1BBXV 3731A	12504-2	Excess Flow Check Valve	Reactor Bldg. EL 102'
1BBXV 3731B	12504-2	Excess Flow Check Valve	Reactor Bldg. EL 102'
1BBXV 3732A	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3732B	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3732C	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'

P.O. # J703(Q) Component: Excess Flow Check Valves Manufacturer: Dragon Valve Inc.

SHEET 9 of 15

I.D. No.	Model No.	Functional Description	Location
1BBXV 3732D	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3732E	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3732F	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3732G	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3732H	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3732J	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3732K	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3732L	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3732M	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3732N	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3732P	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3732R	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3732S	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3732T	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'

P.O. # J703(Q) Component: Excess Flow Check Valves Manufacturer: Dragon Valve Inc.

I.D. No.	Model No.	Functional Description	Location
1BBXV 3732U	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3732V	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3732W	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3734A	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3734B	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3734C	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3734D	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3737A	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3737B	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3738A	12504-2	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3738B	12504-2	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3783	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3785	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3787	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'

P.O. # J703(Q) Component: Excess Flow Check Valves Manufacturer: Dragon Valve Inc.

SHEET 11 of 15

I.D. No.	Model No.	Functional Description	Location
1BBXV 3789	12504-4	Excess Flow Check Valve Purge	Reactor Bldg. EL 077'
1BBXV 3801A	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 086'
1BBXV 3801B	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 077'
1BBXV 3801C	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 077'
1BBXV 3801D	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 077'
1BBXV 3802A	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 077'
1BBXV 3802B	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 077'
1BBXV 3802C	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 077'
1BBXV 3802D	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 077'
1BBXV 3803A	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 077'
1BBXV 3803B	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 077'
1BBXV 3803C	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 077'
1BBXV 3803D	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 077'
1BBXV 3804A	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 077'

TABLE 3.11-4
MECHANICAL EQUIPMENT SELECTED FOR HARSH
ENVIRONMENT QUALIFICATION

P.O. # J703(Q) Component: Excess Flow Check Valves Manufacturer: Dragon Valve Inc.

I.D. No.	Model No.	Functional Description	Location
1BBXV 3804B	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 077'
1BBXV 3804C	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 077'
1BBXV 3804D	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 086'
1BBXV 3820	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 077'
1BBXV 3821	12504-4	Excess Flow Check Valve	Reactor Bldg. EL 077'
1BBXV 3826	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 077'
1BBXV 3827	12504-4	Excess Flow Check Valve	Drywell Torus, Reactor Bldg. EL 077'
1BCFO 4411A	12696-7L	Excess Flow Check For PDT-N060A	Drywell Torus, Reactor Bldg. EL 077'
1BCFO 4411B	12696-7L	LPCI Inject Press	Drywell Torus, Reactor Bldg. EL 100'
1BCFO 4411C	12696-7L	Excess Flow Check For PDT-N060A	Drywell Torus, Reactor Bldg. EL 100'
1BCFO 4411D	12696-7L	LPCI Inject Line Press	Drywell Torus, Reactor Bldg. EL 077'
1BCFO 4429A	12696-7L	Excess Flow Check For PDT-N058A	Drywell Torus, Reactor Bldg. EL 077'
1BCFO 4429B	12696-7L	HV-F017B Ell DP LN Flow Check	Drywell Torus, Reactor Bldg. EL 102'
1BCFO 4429C	12696-7L	Excess Flow Check For PDT-N058C	Reactor Bldg. EL 077'

P.O. # J703(Q) Component: Excess Flow Check Valves Manufacturer: Dragon Valve Inc.

I.D. No.	Model No.	Functional Description	Location
1BCFO 4429D	12696-7L	HV-F017D Ell DP LN Flow Check	Drywell Torus, Reactor Bldg. EL 102'
1BCXV 4411A	12504-4	Excess Flow Check For PDT-N060A	Reactor Bldg. EL 077'
1BCXV 4411B	12504-4	Excess Flow Check For PDT-N060B	Reactor Bldg. EL 077'
1BCXV 4411C	12504-4	Excess Flow Check For PDT-N060A	Reactor Bldg. EL 077'
1BCXV 4411D	12504-4	Excess Flow Check For PDT-N060A	Reactor Bldg. EL 077'
1BCXV 4429A	12504-4	Excess Flow Check For PDT-N058A	Reactor Bldg. EL 077'
1BCXV 4429B	12504-4	HV-F017B Ell DP LN Flow Check	Reactor Bldg. EL 077'
1BCXV 4429C	12504-4	Excess Flow Check For PDT-N058C	Reactor Bldg. EL 077'
1BCXV 4429D	12504-4	HV-F017D Ell DP LN Flow Check	Reactor Bldg. EL 077'
1BEFO 4575A	12696-7L	Core Spray Loop B To PDT-N056	Drywell Torus, Reactor Bldg. EL 102'
1BEFO 4575B	12696-7L	Core Spray Loop A To PDT-N056	Drywell Torus, Reactor Bldg. EL 102'
1BEXV F018A E21	12504-4	Excess Flow Check Valve PDT N056	Drywell Torus, Reactor Bldg. EL 077'
1BEXV F018B E21	12504-4	Excess Flow Check Valve PDT N056	Drywell Torus, Reactor Bldg. EL 077'
1BGFO 3882	12696-7L	RV Drain Ex Flow	Drywell Torus, Reactor Bldg. EL 102'

P.O. # J703(Q) Component: Excess Flow Check Valves Manufacturer: Dragon Valve Inc.

I.D. No.	Model No.	Functional Description	Location
1BGFO 3884A	12696-7L	RWCU Inlet Flow Ex Fl	Drywell Torus, Reactor Bldg. EL 121'
1BGFO 3884B	12696-7L	RWCU Inlet Flow Ex Fl	Reactor Bldg. EL 150'
1BGFO 3884C	12696-7L	RWCU Inlet Flow Ex Fl	Reactor Bldg. EL 150'
1BGFO 3884D	12696-7L	RWCU Inlet Flow Ex Fl	Reactor Bldg. EL 150'
1BGXV 3882	12504-2	RV Drain Excess Flow Check Valve	Reactor Bldg. EL 077'
1BGXV 3884A	12504-4	RWCU Inlet Flow Ex Fl Check Valve	Reactor Bldg. EL 077'
1BGXV 3884B	12504-4	RWCU Inlet Flow Ex Fl Check Valve	Reactor Bldg. EL 077'
1BGXV 3884C	12504-4	RWCU Inlet Flow Ex Fl Check Valve	Reactor Bldg. EL 077'
1BGXV 3884D	12504-4	RWCU Inlet Flow Ex Fl Check Valve	Reactor Bldg. EL 077'
1FCFO 4150A	12696-7L	RCIC Turbine Steam Instr Line	Reactor Bldg. EL 087'
1FCFO 4150B	12696-7L	RCIC Turbine Steam Instr Line	Reactor Bldg. EL 087'
1FCFO 4150C	12696-7L	RCIC Turbine Steam Instr Line	Reactor Bldg. EL 087'
1FCFO 4150D	12696-7L	RCIC Turbine Steam Instr Line	Reactor Bldg. EL 087'
1FCXV 4150A	12504-4	RCIC Turbine Steam Ex Fl Check Valve	Reactor Bldg. EL 077'

P.O. # J703(Q) Component: Excess Flow Check Valves Manufacturer: Dragon Valve Inc.

I.D. No.	Model No.	Functional Description	Location
1FCXV 4150B	12504-4	RCIC Turbine Steam Excess Flow Check Valve	Reactor Bldg. EL 077;
1FCXV 4150C	12504-4	RCIC Turbine Steam Excess Flow Check Valve	Reactor Bldg. EL 077'
1FCXV 4150D	12504-4	RCIC Turbine Steam Excess Flow Check Valve	Reactor Bldg. EL 077'
1FDFO 4800A	12696-7L	HPCI Steam Supply Instr. Line	Drywell Torus, Reactor Bldg. EL 077'
1FDFO 4800B	12696-7L	HPCI Steam Supply Instr. Line	Drywell Torus, Reactor Bldg. EL 077'
1FDFO 4800C	12696-7L	HPCI Steam Supply Instr. Line	Drywell Torus, Reactor Bldg. EL 102'
1FDFO 4800D	12696-7L	HPCI Steam Supply Instr. Line	Drywell Torus, Reactor Bldg. EL 102'
1FDXV 4800A	12504-4	HPCI Steam Supply Instr. Line	Reactor Bldg. EL 077'
1FDXV 4800B	12504-4	HPCI Steam Supply Instr. Line	Reactor Bldg. EL 077'
1FDXV 4800C	12504-4	HPCI Steam Supply Instr. Line	Reactor Bldg. EL 077'
1FDXV 4800D	12504-4	HPCI Steam Supply Instr. Line	Reactor Bldg. EL 077'

P.O. # J705(Q) Component: Nuclear Instrument Valve Manufacturer: Dragon Valves

SHEET 1 of 3

I.D. No.	Model No.	Functional Description	Location
1AP XV 2043	14833	Spare (Condensate Storage Tank Excess Flow Check Valve)	Reactor Bldg. (EL 077')
1EG XV 2518A1	14833	RHR Pump Bearing Cooler Check Valve	Reactor Bldg. EL 054'
1EG XV 2518A2	14833	RHR Pump Bearing Cooler Check Valve	Reactor Bldg. EL 054'
1EG XV 2518B1	14833	RHR Pump Bearing Cooler Check Valve	Reactor Bldg. EL 054'
1EG XV 2518B2	14833	RHR Pump Bearing Cooler Check Valve	Reactor Bldg. EL 054'
1EG XV 2518C1	14833	RHR Pump Bearing Cooler Check Valve	Reactor Bldg. EL 054'
1EG XV 2518C2	14833	RHR Pump Bearing Cooler Check Valve	Reactor Bldg. EL 054'
1EG XV 2518D1	14833	RHR Pump Bearing Cooler Check Valve	Reactor Bldg. EL 054'
1EG XV 2518D2	14833	RHR Pump Bearing Cooler Check Valve	Reactor Bldg. EL 054'
1EG XV 2533A1	14833	RHR Pump Bearing Cooler Check Valve	Reactor Bldg. EL 054'

TABLE 3.11-4
MECHANICAL EQUIPMENT SELECTED FOR HARSH
ENVIRONMENT QUALIFICATION

P.O. # J705(Q) Component: Nuclear Instrument Valve Manufacturer: Dragon Valves

I.D. No.	Model No.	Functional Description	Location
1EG XV 2533A2	14833	RHR Pump Seal Cooler Check Valve	Reactor Bldg. EL 054'
1EG XV 2533B1	14833	RHR Pump Seal Cooler Check Valve	Reactor Bldg. EL 054'
1EG XV 2533B2	14833	RHR Pump Seal Cooler Check Valve	Reactor Bldg. EL 054'
1EG XV 2533C1	14833	RHR Pump Seal Cooler Check Valve	Reactor Bldg. EL 054'
1EG XV 2533C2	14833	RHR Pump Seal Cooler Check Valve	Reactor Bldg. EL 054'
1EG XV 2533D1	14833	RHR Pump Seal Cooler Check Valve	Reactor Bldg. EL 054'
1EG XV 2533D2	14833	RHR Pump Seal Cooler Check Valve	Reactor Bldg. EL 054'

P.O. # J705(Q) Component: Nuclear Instrument Valve Manufacturer: Dragon Valves

SHEET 3 of 3

I.D. No.	Model No.	Functional Description	Location
1EC XV 4660	14833	Spare (Fuel Pool Cooling and Torus Water Cleanup Skimmer Surge Tank Limiting Flow Check Valve)	Reactor Bldg. (EL 162')
1EC XV 4662A	14833	Fuel Pool Cooling Pumps, Suction Side Limiting Flow Check Valve	Reactor Bldg. EL 162'
1EC XV 4662B	14833	Fuel Pool Cooling Pumps, Suction Side Limiting Flow Check Valve	Reactor Bldg. Drywell EL 162'
1EC XV 4673A	14833	Fuel Pool Cooling Pumps, Discharge Side Limiting Flow Check Valve	Reactor Bldg. Drywell EL 162'
1EC XV 4673B	14833	Fuel Pool Cooling Pumps, Discharge Side Limiting Flow Check Valve	Reactor Bldg. Drywell EL 162'
1EC XV 4682A	14833	Fuel Pool Cooling System Limiting Flow Check Valve	Reactor Bldg. Drywell EL 162'
1EC XV 4682B	14833	Fuel Pool Cooling System Limiting Flow Check Valve	Reactor Bldg. Drywell EL 162'
1BH XV 2077A	14833	Standby Liquid Control	Reactor Bldg. Drywell EL 077'
1BH XV 2077B	14833	Standby Liquid Control	Reactor Bldg. Drywell EL 077'
5M15SIDN2	Not Applicable	5 Valve Manifold w/threaded connection	Various Locations EL Various
2M15SIDN2	Not Applicable	2 Valve Manifold w/threaded connection	Various Locations EL Various

TABLE 3.11-4
MECHANICAL EQUIPMENT SELECTED FOR HARSH
ENVIRONMENT QUALIFICATION

P.O. # J715(Q) Component: Nuclear Instrument Valves Manufacturer: Dragon Valves

I.D. No.*	Model No.	Functional Description	Location
GB15S1PN2	13770N-7	Instrument Calibration Isolation Valves and High Point Vent Valves	Approx. 5% of these 1500 valves are used in the Diesel Gen. Bldg. and the Balance of Plant. Remaining 95% in Reactor Bldg.
GB15S1KN2	13770N-6SE7	Instrument Calibration Isolation Valves and High Point Vent Valves	550 valves purchased for various applications in the Reactor Bldg.
GB15S2HN2	13769N-6SE	Instrument Calibration Isolation Valves and High Point Vent Valves	220 valves purchased for various applications in the Reactor Bldg.

*These valves will not receive unique tag numbers:
Valves classification number is shown here.

P.O. # P301(Q) Component: Large Valves Manufacturer: Anchor Darling Valve Co.

SHEET 1 of 13

I.D. No.	Model No.	Functional Description	Location
OAPHV 2072	Not Applicable	RB Isolation Valve	Reactor Bldg. EL 054'
OAPHV 2073	Not Applicable	RB Isolation Valve	Reactor Bldg. EL 054'
OBNHV 2069	Not Applicable	RB Isolation Valve	Reactor Bldg. EL 054'
1ANHV 2600	Not Applicable	Demin. Water to Reactor Bldg.	Reactor Bldg. EL 054'
1BCHV F003A E11	Not Applicable	RHR HX A Shell Outlet	Reactor Bldg. EL 054'
1BCHV F003B E11	Not Applicable	RHR HTX B Shell Outlet	Reactor Bldg. EL 054'
1BCHV F004A E11	Not Applicable	RHR Pump A Suppr. Pool Suct.	Reactor Bldg. EL 054'
1BCHV F004B E11	Not Applicable	RHR Pump B Suppr. Pool Suct.	Reactor Bldg. EL 054'
1BCHV F004C E11	Not Applicable	RHR Pump C Suppr. Pool Suct.	Reactor Bldg. EL 054'
1BCHV F004D E11	Not Applicable	RHR Pump D Suppr. Pool Suct.	Reactor Bldg. EL 054'
1BCHV F006A E11	Not Applicable	RHR Pump A Shtdwn Clg Suct Valve	Reactor Bldg. EL 054'
1BCHV F006B E11	Not Applicable	RHR Pump B Shtdwn Clg Suct	Reactor Bldg. EL 054'
1BCHV F007A E11	Not Applicable	RHR Pump A Min Flow Bypass	Reactor Bldg. EL 054'
1BCHV F007B E11	Not Applicable	RHR Pump B Min Flow Bypass	Reactor Bldg. EL 054'

P.O. # P301(Q) Component: Large Valves Manufacturer: Anchor Darling Valve Co.

SHEET 2 of 13

I.D. No.	Model No.	Functional Description	Location
1BCHV F007C E11	Not Applicable	RHR Pump C Min Flow Bypass	Reactor Bldg. EL 054'
1BCHV F007D E11	Not Applicable	RHR Pump D Min Flow Bypass	Reactor Bldg. EL 054'
1BCHV F010A E11	Not Applicable	RHR Pump C Test Return	Reactor Bldg. EL 054'
1BCHV F010B E11	Not Applicable	RHR Pump D Test Return	Reactor Bldg. EL 054'
1BCHV F011A E11	Not Applicable	RHR HX A To Suppr Pool	Reactor Bldg. EL 054'
1BCHV F011B E11	Not Applicable	RHR HX B Test Return	Reactor Bldg. EL 054'
1BCHV F016A E11	Not Applicable	RHR Cont Spray Outbd	Reactor Bldg. EL 102'
1BCHV F016B E11	Not Applicable	RHR Cntmt Spray B Outbd	Reactor Bldg. EL 132'
1BCHV F021A E11	Not Applicable	RHR Cntmnt Spray Inbd	Reactor Bldg. EL 102'
1BCHV F021B E11	Not Applicable	RHR Cont Spray B Inbd	Reactor Bldg. EL 132'
1BCHV F024A E11	Not Applicable	RHR Pump A Test Return	Reactor Bldg. EL 054'
1BCHV F024B E11	Not Applicable	RHR Pump B Test Return	Reactor Bldg. EL 054'
1BCHV F026A E11	Not Applicable	RHR HX A To Rcic	Reactor Bldg. EL 054'
1BCHV F026B E11	Not Applicable	RHR HX B To Rcic	Reactor Bldg. EL 054'

P.O. # P301(Q) Component: Large Valves Manufacturer: Anchor Darling Valve Co.

SHEET 3 of 13

I.D. No.	Model No.	Functional Description	Location
1BCHV F027A E11	Not Applicable	RHR Pump A Suppr Pool Spray	Reactor Bldg. EL 077'
1BCHV F027B E11	Not Applicable	RHR Pump B Suppr Pool Spray	Reactor Bldg. EL 077'
1BCHV F040 E11	Not Applicable	RHR Disch To Rdwst Isln Outbd	Reactor Bldg. EL 077'
1BCHV F047A E11	Not Applicable	RHR HX A Shell Side Inlet	Reactor Bldg. EL 077'
1BCHV F047B E11	Not Applicable	RHR HX B Shell Side Inlet	Reactor Bldg. EL 077'
1BCHV F049 E11	Not Applicable	RHR Flush to Rdwst Isln Inbd	Reactor Bldg. EL 077'
1BCHV F075 E11	Not Applicable	RHR Svce Wtr Cross Tie	Reactor Bldg. EL 077'
1BCHV 4420A E11	Not Applicable	RHR HX A Vac RLF Isln	Reactor Bldg. EL 077'
1BCHV 4420B E11	Not Applicable	RHR HX B Vac RLF Isln	Reactor Bldg. EL 077'
1BCHV 4421 E11	Not Applicable	RHR HX B Vac RLF To Torus	Reactor Bldg. EL 077'
1BCHV 4439 E11	Not Applicable	RX Bldg Isln/RHR B To Liq RW	Reactor Bldg. EL 077'
1BDHV F010 E51	Not Applicable	RCIC Pump Suction From CS Tank	Reactor Bldg. EL 054'
1BDHV F031 E51	Not Applicable	RCIC Pump Suction From Sup Pool	Reactor Bldg. EL 054'
1BEHV F001A E21	Not Applicable	Core Spray Pump AP206 Suction	Reactor Bldg. EL 054'

P.O. # P301(Q) Component: Large Valves Manufacturer: Anchor Darling Valve Co.

SHEET 4 of 13

I.D. No.	Model No.	Functional Description	Location
1BEHV F001B E21	Not Applicable	Core Spray Pump BP206 Suction	Reactor Bldg. EL 054'
1BEHV F001C E21	Not Applicable	Core Spray Pump CP206 Suction	Reactor Bldg. EL 054'
1BEHV F001D E21	Not Applicable	Core Spray Pump DP206 Suction	Reactor Bldg. EL 054'
1BEHV F015A E21	Not Applicable	CS Loop A Test Return Valve	Reactor Bldg. EL 077'
1BEHV F015B E21	Not Applicable	CS Loop B Test Return Valve	Reactor Bldg. EL 077'
1BEHV F031A E21	Not Applicable	Core Spray Loop A Min Flow Bypass	Reactor Bldg. EL 054'
1BEHV F031B E21	Not Applicable	Core Spray Loop B Min Flow Bypass	Reactor Bldg. EL 054'
1BFHV 4005	Not Applicable	CRD Pump Suction RX Bldg Isln	Reactor Bldg. EL 054'
1BJHV F004 E41	Not Applicable	HPCI Pump Suction From CST	Reactor Bldg. EL 054'
1BJHV F042 E41	Not Applicable	HPCI Pump Suct From Supp Pool	Reactor Bldg. EL 054'
1ECHV 4676A	Not Applicable	Fltr Demin Inlet Outbd Isln	Reactor Bldg. EL 077'
1ECHV 4676B	Not Applicable	Fltr Demin Inlet Inbd Isln	Reactor Bldg. EL 077'
1ECHV 4678	Not Applicable	Fltr Demin Outlet Isln	Reactor Bldg. EL 077'
1ECHV 4689A	Not Applicable	Fuel Pool Fltr Demin Bypass	Reactor Bldg. EL 162'

P.O. # P301(Q) Component: Large Valves Manufacturer: Anchor Darling Valve Co.

SHEET 5 of 13

I.D. No.	Model No.	Functional Description	Location
1ECHV 4689B	Not Applicable	Fuel Pool Fltr Demin Bypass	Reactor Bldg. EL 162'
1EDHV 2553	Not Applicable	React Recirc Pump Cooling Isln	Reactor Bldg. EL 102'
1EDHV 2554	Not Applicable	React Recirc Pump Cooling Isln	Drywell Torus, Reactor Bldg. EL 100'
1EDHV 2555	Not Applicable	React Recirc Pump Cooling Isln	Reactor Bldg. EL 102'
1EDHV 2556	Not Applicable	React Recirc Pump Cooling Isln	Drywell Torus, Reactor Bldg. EL 100'
1EEHV 4652	Not Applicable	Torus Wtr Clnup Supr Pl Isln	Reactor Bldg. EL 054'
1EEHV 4655	Not Applicable	Torus Wtr Clnup RX Bldg Isln	Reactor Bldg. EL 054'
1EEHV 4656	Not Applicable	Torus Wtr Clnup RX Bldg Isln	Reactor Bldg. EL 054'
1EEHV 4663	Not Applicable	Torus Wtr Clnup RX Bldg Isln	Reactor Bldg. EL 077'
1EEHV 4679	Not Applicable	Torus Wtr Clnup RX Bldg Isln	Reactor Bldg. EL 054'
1EEHV 4680	Not Applicable	Torus Wtr Clnup Suppr Pl Isln	Reactor Bldg. EL 054'
1EEHV 4681	Not Applicable	Torus Wtr Clnup Suppr Pl Isln	Reactor Bldg. EL 054'
1EGHV 2290A	Not Applicable	RHR Pump RM Unit Cooler AVH210	Reactor Bldg. EL 054'
1EGHV 2290B	Not Applicable	RHR Pump RM Unit Cooler BVH210	Reactor Bldg. EL 054'

P.O. # P301(Q) Component: Large Valves Manufacturer: Anchor Darling Valve Co. SHEET 6 of 13

I.D. No.	Model No.	Functional Description	Location
1EGHV 2290C	Not Applicable	RHR Pump RM Unit Cooler CVH210	Reactor Bldg. EL 054'
1EGHV 2290D	Not Applicable	RHR Pump RM Unit Cooler DVH210	Reactor Bldg. EL 054'
1EGHV 2290E	Not Applicable	RHR Pump RM Unit Coolers EVH210	Reactor Bldg. EL 077'
1EGHV 2290F	Not Applicable	RHR Pump RM Unit Coolers FVH210	Reactor Bldg. EL 077'
1EGHV 2290G	Not Applicable	RHR Pump RM Unit Coolers GVH210	Reactor Bldg. EL 054'
1EGHV 2290H	Not Applicable	RHR Pump RM Unit Coolers HVH210	Reactor Bldg. EL 054'
1EGHV 2292A	Not Applicable	HPCI Pump RM Unit Cooler AVH209	Reactor Bldg. EL 054'
1EGHV 2292B	Not Applicable	HPCI Pump RM Unit Cooler BVH209	Reactor Bldg. EL 054'
1EGHV 2302A	Not Applicable	FRVS Cooling Coil AVH213	Reactor Bldg. EL 132'
1EGHV 2302B	Not Applicable	FRVS Cooling Coil BVH213	Reactor Bldg. EL 178'
1EGHV 2302C	Not Applicable	FRVS Cooling Coil CVH213	Reactor Bldg. EL 132'
1EGHV 2302D	Not Applicable	FRVS Cooling Coil DVH213	Reactor Bldg. EL 162'
1EGHV 2302E	Not Applicable	FRVS Cooling Coil EVH213	Reactor Bldg. EL 162'
1EGHV 2302F	Not Applicable	FRVS Cooling Coil FVH213	Reactor Bldg. EL 178'

P.O. # P301(Q) Component: Large Valves Manufacturer: Anchor Darling Valve Co.

SHEET 7 of 13

I.D. No.	Model No.	Functional Description	Location
1EGHV 2325A	Not Applicable	Core Spray Pump RM Unt Cls AVH211	Reactor Bldg. EL 054'
1EGHV 2325B	Not Applicable	Core Spray Pump Rm Unt Cls BVH211	Reactor Bldg. EL 054'
1EGHV 2325C	Not Applicable	Core Spray Pump RM Unt Cls CVH211	Reactor Bldg. EL 054'
1EGHV 2325D	Not Applicable	Core Spray Pump RM Unt Cls DVH211	Reactor Bldg. EL 054'
1EGHV 2325E	Not Applicable	Core Spray Pump RM Unt Cls EVH211	Reactor Bldg. EL 054'
1EGHV 2325F	Not Applicable	Core Spray Pump RM Unt Cls FVH211	Reactor Bldg. EL 054'
1EGHV 2325G	Not Applicable	Core Spray Pump RM Unt Cls GVH211	Reactor Bldg. EL 054'
1FCHV F059 E51	Not Applicable	RCIC Stm Exh Isln Valve	Reactor Bldg. EL 077'
1FCHV F062 E51	Not Applicable	RCIC Vaccum Breaker Isln Valve	Reactor Bldg. EL 077'
1FCHV F084 E51	Not Applicable	RCIC Vacuum Breaker Isln Valve	Reactor Bldg. EL 077'
1FDHV F071 E41	Not Applicable	HPCI Stm Exhaust Isln Valve	Reactor Bldg. EL 077'
1FDHV F075 E41	Not Applicable	HPCI Turb Exh Vac Brkr Isln	Reactor Bldg. EL 077'
1FDHV F079 E41	Not Applicable	HPCI Turb Exh Vac Brkr Isln	Reactor Bldg. EL 077'
1GBHV 9531A1	Not Applicable	CH Wtr Loop A Sply CTMT Isln	Reactor Bldg. EL 102'

P.O. # P301(Q) Component: Large Valves Manufacturer: Anchor Darling Valve Co.

SHEET 8 of 13

I.D. No.	Model No.	Functional Description	Location
1GBHV 9531A2	Not Applicable	CH Wtr Loop A RTN Ctmt Isln	Reactor Bldg. EL 102'
1GBHV 9531A3	Not Applicable	CH Wtr Loop B Sply Ctmt Isln	Reactor Bldg. EL 102'
1GBHV 9531A4	Not Applicable	CH Wtr Loop B RTN Ctmt Isln	Reactor Bldg. EL 102'
1GBHV 9531B1	Not Applicable	CH Wtr Loop A Sply Ctmt Isln	Drywell Torus, Reactor Bldg. EL 100'
1GBHV 9531B2	Not Applicable	CH Wtr Loop A RTN Ctmt Isln	Drywell Torus, Reactor Bldg. EL 100'
1GBHV 9531B3	Not Applicable	CH Wtr Loop B Sply Ctmt Isln	Drywell Torus, Reactor Bldg. EL 100'
1GBHV 9531B4	Not Applicable	CH Wtr Loop B RTN Ctmt Isln	Drywell Torus, Reactor Bldg. EL 077'
1GBHV 9532-1	Not Applicable	CH Wtr RTN Reactor Bldg Isln	Reactor Bldg. EL 162'
1GBHV 9532-2	Not Applicable	CH Wtr Sply Reactor Bldg Isln	Reactor Bldg. EL 162'
1GSHV 5050A	Not Applicable	Drywell To H2 Recomb AS205	Drywell Torus, Reactor Bldg. EL 145'
1GSHV 5050B	Not Applicable	Drywell To H2 Recomb BS205	Reactor Bldg. EL 102'
1GSHV 5052A	Not Applicable	Drywell To H2 Recomb AS205	Reactor Bldg. EL 145'
1GSHV 5052B	Not Applicable	Drywell To H2 Recomb BS205	Reactor Bldg. EL 102'
1GSHV 5053A	Not Applicable	H2 Recomb AS205 Suppr Pool	Reactor Bldg. EL 077'

P.O. # P301(Q) Component: Large Valves Manufacturer: Anchor Darling Valve Co. SHEET 9 of 13

I.D. No.	Model No.	Functional Description	Location
1GSHV 5053B	Not Applicable	H2 Recomb BS205 To Suppr Pool	Reactor Bldg. EL 077'
1GSHV 5054A	Not Applicable	H2 Recomb AS205 To Suppr Pool	Reactor Bldg. EL 077'
1GSHV 5054B	Not Applicable	H2 Recomb BS205 To Suppr Pool	Reactor Bldg. EL 077'
1HBHV F003 G14	Not Applicable	Isln Closure Signal Valve	Drywell Torus, Reactor Bldg. EL 077'
1HBHV F004 G14	Not Applicable	Isln Closure Signal Valve	Reactor Bldg. EL 077'
1HBHV F019 G14	Not Applicable	Drywell Equip Drain Sump Pump	Drywell Torus, Reactor Bldg. EL 077'
1HBHV F020 G14	Not Applicable	Drywell Equip Drain Sump Pump	Reactor Bldg. EL 077'
1HBHV 5262	Not Applicable	RB/Drywell Dr To Dr Coll Tk	Reactor Bldg. EL 077'
1HBHV 5275	Not Applicable	RB/Drywell Dr to Waste Coll Tk	Reactor Bldg. EL 077'
1HCHV 5551	Not Applicable	Reactor Bldg Isln Valve Unit 1	Reactor Bldg. EL 132'
1KAHV 7626	Not Applicable	Reactor Bldg Isolation	Reactor Bldg. EL 077'
1KBHV 7629	Not Applicable	Reactor Bldg Isolation	Reactor Bldg. EL 077'
1KBHV 7630	Not Applicable	Spare	Unassigned
1KCHV 3408M	Not Applicable	Sys 1PD3-1PD11 Isln Valve 1V049	Reactor Bldg. EL 077'

P.O. # P301(Q) Component: Large Valves Manufacturer: Anchor Darling Valve Co.

SHEET 10 of 13

I.D. No.	Model No.	Functional Description [Misc. Data]	Location
1KCHV 3408N	Not Applicable	Spare	Unassigned
1KCHV 3408Q	Not Applicable	Spare	Unassigned
1KGHV 7801	Not Applicable	Breathing Air Valve	Reactor Bldg. EL 054'
1 KH HV 5035	Not Applicable	RB Nitrogen Sply Valve	Reactor Bldg. EL 077'
1 EG HV 2325H	Not Applicable	Core Spray Pump Rm Unit Cls	Reactor Bldg. EL 054'
1 KC HV 3474	Not Applicable	Spare Valve	Unassigned
1 KC HV 3408P	Not Applicable	Spare Valve	Unassigned
1 KC HV 3408R	Not Applicable	Spare Valve	Unassigned
1 EEV 007	Not Applicable	Check Valve (6"-HCC-CK) [P&ID 53-1, M.R. No. 15.5]	Reactor Bldg. El. 054'
1 ECV 015	Not Applicable	Check Valve (8"-HCC-CK) [P&ID 53.1, M.R. No. 15.7]	Reactor Bldg. El. 054'
1 BCV 038	Not Applicable	Testable Check Valve (6"-GBB-TCK) [P&ID 51-1, M.R. No. 3.9]	Reactor Bldg. El. 054'
1 BCV 002	Not Applicable	Check Valve (18"-GBB-CK) [P&ID 51-1, M.R. No. 3.7]	Reactor Bldg. El. 054'
1 BCV 008	Not Applicable	Check Valve (18"-GBB-CK) [P&ID 51-1, M.R. No. 3.7]	Reactor Bldg. El. 054'
1 BCV 099	Not Applicable	Check Valve (18"-GBB-CK) [P&ID 51-1, M.R. No. 3.7]	Reactor Bldg. El. 054'
1 BCV 105	Not Applicable	Check Valve (18"-GBB-CK) [P&ID 51-1, M.R. No. 3.7]	Reactor Bldg. El. 054'

P.O. # P301(Q) Component: Large Valves Manufacturer: Anchor Darling Valve Co. SHEET 11 of 13

I.D. No.	Model No.	Functional Description [Misc. Data]	Location
1 BEV 013	Not Applicable	Check Valve (12"-GBB-CK) [P&ID 52-1, M.R. No. 3.5]	Reactor Bldg. El. 054'
1 BEV 014	Not Applicable	Check Valve (12"-GBB-CK) [P&ID 52-1, M.R. No. 3.5]	Reactor Bldg. El. 054'
1 BEV 015	Not Applicable	Check Valve (12"-GBB-CK) [P&ID 52-1, M.R. No. 3.5]	Reactor Bldg. El. 054'
1 BEV 016	Not Applicable	Check Valve (12"-GBB-CK) [P&ID 52-1, M.R. No. 3.5]	Reactor Bldg. El. 054'
1 APV 042	Not Applicable	Testable Check Valve (4"-GBB-TCK) [P&ID 51-1, M.R. No. 3.3]	Reactor Bldg. El. 102'
1 APV 043	Not Applicable	Testable Check Valve (4"-GBB-TCK) [P&ID 51-1, M.R. No. 3.3]	Reactor Bldg. El. 102'
1 APV 045	Not Applicable	Testable Check Valve (4"-GBB-TCK) [P&ID 51-1, M.R. No. 3.3]	Reactor Bldg. El. 102'
1 APV 046	Not Applicable	Testable Check Valve (4"-GBB-TCK) [P&ID 51-1, M.R. No. 3.3]	Reactor Bldg. El. 102'
1 APV 054	Not Applicable	Testable Check Valve (4"-GBB-TCK) [P&ID 51-1, M.R. No. 3.3]	Reactor Bldg. El. 102'
1 APV 055	Not Applicable	Testable Check Valve (4"-GBB-TCK) [P&ID 51-1, M.R. No. 3.3]	Reactor Bldg. El. 102'
1 APV 057	Not Applicable	Testable Check Valve (4"-GBB-TCK) [P&ID 51-1, M.R. No. 3.3]	Reactor Bldg. El. 102'
1 APV 058	Not Applicable	Testable Check Valve (4"-GBB-TCK) [P&ID 51-1, M.R. No. 3.3]	Reactor Bldg. El. 102'

P.O. # P301(Q) Component: Large Valves Manufacturer: Anchor Darling Valve Co. SHEET 12 of 13

I.D. No.	Model No.	Functional Description [Misc. Data]	Location
1 BCV 024	Not Applicable	Testable Check Valve (4"-GBB-TCK) [P&ID 51-1, M.R. No. 3.3]	Reactor Bldg. El. 054'
1 BCV 030	Not Applicable	Testable Check Valve (4"-GBB-TCK) [P&ID 51-1, M.R. No. 3.3]	Reactor Bldg. El. 054'
1 BCV 033	Not Applicable	Testable Check Valve (4"-GBB-TCK) [P&ID 51-1, M.R. No. 3.3]	Reactor Bldg. El. 054'
1 BCV 127	Not Applicable	Testable Check Valve (4"-GBB-TCK) [P&ID 51-1, M.R. No. 3.3]	Reactor Bldg. El. 054'
1 BCV 130	Not Applicable	Testable Check Valve (4"-GBB-TCK) [P&ID 51-1, M.R. No. 3.3]	Reactor Bldg. El. 102'
1 BCV 163	Not Applicable	Testable Check Valve (4"-GBB-TCK) [P&ID 51-1, M.R. No. 3.3]	Reactor Bldg. El. 102'
1 APV 039	Not Applicable	Testable Check Valve (3"-GBB-TCK) [P&ID 52-1, M.R. No. 3.1)	Reactor Bldg. El. 102'
1 APV 040	Not Applicable	Testable Check Valve (3"-GBB-TCK) [P&ID 52-1, M.R. No. 3.1]	Reactor Bldg. El. 102'
1 APV 060	Not Applicable	Testable Check Valve (3"-GBB-TCK) [P&ID 52-1, M.R. No. 3.1]	Reactor Bldg. El. 102'
1 APV 061	Not Applicable	Testable Check Valve (3"-GBB-TCK) [P&ID 52-1, M.R. No. 3.1]	Reactor Bldg. El. 102'
1 BEV 028	Not Applicable	Testable Check Valve (3"-GBB-TCK) [P&ID 52-1, M.R. No. 3.1]	Reactor Bldg. El. 054'
1 BEV 030	Not Applicable	Testable Check Valve (3"-GBB-TCK) [P&ID 52-1, M.R. No. 3.1]	Reactor Bldg. El. 054'
1 BEV 032	Not Applicable	Testable Check Valve (3"-GBB-TCK) [P&ID 52-1, M.R. No. 3.1]	Reactor Bldg. El. 054'
1 BEV 034	Not Applicable	Testable Check Valve (3"-GBB-TCK) [P&ID 52-1, M.R. No. 3.1]	Reactor Bldg. El. 054'

P.O. # P301(Q) Component: Large Valves Manufacturer: Anchor Darling Valve Co.

I.D. No.	Model No.	Functional Description [Misc. Data]	Location
1 BDV 002	Not Applicable	Testable Check Valve (6"-HBB-TCK) [P&ID 49-1, M.R. No. 7.5]	Reactor Bldg. El. 054'
1 BDV 004	Not Applicable	Testable Check Valve (6"-HBB-TCK) [P&ID 49-1, M.R. No. 7.5]	Reactor Bldg. El. 054'
1 FCV 003	Not Applicable	Testable Check Valve (10"-HBB-TCK) [P&ID 49-1, M.R. No. 7.7]	Reactor Bldg. El. 054'
1 BJV 006	Not Applicable	Testable Check Valve (16"-HBB-TCK) [P&ID 55-1, M.R. No. 7.9]	Reactor Bldg. El. 054'
1 BJV 008	Not Applicable	Testable Check Valve (16"-HBB-TCK) [P&ID 55-1, M.R. No. 7.9]	Reactor Bldg. El. 054'
1 FDV 004	Not Applicable	Testable Check Valve (20"-HBB-TCK) [P&ID 55-1, M.R. No. 7.11]	Reactor Bldg. El. 054'

P.O. # P302(Q) Component: Nuclear Valves Manufacturer: Anchor Darling Valve Company SHEET 1 of 7

I.D. No.	Model No.	Functional Description	Location
1ABHV F016 B21	Not Applicable	Steam Line Drain Inbd Isln	Drywell Torus, Reactor Bldg. EL 100'
1ABHV F019 B21	Not Applicable	Steam Line Drain Outbd Isln	Reactor Bldg. EL 102'
1ABHV F020 B21	Not Applicable	Main Steam Line Equalizer Valve	Reactor Bldg. EL 132'
1ABHV F021 B21	Not Applicable	Steam Line Start-up Drain Valve	Reactor Bldg. EL 102'
1ABHV 3631A	Not Applicable	Main Steam Line A Stop Valve	Reactor Bldg. EL 132'
1ABHV 3631B	Not Applicable	Main Steam Line B Stop Valve	Reactor Bldg. EL 132'
1ABHV 3631C	Not Applicable	Main Steam Line C Stop Valve	Reactor Bldg. EL 132'
1ABHV 3631D	Not Applicable	Main Steam Line D Stop Valve	Reactor Bldg. EL 132'
1AEHV F011A B21	Not Applicable	Feedwater Inlet A Shutoff	Drywell Torus, Reactor Bldg. EL 121'
1AEHV F011B B21	Not Applicable	Feedwater Inlet B Shutoff	Drywell Torus, Reactor Bldg. EL 121'
1AEHV F032A B21	Not Applicable	Fdw Line A Inlet Check Valve	Reactor Bldg. EL 132'
1AEHV F032B B21	Not Applicable	Fdw Line B Inlet Check Valve	Reactor Bldg. EL 132'
1AEHV F039 G33	Not Applicable	RWCU Disch To Feedwater	Reactor Bldg. EL 102'
1AEHV F074A B21	Not Applicable	Fdw Line A Inlet Check Valve	Reactor Bldg. EL 102'

P.O. # P302(Q) Component: Nuclear Valves Manufacturer: Anchor Darling Valve Company SHEET 2 of 7

I.D. No.	Model No.	Functional Description	Location
1AEHV F074B B21	Not Applicable	Fdw Line B Inlet Check Valve	Reactor Bldg. EL 102'
1APHV F011 E41	Not Applicable	HPCI Disch Isln To Cst Sht Off	Reactor Bldg. EL 077'
1BCHV F008 E11	Not Applicable	RHR Outboard Shtdn Clg Isln	Reactor Bldg. EL 102'
1BCHV F009 E11	Not Applicable	RHR Inbd Shtdn Clg Isln	Drywell Torus, Reactor Bldg. EL 100'
1BCHV F015A E11	Not Applicable	RHR Shtdn Clg Inject Outbd	Reactor Bldg. EL 102'
1BCHV F015B E11	Not Applicable	RHR Shtdn Clg Inject Outbd	Reactor Bldg. EL 102'
1BCHV F017A E11	Not Applicable	RHR/LPCI Line A	Reactor Bldg. EL 102'
1BCHV F017B E11	Not Applicable	LPCI Injection Line B	Reactor Bldg. EL 102'
1BCHV F017C E11	Not Applicable	RHR/LPCI Line C	Reactor Bldg. EL 102'
1BCHV F017D E11	Not Applicable	LPCI Injection Line D	Reactor Bldg. EL 102'
1BCHV F022 E11	Not Applicable	RHR RPV Head Spray Isln Inbd	Drywell Torus, Reactor Bldg. EL 145'
1BCHV F023 E11	Not Applicable	RHR RPV Head Spray Isln Outbd	Reactor Bldg. EL 145'
1BCHV F052A E11	Not Applicable	HPCI To RHR HX A	Reactor Bldg. EL 077'
1BCHV F052B E11	Not Applicable	RHR HX B Inlet Stop From HPCI	Reactor Bldg. EL 077'

P.O. # P302(Q) Component: Nuclear Valves Manufacturer: Anchor Darling Valve Company SHEET 3 of 7

I.D. No.	Model No.	Functional Description	Location
1BDHV F012 E51	Not Applicable	RCIC Pump Discharge Valve	Reactor Bldg. EL 054'
1BDHV F013 E51	Not Applicable	RCIC Feedwater Isln Valve	Reactor Bldg. EL 102'
1BDHV F022 E51	Not Applicable	RCIC Test Loop Isln Valve	Reactor Bldg. EL 077'
1BEHV F004A E21	Not Applicable	Core Spray Loop A Isln Valve	Reactor Bldg. EL 102'
1BEHV F004B E21	Not Applicable	Core Spray Loop B Isln Valve	Reactor Bldg. EL 102'
1BEHV F005A E21	Not Applicable	CS Loop A Containment Isln	Reactor Bldg. EL 102'
1BEHV F005B E21	Not Applicable	CS Loop B Containment Isln	Reactor Bldg. EL 102'
1BGHV F001 G33	Not Applicable	RWCU Inbd Isln Valve	Drywell Torus, Reactor Bldg. EL 145'
1BGHV F004 G33	Not Applicable	RWCU Outbd-Isln Valve	Reactor Bldg. EL 145'
1BGHV F031 G33	Not Applicable	RWCU Blowdown Orifice Bypass	Reactor Bldg. EL 132'
1BGHV F034 G33	Not Applicable	RWCU Disch to Condenser	Reactor Bldg. EL 077'
1BGHV F035 G33	Not Applicable	RWCU Disch To Equip Drain	Reactor Bldg. EL 077'
1BGHV F100 G33	Not Applicable	Suction From Recirc Loop A	Drywell Torus, Reactor Bldg. EL 077'

P.O. # P302(Q) Component: Nuclear Valves Manufacturer: Anchor Darling Valve Company SHEET 4 of 7

I.D. No.	Model No.	Functional Description	Location
1BGHV F101 G33	Not Applicable	Suction From RPV Bdt Drn	Drywell Torus, Reactor Bldg. EL 100'
1BGHV F102 G33	Not Applicable	Suction From Recirc Inside Cont	Drywell Torus, Reactor Bldg. EL 100'
1BGHV F106 G33	Not Applicable	Suction From Recirc Loop B	Drywell Torus, Reactor Bldg. EL 077'
1BJHV F006 E41	Not Applicable	HPCI/Pump Discharge Valve	Reactor Bldg. EL 102'
1BJHV F007 E41	Not Applicable	HPCI Pump Discharge Valve	Reactor Bldg. EL 054'
1BJHV F008 E41	Not Applicable	HPCI Test Bypass To CST	Reactor Bldg. EL 077'
1BJHV F012 E41	Not Applicable	Min Flow Bypass Valve Flow	Reactor Bldg. EL 054'
1BJHV 8278	Not Applicable	HPCI Pump Dsch To Fdwtr Line	Reactor Bldg. EL 124'
1FCHV F007 E51	Not Applicable	Steam Supply Isln Valve	Drywell Torus, Reactor Bldg. EL 100'
1FCHV F008 E51	Not Applicable	Steam Supply Isln Valve	Reactor Bldg. EL 102'
1FCHV F045 E51	Not Applicable	Recic Turb Steam Stop	Reactor Bldg. EL 054'
1FDHV F001 E41	Not Applicable	Turb Steam Supply Valve	Reactor Bldg. EL 054'
1FDHV F002 E41	Not Applicable	HPCI Pump Turb Stm Isln Valve	Drywell Torus, Reactor Bldg, EL 100'
1FDHV F003 E41	Not Applicable	HPCI Pump Turb Stm Isln Valve	Reactor Bldg. EL 102'

P.O. # P302(Q) Component: Nuclear Valves Manufacturer: Anchor Darling Valve Company SHEET 5 of 7

I D. No.	Model No.	Functional Description	Location
1 BCV 074	Not Applicable	RHR HX to Recirc System Valve	Drywell Torus, Reactor Bldg. EL 108'
1 BCV 183	Not Applicable	RHR HX to recirc. System Valve	Drywell Torus, Reactor Bldg. EL 106'
1 BG HV F044 G33	Not Applicable	RWCU Filter demin bypass	Reactor Bldg. EL 146'
1 BG HV F042 G33	Not Applicable	Regen HX Rtn Isln Valve	Reactor Bldg. EL 145'

P.O. # P302(Q) Component: Nuclear Valves Manufacturer: Anchor Darling Valve Company SHEET 6 of 7

I.D. No.	Model No.	Functional Description [Misc. Data]	Location
1 BG HV F104 G33	Not Applicable	RWCU HX Bypass Valve	Reactor Bldg. El. 132'
1 BCV 263	Not Applicable	Check Valve (6"-DBA-CK) [P&ID 51-1, M.R. No. 4.5]	Drywell, Torus, Reactor Bldg. El. 162'
1 BJV 003	Not Applicable	Check Valve (14"-DBB-CK) [P&ID 55-1, M.R. No. 7.3)	Reactor Bldg. El. 054'
1 BDV 010	Not Applicable	Check Valve (6"-DBB-CK) [P&ID 49-1, M.R. No. 7.11]	Reactor Bldg. El.054' El. 054'
1 BGV 005	Not Applicable	Check Valve (3"-DBC-CK) [P&ID 44-1, M.R. No. 10.1]	Reactor Bldg. El. 132'
1 BGV 009	Not Applicable	Check Valve (3"-DBC-CK) [P&ID 44-1, M.R. No. 10.1]	Reactor Bldg. El. 132'
1 AEV 003	Not Applicable	Check Valve (24"-DLA-CK) [P&ID 41-1, M.R. No. 16.3]	Drywell Torus, Reactor Bldg. El. 112'
1 AEV 007	Not Applicable	Check Valve (24"-DLA-CK) [P&ID 41-1, M.R. No. 16.3]	Drywell Torus, Reactor Bldg. El. 112'

P.O. # P302(Q) Component: Nuclear Valves Manufacturer: Anchor Darling Valve Company SHEET 7 of 7

I.D. No.	Model No.	Functional Description [Misc. Data]	Location
1 BJV 015	Not Applicable	Testable Check Valve (4"-DBB-TCK) [P&ID 55-1, M.R. No. 7.7]	Reactor Bldg. El. 054'
1 APV 003	Not Applicable	Testable Check Valve (10"-DBB-TCK) [P&ID 55-1, M.R. No. 7.13]	Reactor Bldg. El. 077'
1 AEV 127	Not Applicable	Testable Check Valve (4"-DBB-TCK) [P&ID 44-1, M.R. No. 7.9]	Reactor Bldg. El. 102'
1 AEV 128	Not Applicable	Testable Check Valve (4"-DBB-TCK) [P&ID 44-1, M.R. No. 7.9]	Reactor Bldg. El. 102'
1 APV 005	Not Applicable	Testable Check Valve (4"-DBB-TCK) [P&ID 49-1, M.R. No. 7.9]	Reactor Bldg. El. 077'
1 APV 036	Not Applicable	Testable Check Valve (3"-DBB-TCK) [P&ID 55-1, M.R. No. 7.15]	Reactor Bldg. El. 102'
1 APV 037	Not Applicable	Testable Check Valve (3"-DBB-TCK) [P&ID 55-1, M.R. No. 7.15]	Reactor Bldg. El. 102'
1 APV 050	Not Applicable	Testable Check Valve (3"-DBB-TCK) [P&ID 49-1, M.R. No. 7.15]	Reactor Bldg. El. 102'
1 APV 051	Not Applicable	Testable Check Valve (3"-DBB-TCK) [P&ID 49-1, M.R. No. 7.15]	Reactor Bldg. El. 102'

P.O. #P303A(Q) Component: Small Valves Manufacturer: Rockwell International

SHEET 1 of 17

I.D. No.	Model No.	Functional Description	Location
1ABHV F067A B21	3624-MT	MS Line A Outbd Drain Valve	Reactor Bldg. EL 102'
1ABHV F067B B21	3624-MT	MS Line B Outbd Drain Valve	Reactor Bldg. EL 102'
1ABHV F067C B21	3624-MT	MS Line C Outbd Drain Valve	Reactor Bldg. EL 102'
1ABHV F067D B21	3624-MT	MS Line D Outbd Drain Valve	Reactor Bldg. EL 102'
1ABHV F070A B21	3624-MT	MS Line Downstream Drain Valve	Reactor Bldg. EL 102'
1ABHV F070B B21	3624-MT	MS Line B Downstream Drain Valve	Reactor Bldg. EL 102'
1ABHV F070C B21	3624-MT	MS Line C Downstream Drain Valve	Reactor Bldg. EL 102'
1ABHV F070D B21	3624-MT	MS Line D Downstream Drain Valve	Reactor Bldg. EL 102'
1ABHV F071 B21	3624-MT	ST Hdr Downstream Drain Isln Valve	Reactor Bldg. EL 102'
1BBHV F001 B21	3624-MT	RV Head Vent To Drw Inbd Isln	Drywell Torus, Reactor Bldg. EL 162'
1BBHV F002 B21	3624-MT	RV Head Vent To Drw Outbd Isln	Drywell Torus, Reactor Bldg. EL 162'
1BBHV F005 B21	3624-MT	RV Head Vent To Steam Line A	Drywell Torus, Reactor Bldg. EL 162'
1BCHV F103A E11	3624-MT	HX A Vent Valve Outbd	Reactor Bldg. EL 077'
1BCHV F103B E11	3624-MT	RHR Heat Exchr B Vent	Reactor Bldg. EL 077'

P.O. # P303A(Q) Component: Small Valves Manufacturer: Rockwell International SHEET 2 of 17

I.D. No.	Model No.	Functional Description	Location
1BCHV F104A E11	3624-MT	HX A Vent Valve Inbd	Reactor Bldg. EL 077'
1BCHV F104B E11	3624-MT	RHR Heat Exchr B Vent	Reactor Bldg. EL 077'
1BCHV F122A E11	36124MMRT1	RHR HV-F050A E11 Bypass	Drywell Torus, Reactor Bldg. EL 100'
1BCHV F122B E11	36124MMRT1	RHR HV-F050B-E11 Bypass	Drywell Torus, Reactor Bldg. EL 100'
1BCHV F146A E11	36124MMRT1	RHR HV-F041A E11 Bypass	Reactor Bldg. EL 100'
1BCHV F146B E11	36124MMRT1	RHR HV-F041B E11 Bypass	Drywell Torus, Reactor Bldg. EL 100'
1BCHV F146C E11	36124MMRT1	RHR HV-F041C E11 Bypass	Drywell Torus, Reactor Bldg. EL 100'
1BCHV F146D E11	36124MMRT1	RHR 1BC HV-F041D E11 Bypass	Drywell Torus, Reactor Bldg. EL 100'
1BCHV 4428	3684-MT	Steam Line Warmup Valve	Reactor Bldg. EL 077'
1BDHV F046 E51	3624-MT	RCIC Turb Clg Wtr Supply	Reactor Bldg. EL 054'
1BEHV F039A E21	36124MMRT1	HV-F006A Bypass Test Valve	Drywell Torus, Reactor Bldg. EL 100'
1BEHV F039B E21	36124MMRT1	HV-F006B Bypass Test Valve	Drywell Torus, Reactor Bldg. EL 100'
1BFHV 3800A	36224-F316LMT	Recirc Pump A Supply	Reactor Bldg. EL 077'

P.O. # P303A(Q) Component: Small Valves Manufacturer: Rockwell International

SHEET 3 of 17

I.D. No.	Model No.	Functional Description	Location
1BFHV 3800B	36224-F316LMT	Recirc Pmp B Sply	Reactor Bldg. EL 077'
1BGHV 3980	3624-MT	React Bldg. Isln Valve To Cwt	Reactor Bldg. EL 132'
1BHHV F006A C41	3624F316-LMT	Slc Outbd Isln Stop Chk A	Drywell Torus, Reactor Bldg. EL 145'
1BHHV F006B C41	3624F316-LMT	Slc OUtbd Isln Stop Ckh B	Drywell Torus, Reactor Bldg. EL 145'
1BJHV F059 E41	3624-MT	HPCI L.O. Cooling Water Valve	Reactor Bldg. EL 054'
1BJHV 4803	3624-MT	Suppr Pool Lvl Instr-LP Isln	Reactor Bldg. EL 077'
1BJHV 4804	3624-MT	Suppr Pool Lvl Instr-Hp Tap	Reactor Bldg. EL 054'
1BJHV 4865	3624-MT	Suppr Pool Level Instr-Lp Tap	Reactor Bldg. EL 054'
1BJHV 4866	3624-MT	Suppr Pool Level Instr-Hp Tap	Reactor Bldg. EL 054'
1ECHV 4647	36224-F16LMT	Fuel Pool Makeup SSWS Loop A	Reactor Bldg. EL 162'
1ECHV 4648	36224-F16LMT	LP B Emerg Makeup To Fuel Pool	Reactor Bldg. EL 162'
1EGHV 2293A	36124MMRT1	Rcic Pmp RM Unit Cooler AVH208	Reactor Bldg. EL 054'
1EGHV 2293B	36124MMRT1	Rcic Pmp RM Unit Cooler AVH208	Reactor Bldg. EL 054'
1EGHV 2320A	3624-MT	Containmt Instr Gas Comp Clr	Reactor Bldg. EL 132'

P.O. # P303A(Q) Component: Small Valves Manufacturer: Rockwell International

SHEET 4 of 17

I.D. No.	Model No.	Functional Description	Location
1EGHV 2320B	3624-MT	Containmt Instr Gas Comp Clr	Reactor Bldg. EL 132'
1EGHV 2321A	3624-MT	Containmt Instr Gas Comp Clr	Reactor Bldg. EL 132'
1EGHV 2321B	3624-MT	Containmt Instr Gas Comp Clr	Reactor Bldg. EL 132'
1EGHV 2446	3624-MT	Emerg Clg Wtr M/U To SACS LP A	Reactor Bldg. EL 102'
1EGHV 2447	3624-MT	Emerg Clg Wtr M/U To SACS LP B	Reactor Bldg. EL 102'
1EGHV 2452A	3624-MT	Containmt Instr Gas Comp Clr A	Reactor Bldg. EL 132'
1EGHV 2452B	3624-MT	Containmt Instr Gas Comp Clr B	Reactor Bldg. EL 132'
1EGHV 2453A	3624-MT	Containmt Instr Gas Comp Clr	Reactor Bldg. EL 132'
1EGHV 2453B	3624-MT	Containmt Instr Gas Comp Clr	Reactor Bldg. EL 132'
1EGHV 2480A	36224F316LMT	Sacs Expan. Tnk Make Up	Reactor Bldg. EL 201'
1EGHV 2480B	36224F316LMT	Sacs Expansion Tnk Make Up	Reactor Bldg. EL 162'
1EGHV 2520A	36124 MMRT1	RHR Cooler Pmp AP202	Reactor Bldg. EL 054'
1EGHV 2520B	36124 MMRT1	RHR Cooler Pmp BP202	Reactor Bldg. EL 054'
1EGHV 2520C	36124 MMRT1	RHR Cooler Pmp CP202	Reactor Bldg. EL 054'

P.O. # P303A(Q) Component: Small Valves Manufacturer: Rockwell International SHEET 5 of 17

I.D. No.	Model No.	Functional Description	Location
1EGHV 2520D	36124 MMRT1	RHR Cooler Pmp DP202	Reactor Bldg. EL 054'
1FCHV F004 E51	36124 MMRT1	Rcic Vac Tnk Cond Pmp Drain	Reactor Bldg. EL 054'
1FCHV F025 E51	36124 MMRT1	Rcic Steam Trap Isln Valve	Reactor Bldg. EL 054'
1FCHV F026 E51	36124 MMRT1	Rcic Steam Trap Isln Valve	Reactor Bldg. EL 054'
1FCHV F060 E51	3624-MT	Rcic Vacuum Pump Discharge Valve	Reactor Bldg. EL 077'
1FCHV F076 E51	3624-MT	Rcic Isolation Valve Bypass	Drywell Torus, Reactor Bldg. EL 100'
1FDHV F026 E41	36124 MMRT1	Vac Tk Cond Pmp Disch To Crw	Reactor Bldg. EL 054'
1FDHV F028 E41	36124 MMRT1	HPCI Stm Trap Isln Valve	Reactor Bldg. EL 054'
1FDHV F029 E41	36124 MMRT1	HPCI Stm Trap Isln Valve	Reactor Bldg. EL 054'
1FDHV F100 E41	3624-MT	HPCI Warmup Line Isln Valve	Drywell Torus, Reactor Bldg. EL 100'
1FDHV4922	3624-MT	Containment Purge Valve Bypass (Re-tagged by field, was previously 1GSHV4951 and before that 1KPHV6056)	Reactor Bldg. EL 149'

P.O. # P303A(Q) Component: Small Valves Manufacturer: Rockwell International

I.D. No.	Model No.	Functional Description	Location
1GSHV 4955A	3684-F16LMT	Drywell ATM Sample Isln	Reactor Bldg. EL 132'
1GSHV 4955B	3684-F16LMT	Drywell ATM Sample Isln	Reactor Bldg. EL 162'
1GSHV 4959A	3684-F16LMT	Supp Chmbr ATM Sample Isln	Reactor Bldg. EL 077'
1GSHV 4959B	3684-F16LMT	Supp Chmbr ATM Sample Isln	Reactor Bldg. EL 077'
1GSHV 4963	3624-MT	Supp Chmbr Purge Exhaust (Spare)	Reactor Bldg. EL 077'
1GSHV 4965A	3624-F16LMT	Supp Chmbr ATM Sample Isln	Reactor Bldg. EL 077'
1GSHV 4965B	3624-F16LMT	Supp Chmbr ATM Sample Isln	Reactor Bldg. EL 077'
1GSHV 4966A	3624-F16LMT	Supp Chmbr ATM Samp RTN Isln	Reactor Bldg. EL 077'
1GSHV 4966B	3624-F16LMT	Supp Chmbr ATM Samp RTN Isln	Reactor Bldg. EL 102'
1GSHV 4974	3624-MT	Nitrogen Makeup Isln	Reactor Bldg. EL 102'
1GSHV 4983A	3624-F16LMT	Drywell Sample Isln	Reactor Bldg. EL 132'
1GSHV 4983B	3624-F16LMT	Drywell Sample Isln	Reactor Bldg. EL 162'
1GSHV 4984A	3624-F16LMT	Drywell Sample Isln	Reactor Bldg. EL 162'
1GSHV 4984B	3624-F16LMT	Drywell Sample Isln	Reactor Bldg. EL 162'

P.O. # P303A(Q) Component: Small Valves Manufacturer: Rockwell International SHEET 7 of 17

I.D. No.	Model No.	Functional Description	Location
1GSHV 5019A	3624-F16LMT	Drywell ATM Sample Isln	Reactor Bldg. EL 162'
1GSHV 5019B	3624-F16LMT	Drywell ATM Sample Isln	Reactor Bldg. EL 162'
1GSHV 5022A	3624-F16LMT	Chmbr ATM Samp RTN Isln	Reactor Bldg. EL 077'
1GSHV 5022B	3624-F16LMT	Chmbr ATM Samp RTN Isln	Reactor Bldg. EL 102'
1GSHV 5741A	36224-F316LMT	H2/O2 Analyzer A H2 Supply	Reactor Bldg. EL 132'
1GSHV 5741B	36224-F316LMT	H2/O2 Analyzer B H2 Supply	Reactor Bldg. EL 132'
1KLHV 5124A	36224-F316LMT	Supply HDR A Shutoff Valve	Drywell Torus, Reactor Bldg. EL 100'
1KLHV 5124B	36224-F316LMT	Supply HDR B Shutoff Valve	Drywell Torus, Reactor Bldg. EL 121'
1KLHV 5126A	3624-MT	Instr Gas HDR A Outbd Isln	Reactor Bldg. EL 102'
1KLHV 5126B	3624-MT	Instr Gas HDR B Outbd Isln	Reactor Bldg. EL 102'
1KLHV 5147	3624-MT	Instr Gas Cprsr A Suct Isln	Drywell Torus, Reactor Bldg. EL 132'
1KLHV 5148	3624-MT	Instr Gas Cprsrs Suct Isln	Drywell Torus, Reactor Bldg. EL 145'
1KLHV 5152A	3624-MT	Instr Gas Hdr A Inbd Isln	Drywell Torus, Reactor Bldg. EL 100'

P.O. # P303A(Q) Component: Small Valves Manufacturer: Rockwell International

I.D. No.	Model No.	Functional Description	Location
1KLHV 5152B	3624-MT	Instr Gas HDR B Inbd Isln	Drywell Torus, Reactor Bldg. EL 112'
1KLHV 5154	36124MMRT1	Instr Gas To Vac RV Outbd Isln	Reactor Bldg. EL 077'
1KLHV 5155	36124MMRT1	Instr Gas To Vac RV Inbd Isln	Reactor Bldg. EL 077'
1KLHV 5156A	36124MMRT1	Instr Gas Sply HDR A Xconn	Reactor Bldg. EL 102'
1KLHV 5156B	36124MMRT1	Instr Gas Sply HDR B Xconn	Reactor Bldg. EL 102'
1KLHV 5160A	3624-MT	Instr Gas CPRSR A LOCA Suct	Reactor Bldg. EL 132'
1KLHV 5160B	3624-MT	Instr Gas CPRSR B LOCA Suct	Reactor Bldg. EL 132'
1KLHV 5162	3624-MT	Instr Gas CPRSRS Suct Isln	Reactor Bldg. EL 132'
1KLHV 5172A	3624-MT	Instr Gas To Vac Brkr Acc A	Reactor Bldg. EL 102'
1KLHV 5172B	3624-MT	Instr Gas To Vac Brkr Acc B	Reactor Bldg. EL 102'
1KLHV 6057	36124MMRT1	Seal Gas Test Line Isln	Reactor Bldg. EL 077'
1KPHV 5829A	3624-MT	MSIV Inbd Seal Gas Sply Sov	Reactor Bldg. EL 102'
1KPHV 5829B	3624-MT	MSIV Outbd Seal Gas Sply Sov	Reactor Bldg. EL 102'
1KPHV 5834A	3624-MT	MSL A MSIV Inbd Seal Gas Sply	Reactor Bldg. EL 102'

P.O. # P303A(Q) Component: Small Valves Manufacturer: Rockwell International SHEET 9 of 17

I.D. No.	Model No.	Functional Description	Location
1KPHV 5834B	3624-MT	MSL B MSIV Outbd Seal Gas Sply	Reactor Bldg. EL 102'
1KPHV 5835A	3624-MT	MSL B MSIV Inbd Seal Gas Sply	Reactor Bldg. EL 102'
1KPHV 5835B	3624-MT	MSL B MSIV Outbd Seal Gas Sply	Reactor Bldg. EL 102'
1KPHV 5836A	3624-MT	MSL C MSIV Inbd Seal Gas Sply	Reactor Bldg. EL 102'
1KPHV 5836B	3624-MT	MSL C MSIV Outbd Seal Gas Sply	Reactor Bldg. EL 102'
1KPHV 5837A	3624-MT	MSL D MSIV Inbd Seal Gas Sply	Reactor Bldg. EL 102'
1KPHV 5837B	3624-MT	MSL D MSIV Outbd Seal Gas Sply	Reactor Bldg. EL 102'
1KPHV 6055A	36124MMRT1	Inbd Seal Gas Test Line Isln	Reactor Bldg. EL 102'
1KPHV 6055B	36124MMRT1	Outbd Seal Gas Test Line Isln	Reactor Bldg. EL 102'
1SEHV 5161	36124MMRT1	Tip Purge Containment Isln	Reactor Bldg. EL 100'
1SKHV 4953	36224-F16LMT	Drywell Gas Sample Isolation	Reactor Bldg. EL 162'
1SKHV 4957	36224-F16LMT	Drywell Sample Return Isolation	Drywell Torus, Reactor Bldg. EL 145'
1SKHV 4981	36224-F16LMT	Drywell Sample Return Isolation	Drywell Torus, Reactor Bldg. EL 145'
1SKHV 5018	36224-F16LMT	Drywell Gas Sample Isolation	Reactor Bldg. EL 162'

P.O. # P303A(Q) Component: Small Valves Manufacturer: Rockwell International

I.D. No.	Model No.	Functional Description [Misc. Data]	Location
1 BBV 043	36274F316LT1	Check Valve (3/4"-CCA-CK) [P&ID 43-1, M.R. Item No. 6.3]	Drywell Torus, Reactor Bldg. El. 094'
1 BBV 047	36274F316LT1	Check Valve (3/4"-CCA-CK) [P&ID 43-1, M.R. Item No. 6.3]	Drywell Torus, Reactor Bldg. El. 094'
1 BHV 004	36274F316LT1	Check Valve (1-1/2"-CCA-CK) [P&ID 48-1, M.R. Item No. 6.5]	Reactor Bldg. El. 168'
1 BHV 005	36274F316LT1	Check Valve (1-1/2"-CCA-CK) [P&ID 48-1, M.R. Item No. 6.5]	Reactor Bldg. El. 168'
1 BHV 029	36274F316LT1	Check Valve (1-1/2"-CCA-CK) [P&ID 48-1, M.R. Item No. 6.5]	Drywell Torus, Reactor Bldg. El. 148'
1 BCV 195	838YT1	Check Valve (1"-EBA-CK) [P&ID 51-1, M.R. Item No. 9.1]	Reactor Bldg. El. 056'
1 BCV 206	838YT1	Check Valve (1"-EBA-CK) [P&ID 51-1, M.R. Item No. 9.1]	Reactor Bldg. El. 065'
1 BCV 207	838YT1	Check Valve (1"-EBA-CK) [P&ID 51-1, M.R. Item No. 9.1]	Reactor Bldg. El. 057'
1 BCV 208	838YT1	Check Valve (1"-EBA-CK) [P&ID 51-1, M.R. Item No. 9.1]	Reactor Bldg. El. 057'
1 BCV 210	838YT1	Check Valve (1"-EBA-CK) [P&ID 51-1, M.R. Item No. 9.1]	Reactor Bldg. El. 057'
1 BCV 211	838YT1	Check Valve (1"-EBA-CK) [P&ID 51-1, M.R. Item No. 9.1]	Reactor Bldg. El. 057'

P.O. # P303A(Q) Component: Small Valves Manufacturer: Rockwell International SHEET 11 of 17

I.D. No.	Model No.	Functional Description [Misc. Data]	Location
1 BCV 260	838YT1	Check Valve (1"-EBA-CK) [P&ID 51-1, M.R. Item No. 9.1]	Reactor Bldg. El. 065'
1 GSV 081	838YT1	Check Valve (1"-EBA-CK) [P&ID 57-1, M.R. Item No. 9.1]	Reactor Bldg. El. 096'
1 GSV 093	838YT1	Check Valve (1"-EBA-CK) [P&ID 57-1, M.R. Item No. 9.1]	Reactor Bldg. El. 096'
1 GSV 138	838YT1	Check Valve (1"-EBA-CK) [P&ID 57-1, M.R. Item No. 9.1]	Reactor Bldg. El. 096'
1 GSV 139	838YT1	Check Valve (1"-EBA-CK) [P&ID 57-1, M.R. Item No. 9.1]	Reactor Bldg. El. 096'
1 KLV 005	838YT1	Check Valve (1"-EBA-CK) [P&ID 59-1, M.R. Item No. 9.1]	Reactor Bldg. El. 133'
1 KLV 006	838YT1	Check Valve (1"-EBA-CK) [P&ID 59-1, M.R. Item No. 9.1]	Reactor Bldg. El. 133'

P.O. # P303A(Q) Component: Small Valves Manufacturer: Rockwell International

I.D. No.	Model No.	Functional Description [Misc. Data]	Location
1 BCV 089	838YT1	Check Valve (1"-EBA-CK) [P&ID 51-1, M.R.-No. 9.1]	Reactor Bldg. El. 057'
1 BCV 090	838YT1	Check Valve (1"-EBA-CK) [P&ID 51-1, M.R.-No. 9.1]	Reactor Bldg. El. 057'
1 BCV 194	838YT1	Check Valve (1"-EBA-CK) [P&ID 51-1, M.R.-No. 9.1]	Reactor Bldg. El. 056'
1EG-HV 2542A	36124 MMRT1	(System Spare)	Reactor Bldg. Unassigned
1EG-HV 2542B	36124 MMRT1	(System Spare)	Reactor Bldg. Unassigned
1EG-HV 2543A	36124 MMRT1	(System Spare)	Reactor Bldg. Unassigned
1EG-HV 2543B	36124 MMRT1	(System Spare)	Reactor Bldg. Unassigned
1GS HV 4963	36124 MMRT1	(System Spare) Re-tagged by field, was previously 1KLHV 5175	Reactor Bldg. Unassigned
1AB-HV F073 B21	36124 MMRT1	(System Spare)	Reactor Bldg. Unassigned
1BC HV 5055A	3624-MT	Valve from RHR HX to Hydrogen Recombiner	Rector Bldg. EL 058'
1BC HV 5055B	3624-MT	Valve from RHR HX to Hydrogen Recombiner	Reactor Bldg. EL 090'
1GS HV 5057A	3624-MT	Valve from RHR HX to Hydrogen Recombiner	Reactor Bldg. EL 058'
1GS HV 5057B	3624-MT	Valve from RHR HX to Hydrogen Recombiner	Reactor Bldg. EL 090'

P.O. # P303A(Q) Component: Small Valves Manufacturer: Rockwell International

SHEET 13 of 17

I.D. No.	Model No.	Functional Description [Misc. Data]	Location
1 BCV 308	838YT1	Check Valve (2"-EBA-CK) [P&ID 52-1, M.R. Item No. 9.5]	Reactor Bldg. El. 056'
1 BCV 309	838YT1	Check Valve (2"-EBA-CK) [P&ID 52-1, M.R. Item No. 9.5]	Reactor Bldg. El. 056'
1 BCV 312	838YT1	Check Valve (2"-EBA-CK) [P&ID 52-1, M.R. Item No. 9.5]	Reactor Bldg. El. 056'
1 BCV 313	838YT1	Check Valve (2"-EBA-CK) [P&ID 52-1, M.R. Item No. 9.5]	Reactor Bldg. El. 056'
1 BCV 423	838YT1	Check Valve (2"-EBA-CK) [P&ID 10-1, M.R. Item No. 9.5]	Reactor Bldg. El. 108'
1 BCV 023	838YT1	Check Valve (2"-EBA-CK) [P&ID 50-1, M.R. Item No. 9.5]	Reactor Bldg. El. 061'
1 BJV 027	838YT1	Check Valve (2"-EBA-CK) [P&ID 56-1, M.R. Item No. 9.5]	Reactor Bldg. El. 061'
1 EAV 557	838YT1	Check Valve (2"-EBA-CK) [P&ID 10-1, M.R. Item No. 9.5]	Reactor Bldg. El. 103'
1 EGV 704	838YT1	Check Valve (2"-EBA-CK) [P&ID 11-1, M.R. Item No. 9.5]	Reactor Bldg. El. 056'
1 EGV 705	838YT1	Check Valve (2"-EBA-CK) [P&ID 11-1, M.R. Item No. 9.5]	Reactor Bldge. El. 056'
1 EGV 706	838YT1	Check Valve (2"-EBA-CK) [P&ID 11-1, M.R. Item No. 9.5]	Reactor Bldg. El. 057'
1 EGV 707	838YT1	Check Valve (2"-EBA-CK) [P&ID 11.1, M.R. Item No. 9.5]	Reactor Bldg. El. 058'
1 FCV 010	838YT1	Check Valve (2"-EBA-CK) [P&ID 49-1, M.R. Item No. 9.5]	Reactor Bldg. El. 061'

P.O. # P303A(Q) Component: Small Valves Manufacturer: Rockwell International SHEET 14 of 17

I.D. No.	Model No.	Functional Description [Misc. Data]	Location
1 FDV 032	838YT1	Check Valve (2"-EBA-CK) [P&ID 56-1, M.R. Item No. 9.5]	Reactor Bldg. El. 061'
1 FDV 038	838YT1	Check Valve (2"-EBA-CK) [P&ID 56-1, M.R. Item No. 9.5]	Reactor Bldg. El. 061'
1 GUV 032	838YT1	Check Valve (2"-EBA-CK) [P&ID 84-1, M.R. Item No. 9.5]	Reactor Bldg. El. 085'

P.O. # P303A(Q) Component: Small Valves Manufacturer: Rockwell International

SHEET 15 of 17

I.D. No.	Model No.	Functional Description	Location
1ABHV F033 B21	36124MMRT1	Steam Line Inboard Drain Valve	Reactor Bldg. EL 102'
1ABHV F068 B21	3624-MT	MS Outbd Drain HDR Startup Valve	Reactor Bldg. EL 102'
1KLHV 5125	36124MMRT1	Instr Air Backup Sply	Reactor Bldg. EL 132'
1BDHV F019-E51	3624MT	RCIC Pump min. flow bypass (Spare)	Reactor Bldg. EL 078'
1BGHV F101	3624MT	System Spare (Re-tagged by field, was previously 1EGHV 2313A)	Reactor Bldg. Unassigned
1EGHV 2313B	3624MT	System Spare	Reactor Bldg. Unassigned
1KLHV 5189A	36224-F316LMT	Spare	Unassigned
1KLHV 5189B	36224-F316LMT	Spare	Unassigned

P.O. # P303A(Q) Component: Small Valves Manufacturer: Rockwell International

SHEET 16 of 17

I.D. No.	Model No.	Functional Description [Misc. Data]	Location
1 KLV 023	838YT1	Check Valve (2" EBA-CK) [P&ID 59-1, M.R. No. 9.5]	Reactor Bldg. El. 116'
1 KLV 024	838YT1	Check Valve (2" EBA-CK) [P&ID 59-1, M.R. No. 9.5]	Reactor Bldg. El. 116'
1 BDV 028	36174T1	Check Valve (1" CBA-CK) [P&ID 49-1, M.R. No. 3.3]	Reactor Bldg. El. 060'
1 BDV 029	36174T1	Check Valve (1" CBA-CK) [P&ID 49-1, M.R. No. 3.3]	Reactor Bldg. El. 060'
1 BJV 014	36174T1	Check Valve (1" CBA-CK) [P&ID 49-1, M.R. No. 3.3]	Reactor Bldg. El. 062'
1 BJV 023	36174T1	Check Valve (1" CBA-CK) [P&ID 49-1, M.R. No. 3.3]	Reactor Bldg. El. 062'
1 BDV 006	36174T1	Check Valve (2"-CBA-CK) [P&ID 72-1, M.R. No. 3.7]	Reactor Bldg. El. 064'
1 KPV 011	36174T1	Check Valve (2"-CBA-CK) [P&ID 72-1, M.R. No. 3.7]	Reactor Bldg. El. 116'
1 KPV 017	36174T1	Check Valve (2"-CBA-CK) [P&ID 72-1, M.R. No. 3.7]	Reactor Bldg. El. 109'
1 KPV 018	36174T1	Check Valve (2"-CBA-CK) [P&ID 72-1, M.R. No. 3.7]	Reactor Bldg. El. 109'

P.O. # P303A(Q) Component: Small Valves Manufacturer: Rockwell International SHEET 17 of 17

I.D. No.	Model No.	Functional Description [Misc. Data]	Location
1 KPV 019	36174T1	Check Valve (2"-CBA-CK) [P&ID 72-1, M.R. No. 3.7]	Reactor Bldg. El. 109'
1 KPV 020	36174T1	Check Valve (2"-CBA-CK) [P&ID 72-1, M.R. No. 3.7]	Reactor Bldg. El. 109'
1 KPV 021	36174T1	Check Valve (2"-CBA-CK) [P&ID 72-1, M.R. No. 3.7]	Reactor Bldg. El. 116'
1 BDV 022	36174T1	Check Valve (2"-CBA-CK) [P&ID 72-1, M.R. No. 3.7]	Reactor Bldg. El. 116'
1 BDV 023	36174T1	Check Valve (2"-CBA-CK) [P&ID 72-1, M.R. No. 3.7]	Reactor Bldg. El. 116'

P.O. # P305(Q) Component: Butterfly Valves Manufacturer: B.I.F/Unit Of General Signal SHEET 1 of 4

I.D. No.	Model No.	Functional Description	Location
1EAHV F073	Not Applicable	Emerg Clg Wtr M/U Loop B	Reactor Bldg. EL 077'
1EAHV 2203	Not Applicable	SSWS Loop A To RACS HX	Reactor Bldg. EL 102'
1EAHV 2204	Not Applicable	RACS HTX Clg Wtr From Loop B	Reactor Bldg. EL 102'
1EAHV 2207	Not Applicable	RACS HX Cooling Wtr Inlet	Reactor Bldg. EL 102'
1EAHV 2234	Not Applicable	Emerg Clg Wtr M/U Loop A	Reactor Bldg. EL 077'
1EAHV 2236	Not Applicable	Emerg Wtr M/U Loop A Isln	Reactor Bdlg. EL 077'
1EAHV 2238	Not Applicable	Emerg Wtr M/U Loop B Isln	Reactor Bldg. EL 077'
1EAHV 2346	Not Applicable	RACS HTX Clg Wtr Disch Isln V.	Reactor Bldg. EL 077'
1EAHV 2355A	Not Applicable	SACS HTX A2E201 Outlet	Reactor Bldg. EL 102'
1EAHV 2355B	Not applicable	SACS HTX B2E201 Outlet	Reactor Bldg. EL 102'
1EAHV 2356A	Not Applicable	SACS LP A To Yard Dump	Reactor Bldg. EL 102'
1EAHV 2356B	Not Applicable	SACS LP B To Yard Dump	Reactor Bldg. EL 102'
1EAHV 2357A	Not Applicable	SACS LP A To Clg Tower	Reactor Bldg. EL 077'
1EAHV 2357B	Not Applicable	SACS LP B To Clg Tower	Reactor Bldg. EL 077'

P.O. # P305(Q) Component: Butterfly Valves Manufacturer: B.I.F/Unit Of General Signal SHEET 2 of 4

I.D. No.	Model No.	Functional Description	Location
1EAHV 2371A	Not Applicable	SACS HTX A1E201 Outlet	Reactor Bldg. EL 102'
1EAHV 2371B	Not Applicable	SACS HTX B1E201 Outlet	Reactor Bldg. EL 102'
1EDHV 2598	Not Applicable	Reac/Aux Bldg Isln	Reactor Bldg. EL 054'
1EDHV 2599	Not Applicable	Reac/Aux Bldg Isln	Reactor Bldg. EL 054'
1EGHV 2314A	Not Applicable	Fuel Pool HX AE202	Reactor Bldg. EL 162'
1EGHV 2314B	Not Applicable	Fuel Pool HX BE202	Reactor Bldg. EL 162'
1EGHV 2317A	Not Applicable	Fuel Pool HX AE202	Reactor Bldg. EL 162'
1EGHV 2317B	Not Applicable	Fuel Pool HX BE202	Reactor Bldg. EL 162'
1EGHV 2457A	Not Applicable	SACS Heat Exch Loop A Bypass	Reactor Bldg. EL 102'
1EGHV 2457B	Not Applicable	SACS Heat Exch Loop B Bypass	Reactor Bldg. EL 102'
1EGHV 2491A	Not Applicable	SACS HX A1E201 Inlet	Reactor Bldg. EL 102'
1EGHV 2491B	Not Applicable	SACS HX B1E201 Inlet	Reactor Bldg. EL 102'
1EGHV 2494A	Not Applicable	SACS HX A2E201 Inlet	Reactor Bldg. EL 102'
1EGHV 2494B	Not Applicable	SACS HX B2E201 Inlet	Reactor Bldg. EL 102'

P.O. # P305(Q) Component: Butterfly Valves Manufacturer: B.I.F/Unit Of General Signal SHEET 3 of 4

I.D. No.	Model No.	Functional Description	Location
1EGHV 2496A	Not Applicable	SACS Loop A Return Valve	Reactor Bldg. EL 102'
1EGHV 2496B	Not applicable	SACS Loop B Return Valve	Reactor Bldg. EL 102'
1EGHV 2496C	Not Applicable	SACS Loop A Return Valve	Reactor Bldg. EL 102'
1EGHV 2496D	Not Applicable	SACS Loop B Return Valve	Reactor Bldg. EL 102'
1EGHV 2512A	Not Applicable	RHR HX AE205 Disch	Reactor Bldg. EL 077'
1EGHV 2512B	Not Applicable	RHR HX BE205 Disch	Reactor Bldg. EL 077
1EGHV 2522A	Not Applicable	SACS To TACS Loop A Supply	Reactor Bldg. EL 102'
1EGHV 2522B	Not Applicable	SACS To TACS Loop B Supply	Reactor Bldg. EL 102'
1EGHV 2522C	Not Applicable	SACS To TACS Loop A Supply	Reactor Bldg. EL 102'
1EGHV 2522D	Not Applicable	SACS To TACS Loop B Supply	Reactor Bldg. EL 102'
1EGHV 7921A	Not Applicable	Fuel Pool Heat Exchanger	Reactor Bldg. EL 162'
1EGHV 7921B	Not Applicable	Fuel Pool HZ BE202	Reactor Bldg. EL 162'

P.O. # P305(Q) Component: Butterfly Valves Manufacturer: B.I.F/Unit Of General Signal SHEET 4 of 4

I.D. No.	Model No.	Functional Description	Location
1EGHV 7922A	Not Applicable	Fuel Pool HX AE202	Reactor Bldg. EL 162'
1EGHV 7922B	Not Applicable	Fuel Pool HX BE202	Reactor Bldg. EL 162'
1GHHV 5543	Not Applicable	Aln Up Rcvg TK IOT217 Vent RW	Reactor Bldg. EL 077'
1GSHV 4950	Not Applicable	Drywell Purge Exhaust	Reactor Bldg. EL 145'
1GSHV 4952	Not Applicable	Drywell Purge Exhaust	Reactor Bldg. EL 145'
1GSHV 4956	Not Applicable	Drywell Purge Inlet Valve Isln	Reactor Bldg. EL 102'
1GSHV 4958	Not Applicable	Suppr Chmbr Purge Inlet	Reactor Bldg. EL 077'
1GSHV 4962	Not Applicable	Supp Chmbr Purge Exhaust	Reactor Bldg. EL 077'
1GSHV 4964	Not Applicable	Supp Chmbr Purge Exhaust	Reactor Bldg. EL 077'
1GSHV 4978	Not Applicable	Nitrogen Purge Isln	Reactor Bldg. EL 102'
1GSHV 4979	Not Applicable	Drywell Prepurge C/U Inl Line	Reactor Bldg. EL 102'
1GSHV 4980	Not Applicable	Drywell Prepurge C/U Inl Line	Reactor Bldg. EL 077'
1GSHV 5029	Not Applicable	Reactor Bldg ATM Control	Reactor Bldg. EL 077'
1GSHV 5031	Not Applicable	Reactor Bldg ATM Control	Reactor Bldg. EL 077'

P.O. # P366(Q) Component: Resilient Seated Check Valves Manufacturer: Circle Seal Controls (Brunswick Corp.) (Technetics Div.) SHEET 1 of 1

I.D. No.	Model No.	Functional Description	Location
1ABV 051	Not Applicable	Inboard MSIV Instrumentation Check Valve	Reactor Bldg. EL 102'
1ABV 052	Not Applicable	Inboard MSIV Instrumentation Check Valve	Reactor Bldg. EL 102'
1ABV 053	Not Applicable	Inboard MSIV Instrumentation Check Valve	Reactor Bldg. EL 102'
1ABV 054	Not Applicable	Inboard MSIV Instrumentation Check Valve	Rector Bldg. EL 102'
1ABV 055	Not Applicable	Outboard MSIV Instrumentation Check Valve	Reactor Bldg. EL 102'
1ABV 056	Not Applicable	Outboard MSIV Instrumentation Check Valve	Reactor Bldg. EL 102'
1ABV 057	Not Applicable	Outboard MSIV Instrumentation Check Valve	Reactor Bldg. EL 102'
1ABV 058	Not Applicable	Outboard MSIV Instrumentation Check Valve	Reactor Bldg. EL 102'

*The balance of the 1-AB valves (14) have not yet been assigned.

P.O. # P401D Component: Hydraulic Snubbers Manufacturer: E-Systems, Inc., Montex Division SHEET 1 of 3

I.D. No.	Model No.	(Rating)	Functional Description	Location
1-AB-030-H02	152007	70 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 121'
1-AB-030-H03	152007	70 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 121'
1-AB-030-H04	152007	70 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 121'
1-AB-030-H05	152007	70 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 121'
1-AB-031-H02	152007	70 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 121'
1-AB-031-H03	152007	70 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 121'
1-AB-031-H05	152007	70 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 121'
1-AB-031-H04	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 121'
1-AB-031-H07	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 121'
1-AB-032-H04	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 121'
1-AB-032-H07	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 121'
1-AB-032-H02	152007	70 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 121'
1-AB-032-H05	152007	70 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 121'
1-AB-033-H02	152007	70 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 121'
1-AB-033-H03	152007	70 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 121'
1-AB-033-H04	152007	70 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 121'
1-AB-033-H05	152007	70 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 121'
1-BB-011-H02	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 086'
1-BB-011-H03	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 086'
1-BB-011-H07	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-BB-011-H08	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'

P.O. # P401D Component: Hydraulic Snubbers Manufacturer: E-Systems, Inc., Montek Division SHEET 2 of 3

I.D. No.	Model No.	(Rating)	Functional Description	Location
1-BB-011-H11	152010	100 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-BB-011-H12	152010	100 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-BB-011-H13	152010	100 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 086'
1-BB-011-H14	152010	100 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 086'
1-BB-012-H02	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 086
1-BB-012-H03	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 086'
1-BB-012-H07	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-BB-012-H08	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-BB-012-H09	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-BB-012-H10	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-BB-012-H11	152010	100 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-BB-012-H12	152010	100 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 086'
1-BB-012-H13	152010	100 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 086'
1-BB-012-H14	152010	100 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 086'
1-BB-013-H02	152007	70 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-BB-013-H01	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-BB-013-H04	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 086'
1-BB-013-H06	152003	30 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-BB-013-H07	152003	30 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-BB-013-H08	152003	30 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-BB-013-H09	152003	30 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'

P.O. # P401D Component: Hydraulic Snubbers Manufacturer: E-Systems, Inc., Montek Division SHEET 3 of 3

I.D. No.	Model No.	(Rating)	Functional Description	Location
1-BB-014-H02	152007	70 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-BB-014-H01	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-BB-014-H04	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 086'
1-BB-014-H06	152003	30 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-BB-014-H07	152003	30 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-BB-014-H08	152003	30 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-BB-014-H09	152003	30 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 100'
1-AB-032-H03	152007	70 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 124'
1-BB-011-H09	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 104'
1-BB-011-H10	152005	50 Kip	Pipe Support/Restraint Device	Reactor Bldg., EL 107'

FSAR TABLE 3.11-5

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-01-1

SYSTEM: MAIN STEAM
AB

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-SB-PS-N005A	C71	Press. Switch	Turbine	123	No	No	161
M001	1-SB-PS-N005B	C71	Press. Switch	Turbine	123	No	No	161
M001	1-SB-PS-N005C	C71	Press. Switch	Turbine	123	No	No	161
M001	1-SB-PS-N005D	C71	Press. Switch	Turbine	123	No	No	161
M001	1-SB-ZS-N006A	C71	Position Switch	Turbine	102	No	No	119
M001	1-SB-ZS-N006B	C71	Position Switch	Turbine	102	No	No	119
M001	1-SB-ZS-N006C	C71	Position Switch	Turbine	102	No	No	119
M001	1-SB-ZS-N006D	C71	Position Switch	Turbine	102	No	No	119
M001	1-SB-ZS-N006E	C71	Position Switch	Turbine	77	No	No	119
M001	1-SB-ZS-N006F	C71	Position Switch	Turbine	77	No	No	119
M001	1-SB-ZS-N006G	C71	Position Switch	Turbine	77	No	No	119
M001	1-SB-ZS-N006H	C71	Position Switch	Turbine	77	No	No	119

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-08-0

SYSTEM: CONDENSATE & REFUELING WATER STORAGE & TRANSFER
AP

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
J483Q	1-BD-LS-N035A	E51	Level Switch	Reactor	77	No	Yes	42
J483Q	1-BD-LS-N035E	E51	Level Switch	Reactor	77	No	Yes	42
M001	1-BJ-LT-N061A	E41	Level Trans	Reactor	77	No	No	155
M001	1-BJ-LT-N061E	E41	Level Trans	Reactor	77	No	No	155
P301Q	0-BN-HV-2069		Contr. Valve	Reactor	54	No	No	127
P301Q	0-BN-ZS-2069		Limit Switch	Reactor	54	No	No	127
P301Q	0-AP-HV-2072		Contr. Valve	Reactor	54	No	No	127
P301Q	0-AP-ZS-2072		Limit Switch	Reactor	54	No	No	127
P301Q	0-AP-HV-2073		Contr. Valve	Reactor	54	No	No	127
P301Q	0-AP-ZS-2073		Limit Switch	Reactor	54	No	No	127

M P84 89 02 1/2-az

TABLE 3.11-5

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: SERVICE WATER EA

P&ID M-10-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P305Q	1-EA-HV-F073		Control Valve	Reactor	77	No	No	144
P305Q	1-EA-ZS-F073		Limit Switch	Reactor	77	No	No	144
J603Q	1-BC-SV-F074		Solenoid Valve	Reactor	77	No	No	46
P305Q	1-EA-HV-2203		Control Valve	Reactor	102	No	No	144
P305Q	1-EA-ZS-2203		Limit Switch	Reactor	102	No	No	144
P305Q	1-EA-HV-2204		Control Valve	Reactor	102	No	No	144
P305Q	1-EA-ZS-2204		Limit Switch	Reactor	102	No	No	144
P305Q	1-EA-HV-2207		Control Valve	Reactor	102	No	No	144
P305Q	1-EA-ZS-2207		Limit Switch	Reactor	102	No	No	144
P305Q	1-EA-HV-2234		Control Valve	Reactor	77	No	No	144
P305Q	1-EA-ZS-2234		Limit Switch	Reactor	77	No	No	144
J603Q	1-EA-SV-2235		Solenoid Valve	Reactor	77	No	No	47
P305Q	1-EA-HV-2236		Control Valve	Reactor	77	No	No	144
P305Q	1-EA-ZS-2236		Limit Switch	Reactor	77	No	No	144
J603Q	1-EA-SV-2237		Solenoid Valve	Reactor	77	No	No	46
P305Q	1-EA-HV-2238		Control Valve	Reactor	77	No	No	144
P305Q	1-ES-ZS-2238		Limit Switch	Reactor	77	No	No	144
J603Q	1-EA-SV-2239		Solenoid Valve	Reactor	77	No	No	47
P305Q	1-EA-HV-2346		Control Valve	Reactor	77	No	No	144
P305Q	1-EA-ZS-2346		Limit Switch	Reactor	77	No	No	144
J301Q	1-EA-PDT-2354A		Press. Diff. Trans.	Reactor	102	No	No	29

M P84 89 03 1/2-az

TABLE 3.11-5

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: SERVICE WATER EA

P&ID M-10-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P305Q	1-EA-HV-2356A		Control Valve	Reactor	102	No	No	144
P305Q	1-EA-ZS-2356A		Limit Switch	Reactor	102	No	No	144
J301Q	1-EA-PT-2356A1		Press Trans.	Reactor	77	No	No	29
J301Q	1-EA-PT-2356A2		Press Trans.	Reactor	77	No	No	29
J301Q	1-EA-PT-2356A3		Press Trans.	Reactor	77	No	No	29
P305Q	1-EA-HV-2356B		Control Valve	Reactor	102	No	No	144
P305Q	1-EA-ZS-2356B		Limit Switch	Reactor	102	No	No	144
J301Q	1-EA-PT-2356B1		Press Trans.	Reactor	77	No	No	29
J301Q	1-EA-PT-2356B2		Press Trans.	Reactor	77	No	No	29
J301Q	1-EA-PT-2356B3		Press Trans.	Reactor	77	No	No	29
P305Q	1-EA-HV-2357A		Control Valve	Reactor	77	No	No	144
P305Q	1-EA-ZS-2357A		Limit Switch	Reactor	77	No	No	144
P305Q	1-EA-HV-2357B		Control Valve	Reactor	77	No	No	144
P305Q	1-EA-ZS-2357B		Limit Switch	Reactor	77	No	No	144

M P84 89 03 1/2-az

TABLE 3.11-5

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: SERVICE WATER EA

P&ID M-10-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P305Q	1-EA-ZS-2360A		Position Switch	Reactor	102	No	No	146
P305Q	1-EA-ZS-2360B		Position Switch	Reactor	102	No	No	146
P305Q	1-EA-ZS-2363A		Position Switch	Reactor	102	No	No	146
P305Q	1-EA-ZS-2363B		Position Switch	Reactor	102	No	No	146
J201Q	1-EA-HS-2367A		Hand Switch	Reactor	102	No	No	25
J603Q	1-EA-SV-2367A		Solenoid Valve	Reactor	102	No	No	47
J201Q	1-EA-HS-2367B		Hand Switch	Reactor	102	No	No	25
J603Q	1-EA-SV-2367B		Solenoid Valve	Reactor	102	No	No	47
J201Q	1-EA-HS-2367C		Hand Switch	Reactor	102	No	No	25
J603Q	1-EA-SV-2367C		Solenoid Valve	Reactor	77	No	No	47
J201Q	1-EA-HS-2367D		Hand Switch	Reactor	102	No	No	25
J603Q	1-EA-SV-2367D		Solenoid Valve	Reactor	102	No	No	47
P305Q	1-EA-HV-2371A		Control Valve	Reactor	102	No	No	144
P305Q	1-EA-ZS-2371A		Limit Switch	Reactor	102	No	No	144
P305Q	1-EA-HV-2371B		Control Valve	Reactor	102	No	No	144
P305Q	1-EA-ZS-2371B		Limit Switch	Reactor	102	No	No	144
J301Q	1-EA-PDT-2373A		Press Diff. Trans.	Reactor	102	No	No	29
J301Q	1-EA-PDT-2373B		Press Diff. Trans.	Reactor	102	No	No	29
P303AQ	1-EG-HV-2446		Control Valve	Reactor	102	No	No	139
P303AQ	1-EG-ZS-2446		Limit Switch	Reactor	102	No	No	139
P303AQ	1-EG-HV-2447		Control Valve	Reactor	102	No	No	139
P303AQ	1-EG-ZS-2447		Limit Switch	Reactor	102	No	No	139
P303AQ	1-EC-HV-4647		Control Valve	Reactor	162	No	No	139
P303AQ	1-EC-ZS-4647		Limit Switch	Reactor	162	No	No	139
P303AQ	1-EC-HV-4648		Control Valve	Reactor	162	No	No	139
P303AQ	1-EC-ZS-4648		Limit Switch	Reactor	162	No	No	139

M P84 89 03 3/4-az

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: SAFETY AUX COOL SYSTEM
EG

P&ID
M-11-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
J201Q	1A-C-201		SACS Control Panel A	Reactor	102	No	No	26,27
J201Q	1B-C-201		SACS Control Panel B	Reactor	102	No	No	26,27
J201Q	1C-C-201		SACS Control Panel C	Reactor	102	No	No	26,27
J201Q	1D-C-201		SACS Control Panel D	Reactor	102	No	No	26,27
E112AQ	1A-P-210		SACS Pump Motor	Reactor	102	No	No	1
E112AQ	1B-P-210		SACS Pump Motor	Reactor	102	No	No	1
E112AQ	1C-P-210		SACS Pump Motor	Reactor	102	No	No	1
E112AQ	1D-P-210		SACS Pump Motor	Reactor	102	No	No	1
P301Q	1-EG-SV-2290A		Solenoid Valve	Reactor	54	No	No	124
P301Q	1-EG-ZS-2290A		Position Switch	Reactor	54	No	No	125
P301Q	1-EG-SV-2290B		Solenoid Valve	Reactor	54	No	No	124
P301Q	1-EG-ZS-2290B		Position Switch	Reactor	54	No	No	125
P301Q	1-EG-SV-2290C		Solenoid Valve	Reactor	54	No	No	124
P301Q	1-EG-ZS-2290C		Position Switch	Reactor	54	No	No	125
P301Q	1-EG-SV-2290D		Solenoid Valve	Reactor	54	No	No	124
P301Q	1-EG-ZS-2290D		Position Switch	Reactor	54	No	No	125
P301Q	1-EG-SV-2290E		Solenoid Valve	Reactor	77	No	No	124
P301Q	1-EG-ZS-2290E		Position Switch	Reactor	77	No	No	125
P301Q	1-EG-SV-2290F		Position Switch	Reactor	77	No	No	124
P301Q	1-EG-ZS-2290F		Position Switch	Reactor	77	No	No	125
P301Q	1-EG-SV-2290G		Solenoid Valve	Reactor	54	No	No	124
P301Q	1-EG-ZS-2290G		Position Switch	Reactor	54	No	No	125

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: SAFETY AUX COOL SYSTEM
EG

P&ID
M-11-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P301Q	1-EG-ZS-2290H		Position Switch	Reactor	54	No	No	125
P301Q	1-EG-SV-2292A		Solenoid Valve	Reactor	54	No	No	124
P301Q	1-EG-ZS-2292A		Position Switch	Reactor	54	No	No	125
P301Q	1-EG-SV-2292B		Solenoid Valve	Reactor	54	No	No	124
P301Q	1-EG-ZS-2292B		Position Switch	Reactor	54	No	No	125
P303AQ	1-EG-SV-2293A		Solenoid Valve	Reactor	54	No	No	140
P303AQ	1-EG-ZS-2293A		Position Switch	Reactor	54	No	No	141
P303AQ	1-EG-SV-2293B		Solenoid Valve	Reactor	54	No	No	140
P303AQ	1-EG-ZS-2293B		Position Switch	Reactor	54	No	No	141
P301Q	1-EG-SV-2302A		Solenoid Valve	Reactor	132	No	No	124
P301Q	1-EG-ZS-2302A		Position Switch	Reactor	132	No	No	125
P301Q	1-EG-SV-2302B		Solenoid Valve	Reactor	178	No	No	124
P301Q	1-EG-ZS-2302B		Position Switch	Reactor	178	No	No	125
P301Q	1-EG-SV-2302C		Solenoid Valve	Reactor	132	No	No	124
P301Q	1-EG-ZS-2302C		Position Switch	Reactor	132	No	No	125
P301Q	1-EG-SV-2302D		Solenoid Valve	Reactor	162	No	No	124
P301Q	1-EG-ZS-2302D		Position Switch	Reactor	162	No	No	125
P301Q	1-EG-SV-2302E		Solenoid Valve	Reactor	162	No	No	124
P301Q	1-EG-ZS-2302E		Position Switch	Reactor	162	No	No	125
P301Q	1-EG-SV-2302F		Solenoid Valve	Reactor	178	No	No	124
P301Q	1-EG-ZS-2302F		Position Switch	Reactor	178	No	No	125
P305Q	1-EG-HV-2314A		Contr. Valve	Reactor	162	No	No	144
P305Q	1-EG-ZS-2314A		Limit Switch	Reactor	162	No	No	144

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: SAFETY AUX COOL SYSTEM
EG

P&ID
M-11-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P305Q	1-EG-HV-2314B		Contr. Valve	Reactor	162	No	No	144
P305Q	1-EG-ZS-2314B		Limit Switch	Reactor	162	No	No	144
P305Q	1-EG-HV-2317A		Contr. Valve	Reactor	162	No	No	144
P305Q	1-EG-ZS-2317A		Limit Switch	Reactor	162	No	No	144
P305Q	1-EG-HV-2317B		Contr. Valve	Reactor	162	No	No	144
P305Q	1-EG-ZS-2317B		Limit Switch	Reactor	162	No	No	144
P303AQ	1-EG-HV-2320A		Contr. Valve	Reactor	132	No	No	139
P303AQ	1-EG-ZS-2320A		Limit Switch	Reactor	162	No	No	139
P303AQ	1-EG-HV-2320B		Contr. Valve	Reactor	132	No	No	139
P303AQ	1-EG-ZS-2320B		Limit Switch	Reactor	162	No	No	139
P303AQ	1-EG-HV-2321A		Contr. Valve	Reactor	132	No	No	139
P303AQ	1-EG-ZS-2321A		Limit Switch	Reactor	132	No	No	139
P303AQ	1-EG-HV-2321B		Contr. Valve	Reactor	132	No	No	139
P303AQ	1-EG-ZS-2321B		Limit Switch	Reactor	132	No	No	139
P301Q	1-EG-SV-2325A		Solenoid Valve	Reactor	54	No	No	124
P301Q	1-EG-ZS-2325A		Position Switch	Reactor	54	No	No	125
P301Q	1-EG-SV-2325B		Solenoid Valve	Reactor	54	No	No	124
P301Q	1-EG-ZS-2325B		Position Switch	Reactor	54	No	No	125
P301Q	1-EG-SV-2325C		Solenoid Valve	Reactor	54	No	No	124
P301Q	1-EG-ZS-2325C		Position Switch	Reactor	54	No	No	125
P301Q	1-EG-SV-2325D		Solenoid Valve	Reactor	54	No	No	124

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: SAFETY AUX COOL SYSTEM
EG

P&ID
M-11-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P301Q	1-EG-ZS-2325D		Position Switch	Reactor	54	No	No	125
P301Q	1-EG-SV-2325E		Solenoid Valve	Reactor	54	No	No	124
P301Q	1-EG-ZS-2325E		Position Switch	Reactor	54	No	No	125
P301Q	1-EG-SV-2325F		Solenoid Valve	Reactor	54	No	No	124
P301Q	1-EG-ZS-2325F		Position Switch	Reactor	54	No	No	125
P301Q	1-EG-SV-2325G		Solenoid Valve	Reactor	54	No	No	124
P301Q	1-EG-ZS-2325G		Position Switch	Reactor	54	No	No	125
P301Q	1-EG-SV-2325H		Solenoid Valve	Reactor	54	No	No	124
P301Q	1-EG-ZS-2325H		Position Switch	Reactor	54	No	No	125
P303AQ	1-EG-HV-2452A		Contr. Valve	Reactor	132	No	No	139
P303AQ	1-EG-ZS-2452A		Limit Switch	Reactor	132	No	No	139
P303AQ	1-EG-HV-2452B		Contr. Valve	Reactor	132	No	No	139
P303AQ	1-EG-ZS-2452B		Limit Switch	Reactor	132	No	No	139
P303AQ	1-EG-HV-2453A		Contr. Valve	Reactor	132	No	No	139
P303AQ	1-EG-ZS-2453A		Limit Switch	Reactor	132	No	No	139
P303AQ	1-EG-HV-2453B		Contr. Valve	Reactor	132	No	No	139
P303AQ	1-EG-ZS-2453B		Limit Switch	Reactor	132	No	No	139
J201Q	1-EG-HS-2457A		Hand Switch	Reactor	102	No	No	25
P305Q	1-EG-SV-2457A		Solenoid Valve	Reactor	102	No	No	145
P305Q	1-EG-ZS-2457A		Position Switch	Reactor	102	No	No	146
J556Q	1-EG-TE-2457A		Temp. Element	Reactor	102	No	No	43
J201Q	1-EG-HS-2457B		Hand Switch	Reactor	102	No	No	25
P305Q	1-EG-SV-2457B		Solenoid Valve	Reactor	102	No	No	145
P305Q	1-EG-ZS-2457B		Position Switch	Reactor	102	No	No	146
J556Q	1-EG-TE-2457B		Temp. Element	Reactor	102	No	No	43

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: SAFETY AUX COOL SYSTEM
EG

P&ID
M-11-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-EG-PDT-2485A		Diff. Press Trans.	Reactor	102	No	No	155A
M001	1-EG-PDT-2485B		Diff. Press Trans.	Reactor	102	No	No	155A
M001	1-EG-PDT-2485C		Diff. Press Trans.	Reactor	102	No	No	155A
M001	1-EG-PDT-2485D		Diff. Press Trans.	Reactor	102	No	No	155A
J201Q	1-EG-HS-2485A2		Hand Switch	Reactor	102	No	No	25
J201Q	1-EG-HS-2485B2		Hand Switch	Reactor	102	No	No	25
J201Q	1-EG-HS-2485C2		Hand Switch	Reactor	102	No	No	25
J201Q	1-EG-HS-2485D2		Hand Switch	Reactor	102	No	No	25
P305Q	1-EG-HV-2491A		Contr. Valve	Reactor	102	No	No	144
P305Q	1-EG-ZS-2491A		Limit Switch	Reactor	102	No	No	144
P305Q	1-EG-HV-2491B		Contr. Valve	Reactor	102	No	No	144
P305Q	1-EG-ZS-2491B		Limit Switch	Reactor	102	No	No	144
P305Q	1-EG-HV-2494A		Contr. Valve	Reactor	102	No	No	144
P305Q	1-EG-ZS-2494A		Limit Switch	Reactor	102	No	No	144
P305Q	1-EG-HV-2494B		Contr. Valve	Reactor	102	No	No	144
P305Q	1-EG-ZS-2494B		Limit Switch	Reactor	102	No	No	144
P305Q	1-EG-HV-2496A		Contr. Valve	Reactor	102	No	No	144
P305Q	1-EG-ZS-2496A		Limit Switch	Reactor	102	No	No	144
P305Q	1-EG-HV-2496B		Contr. Valve	Reactor	102	No	No	144
P305Q	1-EG-ZS-2496B		Limit Switch	Reactor	102	No	No	144
P305Q	1-EG-HV-2496C		Contr. Valve	Reactor	102	No	No	144
P305Q	1-EG-ZS-2496C		Limit Switch	Reactor	102	No	No	144
P305Q	1-EG-HV-2496D		Contr. Valve	Reactor	102	No	No	144
P305Q	1-EG-ZS-2496D		Limit Switch	Reactor	102	No	No	144
J301Q	1-EG-LT-2508A		Level Trans.	Reactor	201	No	No	29
J301Q	1-EG-LT-2508B		Level Trans.	Reactor	201	No	No	29
J301Q	1-EG-LT-2508C		Level Trans.	Reactor	201	No	No	29
J301Q	1-EG-LT-2508D		Level Trans.	Reactor	201	No	No	29

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: SAFETY AUX COOL SYSTEM
EG

P&ID
M-11-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
J301Q	1-EG-FT-2511A		Flow Trans.	Reactor	77	Yes	No	29
J301Q	1-EG-FT-2511B		Flow Trans.	Reactor	77	Yes	No	29
P305Q	1-EG-HV-2512A		Contr. Valve	Reactor	77	No	No	144
P305Q	1-EG-ZS-2512A		Limit Switch	Reactor	77	No	No	144
P305Q	1-EG-HV-2512B		Contr. Valve	Reactor	77	No	No	144
P305Q	1-EG-ZS-2512B		Limit Switch	Reactor	77	No	No	144
J201Q	1-EG-HS-2517A		Hand Switch	Reactor	102	No	No	25
J605Q	1-EG-SV-2517A		Solenoid Valve	Reactor	102	No	No	48
J605Q	1-EG-ZS-2517A		Position Switch	Reactor	102	No	No	48A
J201Q	1-EG-HS-2517B		Hand Switch	Reactor	102	No	No	25
J605Q	1-EG-SV-2517B		Solenoid Valve	Reactor	102	No	No	48
J605Q	1-EG-ZS-2517B		Position Switch	Reactor	102	No	No	48A
P303AQ	1-EG-SV-2520A		Solenoid Valve	Reactor	54	No	No	140
P303AQ	1-EG-ZS-2520A		Position Switch	Reactor	54	No	No	141
P303AQ	1-EG-SV-2520B		Solenoid Valve	Reactor	54	No	No	140
P303AQ	1-EG-ZS-2520B		Position Switch	Reactor	54	No	No	141
P303AQ	1-EG-SV-2520C		Solenoid Valve	Reactor	54	No	No	140
P303AQ	1-EG-ZS-2520C		Position Switch	Reactor	54	No	No	141
P303AQ	1-EG-SV-2520D		Solenoid Valve	Reactor	54	No	No	140
P303AQ	1-EG-ZS-2520D		Position Switch	Reactor	54	No	No	141
P305Q	1-EG-HV-2522A		Control Valve	Reactor	102	No	No	147
P305Q	1-EG-ZS-2522A		Limit Switch	Reactor	102	No	No	147
P305Q	1-EG-HV-2522B		Control Valve	Reactor	102	No	No	147
P305Q	1-EG-ZS-2522B		Limit Switch	Reactor	102	No	No	147
J201Q	1-EG-HS-2522B3		Hand Switch	Reactor	102	No	No	25

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: SAFETY AUX COOL SYSTEM
EG

P&ID
M-11-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAR EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P305Q	1-EG-HV-2522C		Control Valve	Reactor	102	No	No	147
P305Q	1-EG-ZS-2522C		Limit Switch	Reactor	102	No	No	147
P305Q	1-EG-HV-2522D		Control Valve	Reactor	102	No	No	147
P305Q	1-EG-ZS-2522D		Limit Switch	Reactor	102	No	No	147
J201Q	1-EG-HS-2522D3		Hand Switch	Reactor	102	No	No	25
J301Q	1-EG-PDT-2529A		Press. Diff. Trans.	Reactor	162	No	No	29
J301Q	1-EG-PDT-2529B		Press. Diff. Trans.	Reactor	162	No	No	29
J556Q	1-EG-TE-2535A		Temp. Element	Reactor	102	Yes	No	43
J556Q	1-EG-TE-2535B		Temp. Element	Reactor	102	Yes	No	43
J301Q	1-EG-FT-2544A		Flow Trans.	Reactor	102	No	No	29
J301Q	1-EG-FT-2544B		Flow Trans.	Reactor	102	No	No	29
J301Q	1-EG-FT-2544C		Flow Trans.	Reactor	102	No	No	29
J301Q	1-EG-FT-2544D		Flow Trans.	Reactor	102	No	No	29
J301Q	1-EG-FT-2549A1		Flow Trans.	Reactor	102	Yes	No	29
J301Q	1-EG-FT-2549B1		Flow Trans.	Reactor	102	Yes	No	29
J301Q	1-EG-FT-2549B3		Flow Trans.	Reactor	102	No	No	144
P305Q	1-EG-HV-7921A		Contr. Valve	Reactor	162	No	No	144
P305Q	1-EG-ZS-7921A		Limit Switch	Reactor	162	No	No	144
P305Q	1-EG-HV-7921B		Contr. Valve	Reactor	162	No	No	144
P305Q	1-EG-ZS-7921B		Limit Switch	Reactor	162	No	No	144
P305Q	1-EG-HV-7922A		Contr. Valve	Reactor	162	No	No	144
P305Q	1-EG-ZS-7922A		Limit Switch	Reactor	162	No	No	144
P305Q	1-EG-HV-7922B		Contr. Valve	Reactor	162	No	No	144
P305Q	1-EG-ZS-7922B		Limit Switch	Reactor	162	No	No	144

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REACTOR AUXILIARIES COOLING
ED

P&ID
M-13-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P301Q	1-ED-HV-2553		Contr. Valve	Reactor	102	No	No	127
P301Q	1-ED-ZS-2553		Limit Switch	Reactor	102	Yes	No	127
P301Q	1-ED-HV-2554		Contr. Valve	Reactor	102	No	No	127
P301Q	1-ED-ZS-2554		Limit Switch	Reactor	102	Yes	No	127
P301Q	1-ED-HV-2555		Contr. Valve	Reactor	102	No	No	127
P301Q	1-ED-ZS-2555		Limit Switch	Reactor	102	Yes	No	127
P301Q	1-ED-HV-2556		Contr. Valve	Reactor	102	No	No	127
P301Q	1-ED-ZS-2556		Limit Switch	Reactor	102	Yes	No	127
P305Q	1-ED-HV-2598		Contr. Valve	Reactor	54	No	No	144
P305Q	1-ED-ZS-2598		Limit Switch	Reactor	54	No	No	144
P305Q	1-ED-HV-2599		Contr. Valve	Reactor	54	No	No	144
P305Q	1-ED-ZS-2599		Limit Switch	Reactor	54	No	No	144

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: COMPRESSED AIR (INSTR.)
KB

P&ID
M-15-0

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P301Q	1-KA-HV-7626		Contr. Valve	Reactor	77	No	No	127
P301Q	1-KA-ZS-7626		Limit Switch	Reactor	77	No	No	127
P301Q	1-KB-HV-7629		Contr. Valve	Reactor	77	No	No	127
P301Q	1-KB-ZS-7629		Limit Switch	Reactor	77	No	No	127

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: DEMINERALIZED WATER
AN

P&ID
M-18-0

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P301Q	1-AN-HV-2600		Contr. Valve	Reactor	54	No	No	127
P301Q	1-AN-ZS-2600		Limit Switch	Reactor	54	No	No	127

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: PLANT LEAK DETECTION
SK

P&ID
M-25-0

P.C.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-SK-TE-N009A	E11	Temp. Elemt.	Reactor	77	No	No	105
M001	1-SK-TE-N009B	E11	Temp. Elemt.	Reactor	77	No	No	105
M001	1-SK-TE-N010A	B21	Temp. Elemt.	Reactor	102	No	No	105
M001	1-SK-TE-N010B	B21	Temp. Elemt.	Reactor	102	No	No	105
M001	1-SK-TE-N010C	B21	Temp. Elemt.	Reactor	102	No	No	105
M001	1-SK-TE-N010D	B21	Temp. Elemt.	Reactor	102	No	No	105
M001	1-SK-TE-N011	E51	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N011A	B21	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N011B	B21	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N011C	B21	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N011D	B21	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N012A	B21	Temp. Elemt.	Reactor	102	No	No	105
M001	1-SK-TE-N012B	B21	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N012C	B21	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N012D	B21	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N013A	B21	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N013B	B21	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N013C	B21	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N013D	B21	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N014	B21	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N016	B21	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N016A	G33	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N016AA	G33	Temp. Elemt.	Reactor	145	No	No	105

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: PLANT LEAK DETECTION
SK

P&ID
M-25-0

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-SK-TE-N016D	G33	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N016DD	G33	Temp. Elemt.	Reactor	145	No	No	105
M001	1-SK-TE-N016E	G33	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N016H	G33	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N016J	G33	Temp. Elemt.	Reactor	145	No	No	105
M001	1-SK-TE-N016M	G33	Temp. Elemt.	Reactor	145	No	No	105
M001	1-SK-TE-N016N	G33	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N016S	G33	Temp. Elemt.	Reactor	145	No	No	105
M001	1-SK-TE-N016T	G33	Temp. Elemt.	Reactor	145	No	No	105
M001	1-SK-TE-N016W	G33	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N017	B21	Temp. Elemt.	Reactor	102	No	No	105
M001	1-SK-TE-N021B	E51	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N021D	E51	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N022A	G33	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N022AA	G33	Temp. Elemt.	Reactor	145	No	No	105
M001	1-SK-TE-N022B	E51	Temp. Elemt.	Reactor	54	No	No	105
M001	1-FC-TE-N022D	E51	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N022D	G33	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N022DD	G33	Temp. Elemt.	Reactor	145	No	No	105
M001	1-SK-TE-N022E	G33	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N022H	G33	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N022J	G33	Temp. Elemt.	Reactor	145	No	No	105

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: PLANT LEAK DETECTION
SF

P&ID
M-25-0

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-SK-TE-N022M	G33	Temp. Elemt.	Reactor	145	No	No	105
M001	1-SK-TE-N022N	G33	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N022S	G33	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N022T	G33	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N022W	G33	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N023A	G33	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N023AA	G33	Temp. Elemt.	Reactor	145	No	No	105
M001	1-SK-TE-N023B	E51	Temp. Elemt.	Reactor	54	No	No	105
M001	1-FC-TE-N023D	E51	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N023D	G33	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N023DD	G33	Temp. Elemt.	Reactor	145	No	No	105
M001	1-SK-TE-N023E	G33	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N023H	G33	Temp. Elemt.	Reactor	132	No	No	105
M001	1-SK-TE-N023J	G33	Temp. Elemt.	Reactor	145	No	No	105
M001	1-SK-TE-N023M	G33	Temp. Elemt.	Reactor	145	No	No	105
M001	1-SK-TE-N023N	G33	Temp. Elemt.	Reactor	145	No	No	105
M001	1-SK-TE-N023S	G33	Temp. Elemt.	Reactor	145	No	No	105
M001	1-SK-TE-N023T	G33	Temp. Elemt.	Reactor	145	No	No	105
M001	1-SK-TE-N023W	G33	Temp. Elemt.	Reactor	145	No	No	105
M001	1-SK-TE-N024	E41	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N025A	E41	Temp. Elemt.	Reactor	102	No	No	105
M001	1-SK-TE-N025B	E51	Temp. Elemt.	Reactor	102	No	No	105
M001	1-SK-TE-N025C	E41	Temp. Elemt.	Reactor	102	No	No	105
M001	1-SK-TE-N025D	E51	Temp. Elemt.	Reactor	102	No	No	105

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: PLANT LEAK DETECTION
SK

P&ID
M-25-0

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-SK-TE-N025E	E41	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N025F	E51	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N025G	E41	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N025H	E51	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N025J	E41	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N025K	E51	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N025L	E41	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N025M	E51	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N025N	E41	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N025P	E51	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N025R	E41	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N025S	E51	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N028A	E41	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N028C	E41	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N029A	E41	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N029A	E11	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N029B	E11	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N029C	E41	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N030A	E41	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N030A	E11	Temp. Elemt.	Reactor	54	No	No	105
M001	1-SK-TE-N030B	E11	Temp. Elemt.	Reactor	77	No	No	105
M001	1-SK-TE-N030C	E41	Temp. Elemt.	Reactor	77	No	No	105
				Reactor	77	No	No	105

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: PLANT LEAK DETECTION
SK

P&ID
M-25-0

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.	
J483Q	1-EG-LSH-2359A		Level Sw. High	Reactor	102	No	No	42	
J483Q	1-EG-LSH-2359B		Level Sw. High	Reactor	102	No	No	42	
J483Q	1-EG-LSH-2364A		Level Sw. High	Reactor	102	No	No	42	
J483Q	1-EG-LSH-2364B		Level Sw. High	Reactor	102	No	No	42	
J483Q	1-ED-LSH-2365A		Level Sw. High	Reactor	77	No	No	42	
J483Q	1-ED-LSH-2365B		Level Sw. High	Reactor	77	No	No	42	
J483Q	1-ED-LSH-2365C		Level Sw. High	Reactor	77	No	No	42	
J483Q	1-BD-LE-4151-1		Level Element	Reactor	54	No	No	42	
J483Q	1-BD-LSH-4151-1		Level Sw. High	Reactor	54	No	No	42	
J483Q	1-BD-LE-4151-2		Level Element	Reactor	54	No	No	42	
J483Q	1-BD-LSH-4151-2		Level Sw. High	Reactor	54	No	No	42	
J483Q	1-BC-LE-4403A1		Level Element	Reactor	54	No	No	42	
J483Q	1-BC-LSH-4403A1		Level Sw. High	Reactor	54	No	No	42	
J483Q	1-BC-LE-4403A2		Level Element	Reactor	54	No	No	42	
J483Q	1-BC-LSH-4403A2		Level Sw. High	Reactor	54	No	No	42	
J483Q	1-BC-LE-4403B1		Level Element	Reactor	54	No	No	42	
J483Q	1-BC-LSH-4403B1		Level Sw. High	Reactor	54	No	No	42	
J483Q	1-BC-LE-4403B2		Level Element	Reactor	54	No	No	42	
J483Q	1-BC-LSH-4403B2		Level Sw. High	Reactor	54	No	No	42	
J483Q	1-BC-LE-4403C1		Level Element	Reactor	54	No	No	42	To be retagged in the field to 1-BD-LE-4131-2
J483Q	1-BC-LE-4403C2		Level Element	Reactor	54	No	No	42	To be retagged in the field to 1-BD-LE-4151-1

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: PLANT LEAK DETECTION
SK

P&ID
M-25-0

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
J483Q	1-BC-LE-4403D1		Level Element	Reactor	54	No	No	42
J483Q	1-BC-LSH-4403D1		Level Sw. High	Reactor	54	No	No	42
J483Q	1-BC-LE-4403D2		Level Element	Reactor	54	No	No	42
J483Q	1-BC-LSH-4403D2		Level Sw. High	Reactor	54	No	No	42
J483Q	1-BE-LSH-4581A1		Level Sw. High	Reactor	54	No	No	42
J483Q	1-BE-LSH-4581A2		Level Sw. High	Reactor	54	No	No	42
J483Q	1-BE-LSH-4581B1		Level Sw. High	Reactor	54	No	No	42
J483Q	1-BE-LSH-4581B2		Level Sw. High	Reactor	54	No	No	42
J483Q	1-BE-LSH-4581C1		Level Sw. High	Reactor	54	No	No	42
J483Q	1-BE-LSH-4581C2		Level Sw. High	Reactor	54	No	No	42
J483Q	1-BE-LSH-4581D1		Level Sw. High	Reactor	54	No	No	42
J483Q	1-BE-LSH-4581D2		Level Sw. High	Reactor	54	No	No	42
J483Q	1-BJ-LE-4807		Level Element	Reactor	54	No	No	42
J483Q	1-BJ-LSH-4807		Level Sw. High	Reactor	54	No	No	42
J483Q	1-BJ-LE-4808		Level Element	Reactor	54	No	No	42
J483Q	1-BJ-LSH-4808		Level Sw. High	Reactor	54	No	No	42
M001	1-SK-LT-4930		Level Trans.	Drywell	77	Yes	Yes	155A
M001	1-SK-LT-4931		Level Trans.	Drywell	77	Yes	Yes	155A
P303AQ	1-SK-HV-4953		Control Valve	Reactor	145	No	No	139
P303AQ	1-SK-ZS-4953		Limit Switch	Reactor	145	Yes	No	139
P303AQ	1-SK-HV-4957		Control Valve	Reactor	145	No	No	139
P303AQ	1-SK-ZS-4957		Limit Switch	Reactor	145	Yes	No	139
P303AQ	1-SK-HV-4981		Control Valve	Reactor	145	No	No	139
P303AQ	1-SK-ZS-4981		Limit Switch	Reactor	145	Yes	No	139
P303AQ	1-SK-HV-5018		Control Valve	Reactor	145	No	No	139
P303AQ	1-SK-ZS-5018		Limit Switch	Reactor	145	Yes	No	139

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-26-1

SYSTEM: RADIOLOGICAL MONITORING SYS
SP

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-SP-RE-N006A	D11	Radiation Element	Reactor	102	No	No	121
M001	1-SP-RE-N006B	D11	Radiation Element	Reactor	102	No	No	121
M001	1-SP-RE-N006C	D11	Radiation Element	Reactor	102	No	No	121
M001	1-SP-RE-N006D	D11	Radiation Element	Reactor	102	No	No	121
J373Q	1-SP-RE-4825A		Radiation Element	Reactor	145	Yes	Yes	later
J373Q	1-SP-RE-4825B		Radiation Element	Reactor	145	Yes	Yes	later
J373Q	1-SP-RE-4856A		Radiation Element	Reactor	201	No	No	later
J373Q	1-SP-RE-4856B		Radiation Element	Reactor	201	No	No	later
J373Q	1-SP-RE-4856C		Radiation Element	Reactor	201	No	No	later
J373Q	1-SP-RE-4857A		Radiation Element	Reactor	178	No	No	later
J373Q	1-SP-RE-4857B		Radiation Element	Reactor	178	No	No	later
J373Q	1-SP-RE-4857C		Radiation Element	Reactor	178	No	No	later
J373Q	RM4		Rockbestos/Coax Cable GA	Note (3)		Yes	Yes	later

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: POST ACCIDENT LIQUID & GAS SAMPLING
RC

P&ID
M-38-0

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
J603Q	1-RC-SV-0643A		Solenoid Valve	Reactor	77	No	Yes	46
J603Q	1-RC-ZS-0643A		Position Switch	Reactor	77	Yes	No	46
J603Q	1-RC-SV-0643B		Solenoid Valve	Reactor	77	No	Yes	46
J603Q	1-RC-ZS-0643B		Position Switch	Reactor	77	Yes	No	46
J603Q	1-RC-SV-0645A		Solenoid Valve	Reactor	54	No	Yes	46
J603Q	1-RC-ZS-0645A		Position Switch	Reactor	77	No	No	46
J603Q	1-RC-SV-0645B		Solenoid Valve	Reactor	54	No	Yes	46
J603Q	1-RC-ZS-0645B		Position Switch	Reactor	77	No	No	46
J603Q	1-RC-SV-0646A		Solenoid Valve	Reactor	54	No	Yes	46
J603Q	1-RC-ZS-0646A		Position Switch	Reactor	77	No	No	46
J603Q	1-RC-SV-0646B		Solenoid Valve	Reactor	54	No	Yes	46
J603Q	1-RC-ZS-0646B		Position Switch	Reactor	77	No	No	46
J603Q	1-RC-SV-0707A		Solenoid Valve	Reactor	77	No	Yes	46
J603Q	1-RC-ZS-0707A		Position Switch	Reactor	77	Yes	No	46
J603Q	1-RC-SV-0707B		Solenoid Valve	Reactor	77	No	Yes	46
J603Q	1-RC-ZS-0707B		Position Switch	Reactor	77	Yes	No	46
J603Q	1-RC-SV-0728A		Solenoid Valve	Reactor	77	No	Yes	46
J603Q	1-RC-ZS-0728A		Position Switch	Reactor	77	Yes	No	46
J603Q	1-RC-SV-0728B		Solenoid Valve	Reactor	77	No	Yes	46
J603Q	1-RC-ZS-0728B		Position Switch	Reactor	77	Yes	No	46
J603Q	1-RC-SV-0729A		Solenoid Valve	Reactor	77	No	Yes	46
J603Q	1-RC-ZS-0729A		Position Switch	Reactor	77	Yes	No	46

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: POST ACCIDENT LIQUID & GAS SAMPLING
RC

P&ID
M-38-0

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
J603Q	1-RC-SV-0729B		Solenoid Valve	Reactor	77	No	Yes	46
J603Q	1-RC-ZS-0729B		Position Switch	Reactor	77	Yes	No	46
J603Q	1-RC-SV-0730A		Solenoid Valve	Reactor	162	No	Yes	46
J603Q	1-RC-ZS-0730A		Position Switch	Reactor	162	Yes	No	46
J603Q	1-RC-SV-0730B		Solenoid Valve	Reactor	162	No	Yes	46
J603Q	1-RC-ZS-0730B		Position Switch	Reactor	162	Yes	No	46
J603Q	1-RC-SV-0731A		Solenoid Valve	Reactor	162	No	Yes	46
J603Q	1-RC-ZS-0731A		Position Switch	Reactor	162	Yes	No	46
J603Q	1-RC-SV-0731B		Solenoid Valve	Reactor	162	No	Yes	46
J603Q	1-RC-ZS-0731B		Position Switch	Reactor	162	Yes	No	46
J603Q	1-RC-SV-8903A		Solenoid Valve	Reactor	77	No	Yes	46
J603Q	1-RC-ZS-8903A		Position Switch	Reactor	77	Yes	No	46
J603Q	1-RC-SV-8903B		Solenoid Valve	Reactor	77	No	Yes	46
J603Q	1-RC-ZS-8903B		Position Switch	Reactor	77	Yes	No	46

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: NUCLEAR BOILER
AB

P&ID
M-41-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P302Q	1-AE-HV-F011A		Control Valve	Reactor	121	No	No	132
P302Q	1-AE-ZS-F011A		Limit Switch	Reactor	121	No	No	132
P302Q	1-AE-HV-F011B		Control Valve	Reactor	121	No	No	132
P302Q	1-AE-ZS-F011B		Limit Switch	Reactor	121	No	No	132
P302Q	1-AB-HV-F016		Control Valve	Reactor	102	No	No	132
P302Q	1-AB-ZS-F016		Limit Switch	Reactor	102	Yes	No	132
P302Q	1-AB-HV-F019		Control Valve	Reactor	102	No	No	131
P302Q	1-AB-ZS-F019		Limit Switch	Reactor	102	Yes	No	131
M001	1-AB-ZS-F022A	B21	Position Switch	Reactor	100	Yes	No	158
M001	1-AB-SV-F022A1	B21	Solenoid Valve	Reactor	100	No	No	160
M001	1-AB-SV-F022A2	B21	Solenoid Valve	Reactor	100	No	No	160
M001	1-AB-SV-F022A3	B21	Solenoid Valve	Reactor	100	No	No	160
M001	1-AB-ZS-F022B	B21	Position Switch	Reactor	100	Yes	No	158
M001	1-AB-SV-F022B1	B21	Solenoid Valve	Reactor	100	No	No	160
M001	1-AB-SV-F022B2	B21	Solenoid Valve	Reactor	100	No	No	160
M001	1-AB-SV-F022B3	B21	Solenoid Valve	Reactor	100	No	No	160
M001	1-AB-ZS-F022C	B21	Position Switch	Reactor	100	Yes	No	158
M001	1-AB-SV-F022C1	B21	Solenoid Valve	Reactor	100	No	No	160
M001	1-AB-SV-F022C2	B21	Solenoid Valve	Reactor	100	No	No	160
M001	1-AB-SV-F022C3	B21	Solenoid Valve	Reactor	100	No	No	160
M001	1-AB-ZS-F022D	B21	Position Switch	Reactor	100	Yes	No	158
M001	1-AB-SV-F022D1	B21	Solenoid Valve	Reactor	100	No	No	160
M001	1-AB-SV-F022D2	B21	Solenoid Valve	Reactor	100	No	No	160
M001	1-AB-SV-F022D3	B21	Solenoid Valve	Reactor	100	No	No	160
M001	1-AB-ZS-F028A	B21	Position Switch	Reactor	102	Yes	No	158
M001	1-AB-SV-F028A1	B21	Solenoid Valve	Reactor	102	No	No	160
M001	1-AB-SV-F028A2	B21	Solenoid Valve	Reactor	102	No	No	160
M001	1-AB-SV-F028A3	B21	Solenoid Valve	Reactor	100	No	No	160
M001	1-AB-ZS-F028B	B21	Position Switch	Reactor	102	Yes	No	158
M001	1-AB-SV-F028B1	B21	Solenoid Valve	Reactor	102	No	No	160

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: NUCLEAR BOILER
AB

P&ID
M-41-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-AB-SV-F028B2	B21	Solenoid Valve	Reactor	102	No	No	160
M001	1-AB-SV-F028B3	B21	Solenoid Valve	Reactor	100	No	No	160
M001	1-AB-ZS-F028C	B21	Position Switch	Reactor	102	Yes	No	158
M001	1-AB-SV-F028C1	B21	Solenoid Valve	Reactor	102	No	No	160
M001	1-AB-SV-F028C2	B21	Solenoid Valve	Reactor	102	No	No	160
M001	1-AB-SV-F028C3	B21	Solenoid Valve	Reactor	100	No	No	160
M001	1-AB-ZS-F028D	B21	Position Switch	Reactor	102	Yes	No	158
M001	1-AB-SV-F028D1	B21	Solenoid Valve	Reactor	102	No	No	160
M001	1-AB-SV-F028D2	B21	Solenoid Valve	Reactor	102	No	No	160
M001	1-AB-SV-F028D3	B21	Solenoid Valve	Reactor	100	No	No	160
P302Q	1-AE-HV-F032A		Control Valve	Reactor	102	No	No	132
P302Q	1-AE-ZS-F032A		Limit Switch	Reactor	102	Yes	No	132
P302Q	1-AE-HV-F032B		Control Valve	Reactor	102	No	No	132
P302Q	1-AE-ZS-F032B		Limit Switch	Reactor	102	Yes	No	132
P303AQ	1-AB-HV-F067A		Control Valve	Reactor	102	No	No	137
P303AQ	1-AB-ZS-F067A		Limit Switch	Reactor	102	Yes	No	137
P303AQ	1-AB-HV-F067B		Control Valve	Reactor	102	No	No	137
P303AQ	1-AB-ZS-F067B		Limit Switch	Reactor	102	Yes	No	137
P303AQ	1-AB-HV-F067C		Control Valve	Reactor	102	No	No	137
P303AQ	1-AB-ZS-F067C		Limit Switch	Reactor	102	Yes	No	137

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: NUCLEAR BOILER
AB

P&ID
M-41-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P303AQ	1-AB-HV-F067D		Control Valve	Reactor	102	No	No	137
P303AQ	1-AB-ZS-F067D		Limit Switch	Reactor	102	Yes	No	137
P303AQ	1-AB-HV-F071		Control Valve	Reactor	102	No	No	132
P303AQ	1-AB-ZS-F071		Limit Switch	Reactor	102	No	No	132
P302Q	1-AE-ZS-F074A		Limit Switch	Reactor	102	Yes	No	134
P302Q	1-AE-ZS-F074B		Limit Switch	Reactor	102	Yes	No	134
M001	1-AB-PDT-N086A	B21	Press Diff. Trans.	Reactor	77	No	No	155
M001	1-AB-PDT-N086B	B21	Press Diff. Trans.	Reactor	77	No	No	155
M001	1-AB-PDT-N086C	B21	Press Diff. Trans.	Reactor	77	No	No	155
M001	1-AB-PDT-N086D	B21	Press Diff. Trans.	Reactor	77	No	No	155
M001	1-AB-PDT-N087A	B21	Press Diff. Trans.	Reactor	77	No	No	155
M001	1-AB-PDT-N087B	B21	Press Diff. Trans.	Reactor	77	No	No	155
M001	1-AB-PDT-N087C	B21	Press Diff. Trans.	Reactor	77	No	No	155
M001	1-AB-PDT-N087D	B21	Press Diff. Trans.	Reactor	77	No	No	155
M001	1-AB-PDT-N088A	B21	Press Diff. Trans.	Reactor	77	No	No	155
M001	1-AB-PDT-N088B	B21	Press Diff. Trans.	Reactor	77	No	No	155
M001	1-AB-PDT-N088C	B21	Press Diff. Trans.	Reactor	77	No	No	155
M001	1-AB-PDT-N088D	B21	Press Diff. Trans.	Reactor	77	No	No	155
M001	1-AB-PDT-N089A	B21	Press Diff. Trans.	Reactor	77	No	No	155
M001	1-AB-PDT-N089B	B21	Press Diff. Trans.	Reactor	77	No	No	155
M001	1-AB-PDT-N089C	B21	Press Diff. Trans.	Reactor	77	No	No	155
M001	1-AB-PDT-N089D	B21	Press Diff. Trans.	Reactor	77	No	No	155

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: NUCLEAR BOILER
AB

P&ID
M-41-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P302Q	1-AB-HV-3631A		Control Valve	Reactor	102	No	No	132
P302Q	1-AB-ZS-3631A		Limit Switch	Reactor	102	No	No	132
P302Q	1-AB-HV-3631B		Control Valve	Reactor	102	No	No	132
P302Q	1-AB-ZS-3631B		Limit Switch	Reactor	102	No	No	132
P302Q	1-AB-HV-3631C		Control Valve	Reactor	102	No	No	132
P302Q	1-AB-ZS-3631C		Limit Switch	Reactor	102	No	No	132
P302Q	1-AB-HV-3631D		Control Valve	Reactor	102	No	No	132
P302Q	1-AB-ZS-3631D		Limit Switch	Reactor	102	No	No	132
J556Q	1-SB-TE-3647A		Temp. Elemt.	Reactor	54	Yes	No	43
J556Q	1-SB-TE-3647B		Temp. Elemt.	Reactor	54	Yes	No	43
J556Q	1-SB-TE-3647C		Temp. Elemt.	Reactor	54	Yes	No	43
J556Q	1-SB-TE-3647D		Temp. Elemt.	Reactor	54	Yes	No	43
J556Q	1-SB-TE-3647E		Temp. Elemt.	Reactor	54	Yes	No	43
J556Q	1-SB-TE-3647F		Temp. Elemt.	Reactor	54	Yes	No	43
J556Q	1-SB-TE-3647G		Temp. Elemt.	Reactor	54	Yes	No	43
J556Q	1-SB-TE-3647H		Temp. Elemt.	Reactor	54	Yes	No	43
J556Q	1-SB-TE-3647J		Temp. Elemt.	Reactor	54	Yes	No	43
J556Q	1-SB-TE-3647K		Temp. Elemt.	Reactor	54	Yes	No	43
J556Q	1-SB-TE-3647L		Temp. Elemt.	Reactor	54	Yes	No	43
J556Q	1-SB-TE-3647M		Temp. Elemt.	Reactor	54	Yes	No	43
J556Q	1-SB-TE-3647N		Temp. Elemt.	Reactor	54	Yes	No	43
J556Q	1-SB-TE-3647P		Temp. Elemt.	Reactor	54	Yes	No	43
J556Q	1-SB-TE-3647Q		Temp. Elemt.	Reactor	54	Yes	No	43
J556Q	1-SB-TE-3647R		Temp. Elemt.	Reactor	54	Yes	No	43

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: NUCLEAR BOILER
AB

P&ID
M-41-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
J556Q	1-AB-TE-3648A		Temp. Elemt.	Reactor	54	Yes	No	43
J556Q	1-AB-TE-3648B		Temp. Elemt.	Reactor	54	Yes	No	43
J556Q	1-AB-TE-3648C		Temp. Elemt.	Reactor	54	Yes	No	43
J556Q	1-AB-TE-3648D		Temp. Elemt.	Reactor	54	Yes	No	43
M001	1-SN-SV-3652A	B21-F013	Solenoid Valve	Reactor	121	No	No	159
M001	1-SN-SV-3652B	B21-F013	Solenoid Valve	Reactor	121	No	No	159
M001	1-SN-SV-3653A	B21-F013	Solenoid Valve	Reactor	121	No	No	159
M001	1-SN-SV-3653B	B21-F013	Solenoid Valve	Reactor	121	No	No	159
M001	1-SN-SV-3654A	B21-F013	Solenoid Valve	Reactor	121	No	No	159
M001	1-SN-SV-3654B	B21-F013	Solenoid Valve	Reactor	121	No	No	159
M001	1-SN-SV-3655A	B21-F013	Solenoid Valve	Reactor	121	No	No	159
M001	1-SN-SV-3655B	B21-F013	Solenoid Valve	Reactor	121	No	No	159
M001	1-SN-SV-3656A	B21-F013	Solenoid Valve	Reactor	121	No	No	159
M001	1-SN-SV-3657A	B21-F013	Solenoid Valve	Reactor	121	No	No	159
M001	1-SN-SV-3658A	B21-F013	Solenoid Valve	Reactor	121	No	No	159
M001	1-SN-SV-3659A	B21-F013	Solenoid Valve	Reactor	121	No	No	159
M001	1-SN-SV-3660A	B21-F013	Solenoid Valve	Reactor	121	No	No	159
M001	1-SN-SV-3661A	B21-F013	Solenoid Valve	Reactor	121	No	No	159
M001	1-SN-SV-3662A	B21-F013	Solenoid Valve	Reactor	121	No	No	159
M001	1-SN-SV-3663A	B21-F013	Solenoid Valve	Reactor	121	No	No	159
M001	1-SN-SV-3664A	B21-F013	Solenoid Valve	Reactor	121	No	No	159
M001	1-SN-SV-3665A	B21-F013	Solenoid Valve	Reactor	121	No	No	159
M001	1-SN-SV-3665B	B21-F013	Solenoid Valve	Reactor	121	No	No	159
J800Q	1-AB-XE-4507A		Acoustic Elemt.	Reactor	121	Yes	Yes	51
J800Q	1-AB-XT-4507A		Acoustic Trans.	Reactor	102	Yes	Yes	50
J800Q	1-AB-XE-4507B		Acoustic Elemt.	Reactor	121	Yes	Yes	51
J800Q	1-AB-XT-4507B		Acoustic Trans.	Reactor	102	Yes	Yes	50
J800Q	1-AB-XE-4507C		Acoustic Elemt.	Reactor	121	Yes	Yes	51
J800Q	1-AB-XT-4507C		Acoustic Trans.	Reactor	102	Yes	Yes	50
J800Q	1-AB-XE-4507D		Acoustic Elemt.	Reactor	121	Yes	Yes	51
J800Q	1-AB-XT-4507D		Acoustic Trans.	Reactor	102	Yes	Yes	50
J800Q	1-AB-XE-4507E		Acoustic Elemt.	Reactor	121	Yes	Yes	51
J800Q	1-AB-XT-4507E		Acoustic Trans.	Reactor	102	Yes	Yes	50
J800Q	1-AB-XE-4507F		Acoustic Elemt.	Reactor	121	Yes	Yes	51

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: NUCLEAR BOILER
AB

P&ID
M-41-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
J800Q	1-AB-XT-4507F		Acoustic Trans.	Reactor	102	Yes	Yes	50
J800Q	1-AB-XE-4507G		Acoustic Elemt.	Reactor	121	Yes	Yes	51
J800Q	1-AB-XT-4507G		Acoustic Trans.	Reactor	102	Yes	Yes	50
J800Q	1-AB-XE-4507H		Acoustic Elemt.	Reactor	121	Yes	Yes	51
J800Q	1-AB-XT-4507H		Acoustic Trans.	Reactor	102	Yes	Yes	50
J800Q	1-AB-XE-4507J		Acoustic Elemt.	Reactor	121	Yes	Yes	51
J800Q	1-AB-XT-4507J		Acoustic Trans.	Reactor	102	Yes	Yes	50
J800Q	1-AB-XE-4507K		Acoustic Elemt.	Reactor	121	Yes	Yes	51
J800Q	1-AB-XT-4507K		Acoustic Trans.	Reactor	102	Yes	Yes	50
J800Q	1-AB-XE-4507L		Acoustic Elemt.	Reactor	121	Yes	Yes	51
J800Q	1-AB-XT-4507L		Acoustic Trans.	Reactor	102	Yes	Yes	50
J800Q	1-AB-XE-4507M		Acoustic Elemt.	Reactor	121	Yes	Yes	51
J800Q	1-AB-XT-4507M		Acoustic Trans.	Reactor	102	Yes	Yes	50
J800Q	1-AB-XE-4507P		Acoustic Elemt.	Reactor	121	Yes	Yes	51
J800Q	1-AB-XT-4507P		Acoustic Trans.	Reactor	121	Yes	Yes	50
J800Q	1-AB-XE-4507R		Acoustic Elemt.	Reactor	121	Yes	Yes	51
J800Q	1-AB-XT-4507R		Acoustic Trans.	Reactor	121	Yes	Yes	50
M001	1-AB-PT-5838A		Press. Trans.	Reactor	102	No	No	155A
M001	1-AB-PT-5838B		Press. Trans.	Reactor	102	No	No	155A

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: NUCLEAR BOILER VESSEL INSTRU
BB

P&ID
M-42-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-SE-EAM-K002A	C51	Voltage Preamp	Reactor	102	No	No	154
M001	1-SE-EAM-K002B	C51	Voltage Preamp	Reactor	102	No	No	154
M001	1-SE-EAM-K002C	C51	Voltage Preamp	Reactor	102	No	No	154
M001	1-SE-EAM-K002D	C51	Voltage Preamp	Reactor	102	No	No	154
M001	1-SE-EAM-K002E	C51	Voltage Preamp	Reactor	102	No	No	154
M001	1-SE-EAM-K002F	C51	Voltage Preamp	Reactor	102	No	No	154
M001	1-SE-EAM-K002G	C51	Voltage Preamp	Reactor	102	No	No	154
M001	1-SE-EAM-K002H	C51	Voltage Preamp	Reactor	102	No	No	154
M001	1-SE-RE-N001A	C51	Radiation Elemt.	Reactor	121	Yes	No	162
M001	1-SE-RE-N001B	C51	Radiation Elemt.	Reactor	121	Yes	No	162
M001	1-SE-RE-N001C	C51	Radiation Elemt.	Reactor	121	Yes	No	162
M001	1-SE-RE-N001D	C51	Radiation Elemt.	Reactor	121	Yes	No	162
M001	1-SE-RE-N002A	C51	Radiation Elemt.	Reactor	121	Yes	No	103
M001	1-SE-RE-N002B	C51	Radiation Elemt.	Reactor	121	Yes	No	103
M001	1-SE-RE-N002C	C51	Radiation Elemt.	Reactor	121	Yes	No	103
M001	1-SE-RE-N002D	C51	Radiation Elemt.	Reactor	121	Yes	No	103
M001	1-SE-RE-N002E	C51	Radiation Elemt.	Reactor	121	Yes	No	103
M001	1-SE-RE-N002F	C51	Radiation Elemt.	Reactor	121	Yes	No	103
M001	1-SE-RE-N002G	C51	Radiation Elemt.	Reactor	121	Yes	No	103
M001	1-SE-RE-N002H	C51	Radiation Elemt.	Reactor	121	Yes	No	103
M001	1-BB-PT-N050A	C71	Pressure Transmitter	Reactor	162	No	No	155
M001	1-BB-PT-N050B	C71	Pressure Transmitter	Reactor	162	No	No	155
M001	1-BB-PT-N050C	C71	Pressure Transmitter	Reactor	162	No	No	155
M001	1-BB-PT-N050D	C71	Pressure Transmitter	Reactor	162	No	No	155
M001	1-BB-PT-N078A	B21	Pressure Transmitter	Reactor	77	No	No	155
M001	1-BB-PT-N078B	B21	Pressure Transmitter	Reactor	77	No	No	155
M001	1-BB-PT-N078C	B21	Pressure Transmitter	Reactor	77	No	No	155

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: NUCLEAR BOILER VESSEL INSTRU
BB

P&ID
M-42-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-BB-PT-N078D	B21	Pressure Transmitter	Reactor	77	No	No	155
M001	1-BB-LT-N080A	B21	Level Transmitter	Reactor	77	No	Yes	155
M001	1-BB-LT-N080B	B21	Level Transmitter	Reactor	77	No	Yes	155
M001	1-BB-LT-N080C	B21	Level Transmitter	Reactor	77	No	Yes	155
M001	1-BB-LT-N080D	B21	Level Transmitter	Reactor	77	No	Yes	155
M001	1-SM-LT-N081A	B21	Level Transmitter	Reactor	77	No	Yes	155
M001	1-SM-LT-N081B	B21	Level Transmitter	Reactor	77	No	Yes	155
M001	1-SM-LT-N081C	B21	Level Transmitter	Reactor	77	No	Yes	155
M001	1-SM-LT-N081D	B21	Level Transmitter	Reactor	77	No	Yes	155
M001	1-BB-LT-N085A	B21	Level Transmitter	Reactor	77	Yes	Yes	155
M001	1-BB-LT-N085B	B21	Level Transmitter	Reactor	77	Yes	Yes	155
M001	1-BB-PT-N090A	B21	Pressure Transmitter	Reactor	77	No	No	155
M001	1-BB-PT-N090B	B21	Pressure Transmitter	Reactor	77	No	No	155
M001	1-BB-PT-N090E	B21	Pressure Transmitter	Reactor	77	No	No	155
M001	1-BB-PT-N090F	B21	Pressure Transmitter	Reactor	77	No	No	155
M001	1-BE-PT-N090J	B21	Pressure Transmitter	Reactor	77	No	No	155
M001	1-BE-PT-N090K	B21	Pressure Transmitter	Reactor	77	No	No	155
M001	1-BE-PT-N090N	B21	Pressure Transmitter	Reactor	77	No	No	155
M001	1-BE-PT-N090P	B21	Pressure Transmitter	Reactor	77	No	No	155
M001	1-BB-LT-N091A	B21	Level Transmitter	Reactor	77	Yes	Yes	155
M001	1-BB-LT-N091B	B21	Level Transmitter	Reactor	77	Yes	Yes	155
M001	1-BB-LT-N091C	B21	Level Transmitter	Reactor	77	No	Yes	155
M001	1-BB-LT-N091D	B21	Level Transmitter	Reactor	77	No	Yes	155
M001	1-BB-LT-N091E	B21	Level Transmitter	Reactor	77	No	Yes	155
M001	1-BB-LT-N091F	B21	Level Transmitter	Reactor	77	No	Yes	155
M001	1-BB-LT-N091G	B21	Level Transmitter	Reactor	77	No	Yes	155
M001	1-BB-LT-N091H	B21	Level Transmitter	Reactor	77	No	Yes	155
M001	1-BB-PT-N094A	B21	Pressure Transmitter	Reactor	162	No	No	155

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: NUCLEAR BOILER VESSEL INSTRU
BB

P&ID
M-42-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-BB-PT-N094B	B21	Pressure Transmitter	Reactor	162	No	No	155
M001	1-BB-PT-N094C	B21	Pressure Transmitter	Reactor	162	No	No	155
M001	1-BB-PT-N094D	B21	Pressure Transmitter	Reactor	162	No	No	155
M001	1-BB-PT-N094E	B21	Pressure Transmitter	Reactor	162	No	No	155
M001	1-BB-PT-N094F	B21	Pressure Transmitter	Reactor	162	No	No	155
M001	1-BB-PT-N094G	B21	Pressure Transmitter	Reactor	162	No	No	155
M001	1-BB-PT-N094H	B21	Pressure Transmitter	Reactor	162	No	No	155
M001	1-SN-LT-N095B	B21	Level Transmitter	Reactor	77	No	Yes	155
M001	1-SN-LT-N095D	B21	Level Transmitter	Reactor	77	No	Yes	155
M001	1-BB-LT-N097D	B21	Level Transmitter	Reactor	77	No	No	155
M001	1-BB-LT-N097H	B21	Level Transmitter	Reactor	77	No	No	155
M001	1-BB-LT-N402A	B21	Level Transmitter	Reactor	77	No	No	114
M001	1-BB-LT-N402B	B21	Level Transmitter	Reactor	77	No	No	114
M001	1-BB-LT-N402E	B21	Level Transmitter	Reactor	77	No	No	114
M001	1-BB-LT-N402F	B21	Level Transmitter	Reactor	77	No	No	114
M001	1-BB-PT-N403A	B21	Press Transmitter	Reactor	77	No	No	110
M001	1-BB-PT-N403B	B21	Press Transmitter	Reactor	77	No	No	110
M001	1-BB-PT-N403E	B21	Press Transmitter	Reactor	77	No	No	110
M001	1-BB-PT-N403F	B21	Press Transmitter	Reactor	77	No	No	110
M001	1-BB-RE-12DI93	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-13DI93	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-14DI93	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-15DI93	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-16DI93	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-21DI93	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-22DI93	B11	Radiation Elemt.	Reactor	120	Yes	No	107

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: NUCLEAR BOILER VESSEL INSTRU
BB

P&ID
M-42-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-BB-RE-23D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-24D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-25D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-26D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-27D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-31D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-32D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-33D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-34D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-35D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-36D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-37D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-41D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-42D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-43D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-44D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-45D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-46D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-47D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-51D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-52D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-53D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-66D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-72D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-73D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-74D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
M001	1-BB-RE-75D193	B11	Radiation Elemt.	Reactor	120	Yes	No	107
J301Q	1-BB-LT-3622A		Level Transmitter	Reactor	77	Yes	No	28
J301Q	1-BB-LT-3622B		Level Transmitter	Reactor	77	Yes	No	28

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: NUCLEAR BOILER VESSEL INSTRU
BB

P&ID
M-42-1

P.O.	ID NO. Note (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
J301Q	1-BB-LT-3682A		Level Transmitter	Reactor	77	No	Yes	28
J301Q	1-BB-LT-3682B		Level Transmitter	Reactor	77	No	Yes	28
J301Q	1-BB-LT-3683A		Level Transmitter	Reactor	77	No	Yes	28
J301Q	1-BB-LT-3683B		Level Transmitter	Reactor	77	No	Yes	28
J301Q	1-BB-PT-3684A		Pressure Transmitter	Reactor	77	Yes	No	28
J301Q	1-BB-PT-3684B		Pressure Transmitter	Reactor	77	Yes	No	28
J301Q	1-GS-PT-4960A2		Pressure Transmitter	Reactor	162	Yes	Yes	28
J301Q	1-GS-PT-4960A3		Pressure Transmitter	Reactor	162	Yes	No	29
J301Q	1-GS-PT-4960B2		Pressure Transmitter	Reactor	162	Yes	Yes	28
J301Q	1-BB-PT-7853A		Pressure Transmitter	Reactor	77	No	No	28
J301Q	1-BB-PT-7853D		Pressure Transmitter	Reactor	77	No	No	28
J301Q	1-BB-LT-7854		Level Transmitter	Reactor	77	No	Yes	28
M001	No Tag No.	B11-D192	Connector - SRM/IRM	Reactor		No	No	153A
M001	No Tag No.	B11-D194	Connector- PRD DET	Reactor		No	No	153

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REACTOR RECIRC SYS
BB

FSID
M-43-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-BB-FT-N014A	B31	Flow Trans.	Reactor	77	Yes	No	155
M001	1-BB-FT-N014B	B31	Flow Trans.	Reactor	77	No	No	155
M001	1-BB-FT-N014C	B31	Flow Trans.	Reactor	77	No	No	155
M001	1-BB-FT-N014D	B31	Flow Trans.	Reactor	77	No	No	155
M001	1-BB-FT-N024A	B31	Flow Trans.	Reactor	77	Yes	No	155
M001	1-BB-FT-N024B	B31	Flow Trans.	Reactor	77	No	No	155
M001	1-BB-FT-N024C	B31	Flow Trans.	Reactor	77	No	No	155
M001	1-BB-FT-N024D	B31	Flow Trans.	Reactor	77	No	No	155
P303AQ	1-BF-HV-3800A		Control Valve	Reactor	77	No	No	139
P303AQ	1-BF-ZS-3800A		Limit Switch	Reactor	77	Yes	No	139
P303AQ	1-BF-HV-3800B		Control Valve	Reactor	77	No	No	139
P303AQ	1-BF-ZS-3800B		Limit Switch	Reactor	77	Yes	No	139
J603Q	1-BB-SV-4310		Solenoid Valve	Reactor	121	No	No	46
J603Q	1-BB-ZS-4310		Position Switch	Reactor	121	Yes	No	46
J603Q	1-BB-SV-4311		Solenoid Valve	Reactor	145	No	No	46
J603Q	1-BB-ZS-4311		Position Switch	Reactor	145	Yes	No	46

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REACTOR WATER CLEAN-UP
BG

P&ID
M- 1-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P302Q	1-BG-HV-F001		Contr. Valve	Reactor	145	No	No	132
P302Q	1-BG-ZS-F001		Limit Switch	Reactor	145	Yes	No	132
P302Q	1-BG-HV-F004		Contr. Valve	Reactor	145	No	No	132
P302Q	1-BG-ZS-F004		Limit Switch	Reactor	145	Yes	No	132
P302Q	1-BG-HV-F034		Contr. Valve	Reactor	77	No	No	132
P302Q	1-BG-ZS-F034		Limit Switch	Reactor	77	No	No	132
P302Q	1-BG-HV-F035		Contr. Valve	Reactor	77	No	No	132
P302Q	1-BG-ZS-F035		Limit Switch	Reactor	77	No	No	132
P302Q	1-AE-HV-F039		Contr. Valve	Reactor	102	No	No	132
P302Q	1-AE-ZS-F039		Limit Switch	Reactor	102	Yes	No	132
M001	1-BG-FT-N012A	G33	Flow Trans.	Reactor	77	No	No	155
M001	1-BG-FT-N012D	G33	Flow Trans.	Reactor	102	No	No	155
M001	1-BG-FT-N036A	G33	Flow Trans.	Reactor	77	No	No	155
M001	1-BG-FT-N036D	G33	Flow Trans.	Reactor	77	No	No	155
M001	1-BG-FT-N041A	G33	Flow Trans.	Reactor	102	No	No	155
M001	1-BG-FT-N041D	G33	Flow Trans.	Reactor	102	No	No	155

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: CLEAN-UP FILTER/DEMINERALIZER
BG

P&ID
M-45-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P303AQ	1-BG-HV-3980		Contr. Valve	Reactor	132	No	No	139
P303AQ	1-BG-ZS-3980		Limit Switch	Reactor	132	No	No	139

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: CONTROL ROD DRIVE HYD-PART A
BF

P&ID
M-46-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P301Q	1-BF-HV-4005		Contr. Valve	Reactor	54	No	No	127
P301Q	1-BF-ZS-4005		Limit Switch	Reactor	54	No	No	127

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: CONTROL ROD DRIVE HYD-PART B
BF

P&ID
M-47-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-BF-SV-F009A	C11	Solenoid Valve	Reactor	102	No	No	117
M001	1-BF-SV-F009B	C11	Solenoid Valve	Reactor	102	No	No	117
M001	1-BF-SV-F110A	C11	Solenoid Valve	Reactor	102	No	No	118
M001	1-BF-SV-F110B	C11	Solenoid Valve	Reactor	102	No	No	118
M001	1-BF-SV-F160A	C11	Solenoid Valve	Reactor	102	No	No	109
M001	1-BF-SV-F160B	C11	Solenoid Valve	Reactor	102	No	No	109
M001	1-BF-SV-F162A	C11	Solenoid Valve	Reactor	102	No	No	109
M001	1-BF-SV-F162B	C11	Solenoid Valve	Reactor	102	No	No	109
M001	1-BF-SV-F162C	C11	Solenoid Valve	Reactor	102	No	No	109
M001	1-BF-SV-F162D	C11	Solenoid Valve	Reactor	102	No	No	109
M001	1-BF-SV-F163A	C11	Solenoid Valve	Reactor	102	No	No	109
M001	1-BF-SV-F163B	C11	Solenoid Valve	Reactor	102	No	No	109
M001	1-BF-SV-F182A	C11	Solenoid Valve	Reactor	102	No	No	108
M001	1-BF-SV-F182B	C11	Solenoid Valve	Reactor	102	No	No	108
M001	1-BF-LT-N012A	C11	Level Trans	Reactor	102	No	No	112
M001	1-BF-LT-N012B	C11	Level Trans	Reactor	102	No	No	112
M001	1-BF-LT-N012C	C11	Level Trans	Reactor	102	No	No	112
M001	1-BF-LT-N012D	C11	Level Trans	Reactor	102	No	No	112
M001	1-BF-LS-N013A	C11	Level Switch	Reactor	102	No	No	151
M001	1-BF-LS-N013B	C11	Level Switch	Reactor	102	No	No	151
M001	1-BF-LS-N013C	C11	Level Switch	Reactor	102	No	No	151

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: CONTROL ROD DRIVE HYD-PART 9
BF

P&ID
M-47-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTI[illegible] PLAN E[illegible] P. NOTE (2)	EESS REF. NO.	
M001	1-BF-LS-N013D	C11	Level Switch	Reactor	102	No	No	151	
M001	1-BF-LS-N013E	C11	Level Switch	Reactor	102	No	No	151	
M001	1-BF-LS-N013F	C11	Level Switch	Reactor	102	No	No	151	
M001	1-BF-LS-N013G	C11	Level Switch	Reactor	102	No	No	111	
M001	1-BF-LS-N013H	C11	Level Switch	Reactor	102	No	No	111	
M001	1-BF-SV-117	C11	Solenoid Valve	Reactor	102	No	No	122	Typical of 185 Solenoid Valves

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: STANDBY LIQUID CONTROL
BH

P&ID
M-48-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1A-P-208	C41 C001	Pump Motor	Reactor	162	No	No	104
M001	1B-P-208	C41 C001	Pump Motor	Reactor	162	No	No	104
M001	1-BH-XV-F004A	C41	Explosive Control Valve	Reactor	162	No	No	102
M001	1-BH-XV-F004B	C41	Explosive Control Valve	Reactor	162	No	No	102
P303AQ	1-BH-HV-F006A		Control Valve	Reactor	145	No	No	139
P303AQ	1-BH-ZS-F006A		Limit Switch	Reactor	145	Yes	No	139
P303AQ	1-BH-HV-F006B		Control Valve	Reactor	145	No	No	139
P303AQ	1-BH-ZS-F006B		Limit Switch	Reactor	145	Yes	No	139
M001	1-BH-PT-N004A	C41	Press Trans.	Reactor	162	Yes	No	115
M001	1-BH-PT-N004B	C41	Press Trans.	Reactor	162	Yes	No	115
M001	1-BH-LT-N010A	C41	Level Trans.	Reactor	162	No	No	113
M001	1-BH-LT-N010B	C41	Level Trans.	Reactor	162	No	No	113
M001	1-BH-LT-N010E	C41	Level Trans.	Reactor	162	No	No	113
M001	1-BH-LT-N010F	C41	Level Trans.	Reactor	162	No	No	113
M001	1-BH-HS-S4A	C41A	Hand Sw.	Reactor	162	No	No	152
M001	1-BH-HS-S4B	C41A	Hand Sw.	Reactor	162	No	No	152

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REACTOR CORE ISOL COOL.
BD

P&ID
M-49-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P302Q	1-FC-HV-F007		Control Valve	Reactor	102	No	No	132
P302Q	1-FC-ZS-F007		Limit Switch	Reactor	102	Yes	No	132
P302Q	1-FC-HV-F008		Control Valve	Reactor	102	No	No	132
P302Q	1-FC-ZS-F008		Limit Switch	Reactor	102	Yes	No	132
P301Q	1-BD-HV-F010		Control Valve	Reactor	54	No	No	126
P301Q	1-BD-ZS-F010		Limit Switch	Reactor	54	No	No	126
P302Q	1-BD-HV-F012		Control Valve	Reactor	54	No	No	133
P302Q	1-BD-ZS-F012		Limit Switch	Reactor	54	No	No	133
P302Q	1-BD-HV-F013		Control Valve	Reactor	102	No	No	133
P302Q	1-BD-ZS-F013		Limit Switch	Reactor	102	Yes	No	133
J603Q	1-BD-SV-F019		Solenoid Valve	Reactor	77	No	No	47
J603Q	1-BD-ZS-F019		Position Switch	Reactor	77	Yes	No	47
P302Q	1-BD-HV-F022		Control Valve	Reactor	77	No	No	133
P302Q	1-BD-ZS-F022		Limit Switch	Reactor	77	No	No	133
P303AQ	1-FC-SV-F025		Solenoid Valve	Reactor	54	No	No	140

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REACTOR CORE ISOL COOL.
BD

P&ID
M-49-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P303AQ	1-FC-ZS-F025		Position Switch	Reactor	54	No	No	141
P303AQ	1-FC-SV-F026		Solenoid Valve	Reactor	54	No	No	140
P303AQ	1-FC-ZS-F026		Position Switch	Reactor	54	No	No	141
P301Q	1-BD-HV-F031		Control Valve	Reactor	54	No	No	126
P301Q	1-BD-ZS-F031		Limit Switch	Reactor	54	Yes	No	126
J601Q	1-FC-SV-F054		Solenoid Valve	Reactor	54	No	No	44
J601Q	1-FC-ZS-F054		Position Switch	Reactor	54	No	No	45
P301Q	1-FC-HV-F059		Control Valve	Reactor	77	No	No	126
P301Q	1-FC-ZS-F059		Limit Switch	Reactor	77	Yes	No	126
P303AQ	1-FC-HV-F060		Control Valve	Reactor	54	No	No	138
P303AQ	1-FC-ZS-F060		Limit Switch	Reactor	54	Yes	No	138
P301Q	1-FC-HV-F062		Control Valve	Reactor	54	No	No	127
P301Q	1-FC-ZS-F062		Limit Switch	Reactor	54	Yes	No	127
P303AQ	1-FC-HV-F076		Control Valve	Reactor	100	No	No	139
P303AQ	1-FC-ZS-F076		Limit Switch	Reactor	100	Yes	No	139
P301Q	1-FC-HV-F084		Control Valve	Reactor	77	No	No	127
P301Q	1-FC-ZS-F084		Limit Switch	Reactor	77	Yes	No	127
M001	1-FC-FT-N003	ES1	Flow Trans	Reactor	54	Yes	No	155
M001	1-FC-PT-N007	ES1	Press. Trans	Reactor	54	No	No	106
M001	1-FC-LSH-N010	ES1	Level Switch High	Reactor	54	No	No	150
M001	1-BD-PT-N050	ES1	Press. Trans	Reactor	54	No	No	155
M001	1-BD-FT-N051	ES1	Flow Trans	Reactor	54	No	No	155
M001	1-FC-PDT-N057B	ES1	Press. Diff. Trans	Reactor	77	No	No	155
M001	1-FC-PDT-N057D	ES1	Press. Diff. Trans	Reactor	77	No	No	155

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REACTOR CORE ISOL COOL.
BD

P&ID
M-49-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-FC-PT-N058B	E51	Press. Trans	Reactor	77	No	No	155
M001	1-FC-PT-N058D	E51	Press. Trans	Reactor	77	No	No	155
M001	1-FC-PT-N058F	E51	Press. Trans	Reactor	77	No	No	155
M001	1-FC-PT-N058H	E51	Press. Trans	Reactor	77	No	No	155
J301Q	1-BD-PT-4157		Press. Trans.	Reactor	54	No	No	29
J301Q	1-FC-FT-4158		Flow Trans.	Reactor	54	No	No	29

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: RCIC PUMP TURBINE
FC

P&ID
M-50-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1O-S-212	E51-C002	RCIC Turbine	Reactor	54	No	No	157
M001	1O-P-219	E51-C002	Vacuum Pump Motor	Reactor	54	No	No	157
M001	1O-P-220	E51-C002	Condensate Pump Motor	Reactor	54	No	No	157
M001	1O-S-221	E51-C002	RCIC Turbine Governor	Reactor	54	No	No	157
M002Q	1B-P-228		Jockey Pump Motor, ECCS	Reactor	54	No	No	80
P303AQ	1-FC-SV-F004		Solenoid Valve	Reactor	54	No	No	140
P303AQ	1-FC-ZS-F004		Position Switch	Reactor	54	No	No	141
J601Q	1-FC-SV-F005		Solenoid Valve	Reactor	54	No	No	44
J601Q	1-FC-ZS-F005		Position Switch	Reactor	54	No	No	45
P302Q	1-FC-HV-F045		Control Valve	Reactor	54	No	No	133
P302Q	1-FC-ZS-F045		Limit Switch	Reactor	54	No	No	133
P303AQ	1-BD-HV-F046		Control Valve	Reactor	54	No	No	138
P303AQ	1-BD-ZS-F046		Limit Switch	Reactor	54	No	No	138
M001	1-BD-PT-N028	E11	Press. Trans	Reactor	77	No	No	106
M001	1-BD-PT-N052	E51	Press. Trans	Reactor	77	No	No	155
M001	1-BD-PT-N053	E51	Press. Trans	Reactor	77	No	No	155
M001	1-FC-PT-N055B	E51	Press. Trans	Reactor	77	No	No	155
M001	1-FC-PT-N055D	E51	Press. Trans	Reactor	77	No	No	155
M001	1-FC-PT-N055F	E51	Press. Trans	Reactor	77	No	No	155
M001	1-FC-PT-N055H	E51	Press. Trans	Reactor	77	No	No	155
M001	1-FC-PT-N056B	E51	Press. Trans	Reactor	54	No	No	155
M001	1-FC-PT-N056F	E51	Press. Trans	Reactor	54	No	No	157
M001	1-FC-ZS-4275	E51-C002	Position Sw.	Reactor	54	No	No	157
M001	1-FC-PSL-4276	E51-C002	Press. Sw. Low	Reactor	54	No	No	157

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: RCIC PUMP TURBINE
FC

P&ID
M-50-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-FC-TSH-4277	E51-C002	Temp. Sw. High	Reactor	54	No	No	157
M001	1-FC-TSH-4278	E51-C002	Temp. Sw. High	Reactor	54	No	No	157
M001	1-FC-PDSH-4279	E51-C002	Press. Diff. Sw. High	Reactor	54	No	No	157
M001	1-FC-SE-4280	E51-C002	Speed Elemt.	Reactor	54	No	No	157
M001	1-FC-HV-4282	E51-C002	Control Valve	Reactor	54	No	No	157
M001	1-FC-FY-4283	E51-C002	Converter	Reactor	54	No	No	157
M001	1-FC-LSH-4288	E51-C002	Level Sw. High	Reactor	54	No	No	157
M001	NO TAG NO.	E51-C002	Position Switch	Reactor	54	No	No	157
J301Q	1-BD-PT-4303		Press. Trans.	Reactor	54	No	No	29

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: RESIDUAL HEAT REMOVAL SYSTEM
BC

P&ID
M-51-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1A-P-202	E11 C002	RHR Pump Motor	Reactor	54	No	No	116
M001	1B-P-202	E11 C002	RHR Pump Motor	Reactor	54	No	No	116
M001	1C-P-202	E11 C002	RHR Pump Motor	Reactor	54	No	No	116
M001	1D-P-202	E11 C002	RHR Pump Motor	Reactor	54	No	No	116
M082Q	1C-P-228		Jockey Pump Motor, ECCS	Reactor	54	No	No	80
M082Q	1D-P-228		Jockey Pump Motor, ECCS	Reactor	54	No	No	80
P301Q	1-BC-HV-F003A		Control Valve	Reactor	54	No	No	127
P301Q	1-BC-ZS-F003A		Limit Switch	Reactor	54	No	No	127
P301Q	1-BC-HV-F003B		Control Valve	Reactor	54	No	No	127
P301Q	1-BC-ZS-F003B		Limit Switch	Reactor	54	No	No	127
P301Q	1-BC-HV-F004A		Control Valve	Reactor	54	No	No	127
P301Q	1-BC-ZS-F004A		Limit Switch	Reactor	54	Yes	No	127
P301Q	1-BC-HV-F004B		Control Valve	Reactor	54	No	No	127
P301Q	1-BC-ZS-F004B		Limit Switch	Reactor	54	Yes	No	127
P301Q	1-BC-HV-F004C		Control Valve	Reactor	54	No	No	127
P301Q	1-BC-ZS-F004C		Limit Switch	Reactor	54	Yes	No	127
P301Q	1-BC-HV-F004D		Control Valve	Reactor	54	No	No	127
P301Q	1-BC-ZS-F004D		Limit Switch	Reactor	54	Yes	No	127
P301Q	1-BC-HV-F006A		Control Valve	Reactor	54	No	No	127
P301Q	1-BC-ZS-F006A		Limit Switch	Reactor	54	No	No	127
P301Q	1-BC-HV-F006B		Control Valve	Reactor	54	No	No	127
P301Q	1-BC-ZS-F006B		Limit Switch	Reactor	54	No	No	127
P301Q	1-BC-HV-F007A		Control Valve	Reactor	54	No	No	127
P301Q	1-BC-ZS-F007A		Limit Switch	Reactor	54	Yes	No	127
P301Q	1-BC-HV-F007B		Control Valve	Reactor	54	No	No	127
P301Q	1-BC-ZS-F007B		Limit Switch	Reactor	54	Yes	No	127

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: RESIDUAL HEAT REMOVAL SYSTEM
BC

P&ID
M-51-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P301Q	1-BC-HV-F007C		Control Valve	Reactor	54	No	No	127
P301Q	1-BC-ZS-F007C		Limit Switch	Reactor	54	Yes	No	127
P301Q	1-BC-HV-F007D		Control Valve	Reactor	54	No	No	127
P302Q	1-BC-ZS-F008		Limit Switch	Reactor	102	Yes	No	132
P302Q	1-BC-HV-F009		Control Valve	Reactor	102	No	No	132
P302Q	1-BC-ZS-F009		Limit Switch	Reactor	102	Yes	No	132
P301Q	1-BC-HV-F010A		Control Valve	Reactor	54	No	No	127
P301Q	1-BC-ZS-F010A		Limit Switch	Reactor	54	Yes	No	127
P301Q	1-BC- -F010B		Control Valve	Reactor	54	No	No	127
P301Q	1-BC- F010B		Limit Switch	Reactor	54	Yes	No	127
P301Q	1-BC- -F011A		Control Panel	Reactor	54	No	No	127
P301Q	1-BC-ZS-F011A		Limit Switch	Reactor	54	Yes	No	127
P301Q	1-BC-HV-F011B		Control Valve	Reactor	54	No	No	127
P301Q	1-BC-ZS-F011B		Limit Switch	Reactor	54	Yes	No	127
P302Q	1-BC-HV-F015A		Control Valve	Reactor	102	No	No	132
P302Q	1-BC-ZS-F015A		Limit Switch	Reactor	102	Yes	No	132
P302Q	1-BC-HV-F015B		Control Valve	Reactor	102	No	No	132
P302Q	1-BC-ZS-F015B		Limit Switch	Reactor	102	Yes	No	132
P301Q	1-BC-HV-F016A		Control Valve	Reactor	102	No	No	127
P301Q	1-BC-ZS-F016A		Limit Switch	Reactor	102	Yes	No	127
P301Q	1-BC-HV-F016B		Control Valve	Reactor	132	No	No	127
P301Q	1-BC-ZS-F016B		Limit Switch	Reactor	132	Yes	No	127
P302Q	1-BC-HV-F017A		Control Valve	Reactor	102	No	No	132
P302Q	1-BC-ZS-F017A		Limit Switch	Reactor	102	Yes	No	132
P302Q	1-BC-HV-F017B		Control Valve	Reactor	102	No	No	132
P302Q	1-BC-ZS-F017B		Limit Switch	Reactor	102	Yes	No	132
P302Q	1-BC-HV-F017C		Control Valve	Reactor	102	No	No	132

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: RESIDUAL HEAT REMOVAL SYSTEM
BC

P&ID
M-51-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P302Q	1-BC-ZS-F017C		Limit Switch	Reactor	102	Yes	No	132
P302Q	1-BC-HV-F017D		Control Valve	Reactor	102	No	No	132
P302Q	1-BC-ZS-F017D		Limit Switch	Reactor	102	Yes	No	132
P301Q	1-BC-HV-F021A		Control Valve	Reactor	102	No	No	127
P301Q	1-BC-ZS-F021A		Limit Switch	Reactor	102	Yes	No	127
P301Q	1-BC-HV-F021B		Control Valve	Reactor	132	No	No	127
P301Q	1-BC-ZS-F021B		Limit Switch	Reactor	132	Yes	No	127
P302Q	1-BC-HV-F022		Control Valve	Reactor	145	No	No	132
P302Q	1-BC-ZS-F022		Limit Switch	Reactor	145	Yes	No	132
P302Q	1-BC-HV-F023		Control Valve	Reactor	145	No	No	132
P302Q	1-BC-ZS-F023		Limit Switch	Reactor	145	Yes	No	132
P301Q	1-BC-HV-F024A		Control Valve	Reactor	54	No	No	127
P301Q	1-BC-ZS-F024A		Limit Switch	Reactor	54	Yes	No	127
P301Q	1-BC-HV-F024B		Control Valve	Reactor	54	No	No	127
P301Q	1-BC-ZS-F024B		Limit Switch	Reactor	54	Yes	No	127
P301Q	1-BC-HV-F026A		Control Valve	Reactor	54	No	No	127
P301Q	1-BC-ZS-F026A		Limit Switch	Reactor	54	No	No	127
P301Q	1-BC-HV-F026B		Control Valve	Reactor	54	No	No	127
P301Q	1-BC-ZS-F026B		Limit Switch	Reactor	54	No	No	127
P301Q	1-BC-HV-F027A		Control Valve	Reactor	77	No	No	127
P301Q	1-BC-ZS-F027A		Limit Switch	Reactor	77	Yes	No	127
P301Q	1-BC-HV-F027B		Control Valve	Reactor	77	No	No	127
P301Q	1-BC-ZS-F027B		Limit Switch	Reactor	77	Yes	No	127
P301Q	1-BC-HV-F040		Control Valve	Reactor	77	No	No	127
P301Q	1-BC-ZS-F040		Limit Switch	Reactor	77	No	No	127
P301Q	1-BC-HV-F047A		Control Valve	Reactor	77	No	No	127
P301Q	1-BC-ZS-F047A		Limit Switch	Reactor	77	No	No	127
P301Q	1-BC-HV-F047B		Control Valve	Reactor	77	No	No	127

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: RESIDUAL HEAT REMOVAL SYSTEM
BC

P&ID
M-51-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P301Q	1-BC-ZS-F047B		Limit Switch	Reactor	77	No	No	127
J605Q	1-BC-HV-F048A		Control Valve	Reactor	77	No	No	49
J605Q	1-BC-ZS-F048B		Limit Switch	Reactor	77	No	No	49
J605Q	1-BC-HV-F048B		Control Valve	Reactor	77	No	No	49
J605Q	1-BC-ZS-F048B		Limit Switch	Reactor	77	No	No	49
P301Q	1-BC-HV-F049		Control Valve	Reactor	77	No	No	127
P301Q	1-BC-ZS-F049		Limit Switch	Reactor	77	No	No	127
P302Q	1-BC-HV-F052A		Control Valve	Reactor	77	No	No	132
P302Q	1-BC-ZS-F052A		Limit Switch	Reactor	77	No	No	132
P302Q	1-BC-HV-F052B		Control Valve	Reactor	77	No	No	132
P302Q	1-BC-ZS-F052B		Limit Switch	Reactor	77	No	No	132
P302Q	1-BC-ZS-F060A		Position Sw.	Reactor	100	No	No	134
P302Q	1-BC-ZS-F060B		Position Sw.	Reactor	100	No	No	134
P302Q	1-BC-ZS-F065A		Position Sw.	Reactor	112	No	No	134
P302Q	1-BC-ZS-F065B		Position Sw.	Reactor	100	No	No	134
P302Q	1-BC-ZS-F065C		Position Sw.	Reactor	100	No	No	134
P302Q	1-BC-ZS-F065D		Position Sw.	Reactor	100	No	No	127
P301Q	1-BC-HV-F075		Control Valve	Reactor	77	No	No	127
P301Q	1-BC-ZS-F075		Limit Switch	Reactor	77	No	No	134
P302Q	1-BC-ZS-F077		Position Sw.	Reactor	102	No	No	46
J603Q	1-BC-SV-F079B		Solenoid Valve	Reactor	77	No	No	46
J603Q	1-BC-SV-F080A		Solenoid Valve	Reactor	54	No	No	46
J603Q	1-BC-SV-F080B		Solenoid Valve	Reactor	77	No	No	140
P303AQ	1-BC-SV-F122A		Solenoid Valve	Reactor	100	Yes	No	141
P303AQ	1-BC-ZS-F122A		Position Switch	Reactor	100	No	No	140
P303AQ	1-BC-SV-F122B		Solenoid Valve	Reactor	100	Yes	No	141
P303AQ	1-BC-ZS-F122B		Position Switch	Reactor	100	No	No	140
P303AQ	1-BC-SV-F146A		Solenoid Valve	Reactor	100			

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: RESIDUAL HEAT REMOVAL SYSTEM
BC

P&ID
M-51-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P303AQ	1-BC-ZS-F146A		Position Switch	Reactor	100	Yes	No	141
P303AQ	1-BC-SV-F146B		Solenoid Valve	Reactor	100	No	No	140
P303AQ	1-BC-ZS-F146B		Position Switch	Reactor	100	Yes	No	141
P303AQ	1-BC-SV-F146C		Solenoid Valve	Reactor	100	No	No	140
P303AQ	1-BC-ZS-F146C		Position Switch	Reactor	100	Yes	No	141
P303AQ	1-BC-SV-F146D		Solenoid Valve	Reactor	100	No	No	140
P303AQ	1-BC-ZS-F146D		Position Switch	Reactor	100	Yes	No	141
M001	1-BC-FT-N013	E11	Flow Transmitter	Reactor	102	No	No	106
M001	1-BC-FT-N015A	E11	Flow Transmitter	Reactor	77	Yes	No	155
M001	1-BC-FT-N015B	E11	Flow Transmitter	Reactor	77	Yes	No	155
M001	1-BC-FT-N015C	E11	Flow Transmitter	Reactor	54	Yes	No	155
M001	1-BC-FT-N015D	E11	Flow Transmitter	Reactor	54	Yes	No	155
M001	1-BC-FT-N052A	E11	Flow Transmitter	Reactor	77	No	No	155
M001	1-BC-FT-N052B	E11	Flow Transmitter	Reactor	77	No	No	155
M001	1-BC-FT-N052C	E11	Flow Transmitter	Reactor	54	No	No	155
M001	1-BC-FT-N052D	E11	Flow Transmitter	Reactor	54	No	No	155
M001	1-BC-PT-N053A	E11	Press. Trans	Reactor	54	No	No	106
M001	1-BC-PT-N053B	E11	Press. Trans	Reactor	54	No	No	106
M001	1-BC-PT-N053C	E11	Press. Trans	Reactor	54	No	No	106
M001	1-BC-PT-N053D	E11	Press. Trans	Reactor	54	No	No	155
M001	1-BC-PT-N055B	E11	Press. Trans	Reactor	54	No	No	155
M001	1-BC-PT-N055D	E11	Press. Trans	Reactor	54	No	No	155
M001	1-BC-PT-N055F	E11	Press. Trans	Reactor	54	No	No	155
M001	1-BC-PT-N055H	E11	Press. Trans	Reactor	54	No	No	155
M001	1-BC-PT-N056B	E11	Press. Trans	Reactor	54	No	No	155
M001	1-BC-PT-N056D	E11	Press. Trans	Reactor	54	No	No	155
M001	1-BC-PT-N056F	E11	Press. Trans	Reactor	54	No	No	155

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: RESIDUAL HEAT REMOVAL SYSTEM
BC

P&ID
M-51-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-BC-PT-N056H	E11	Press. Trans	Reactor	54	No	No	155
M001	1-BC-PT-N057	E11	Press. Trans.	Reactor	77	No	No	106
M001	1-BC-PDT-N058A	E11	Press. Diff. Trans.	Reactor	77	No	No	155
M001	1-BC-PDT-N058B	E11	Press. Diff. Trans.	Reactor	77	No	No	155
M001	1-BC-PDT-N058C	E11	Press. Diff. Trans.	Reactor	77	No	No	155
M001	1-BC-PDT-N058D	E11	Press. Diff. Trans.	Reactor	77	No	No	155
M001	1-BC-PDT-N060A	E11	Press. Diff. Trans.	Reactor	77	No	No	106
M001	1-BC-PDT-N060B	E11	Press. Diff. Trans.	Reactor	77	No	No	106
later	1-BC-TE-N027A		Temp. Elemt.	Reactor	77	Yes	No	later
later	1-BC-TE-N027B		Temp. Elemt.	Reactor	77	Yes	No	later
J556Q	1-BC-TE-4401		Temp. Elemt.	Reactor	77	No	No	43
P301Q	1-BC-HV-4420A		Control Valve	Reactor	77	No	No	127
P301Q	1-BC-ZS-4420A		Limit Switch	Reactor	77	Yes	No	127
P301Q	1-BC-HV-4420B		Control Valve	Reactor	77	No	No	127
P301Q	1-BC-ZS-4420B		Limit Switch	Reactor	77	Yes	No	127
P301Q	1-BC-HV-4421		Control Valve	Reactor	77	No	No	127
P301Q	1-BC-ZS-4421		Limit Switch	Reactor	77	Yes	No	127
P303AQ	1-BC-HV-4428		Control Valve	Reactor	77	No	No	139
P303AQ	1-BC-ZS-4428		Limit Switch	Reactor	77	No	No	139
J301Q	1-BC-FT-4435		Flow Trans.	Reactor	77	No	No	29
P301Q	1-BC-HV-4439		Control Valve	Reactor	77	No	No	127
P301Q	1-BC-ZS-4439		Limit Switch	Reactor	77	No	No	127
J301Q	1-BC-FT-4461A		Flow Trans.	Reactor	77	Yes	No	29
J301Q	1-BC-FT-4461B		Flow Trans.	Reactor	77	Yes	No	29
J301Q	1-BC-FT-4462A		Flow Trans.	Reactor	102	Yes	No	29
J301Q	1-BC-FT-4462B		Flow Trans.	Reactor	77	Yes	No	29

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: CORE SPRAY
BE

P&ID
M-52-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P302Q	1-BE-ZS-F004B		Limit Switch	Reactor	102	No	No	132
P302Q	1-BE-HV-F005A		Contr. Valve	Reactor	102	No	No	132
P302Q	1-BE-ZS-F005A		Limit Switch	Reactor	102	Yes	No	132
P302Q	1-BE-HV-F005B		Contr. Valve	Reactor	102	No	No	132
P302Q	1-BE-ZS-F005B		Limit Switch	Reactor	102	Yes	No	132
P302Q	1-BE-ZS-F007A		Position Switch	Reactor	100	No	No	134
P302Q	1-BE-ZS-F007B		Position Switch	Reactor	100	No	No	134
P301Q	1-BE-HV-F015A		Contr. Valve	Reactor	77	No	No	127
P301Q	1-BE-ZS-F015A		Limit Switch	Reactor	77	Yes	No	127
P301Q	1-BE-HV-F015B		Contr. Valve	Reactor	77	No	No	127
P301Q	1-BE-ZS-F015B		Limit Switch	Reactor	77	Yes	No	127
P301Q	1-BE-HV-F031A		Contr. Valve	Reactor	54	No	No	127
P301Q	1-BE-ZS-F031A		Limit Switch	Reactor	54	Yes	No	127
P301Q	1-BE-HV-F031B		Contr. Valve	Reactor	54	No	No	127
P301Q	1-BE-ZS-F031B		Limit Switch	Reactor	54	Yes	No	127
P303AQ	1-BE-SV-F039A		Solenoid Valve	Reactor	100	No	No	140

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: CORE SPRAY
BE

P&ID
M-52-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P303AQ	1-BE-ZS-F039A	E21	Position Switch	Reactor	100	Yes	No	141
P303AQ	1-BE-SV-F039B		Solenoid Valve	Reactor	100	No	No	140
P303AQ	1-BE-ZS-F039B		Limit Switch	Reactor	100	Yes	No	141
M001	1-BE-FT-N003A	E21	Flow Trans.	Reactor	54	Yes	No	155
M001	1-BE-FT-N003B	E21	Flow Trans.	Reactor	54	Yes	No	155

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-52-1

SYSTEM: CORE SPRAY
BE

F.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-BE-FT-N051A	E21	Flow Trans.	Reactor	54	No	No	155
M001	1-BE-FT-N051B	E21	Flow Trans.	Reactor	54	No	No	155
M001	1-BE-PT-N054A	E21	Press Trans.	Reactor	54	No	No	155
M001	1-BE-PT-N054B	E21	Press Trans.	Reactor	54	No	No	155
M001	1-BE-PT-N055B	E21	Press. Trans.	Reactor	54	No	No	155
M001	1-BE-PT-N055D	E21	Press. Trans.	Reactor	54	No	No	155
M001	1-BE-PT-N055F	E21	Press. Trans.	Reactor	54	No	No	155
M001	1-BE-PT-N055H	E21	Press. Trans.	Reactor	54	No	No	155
M001	1-BE-PDT-N056	E21	Press. Diff. Trans.	Reactor	77	No	No	155

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: FUEL POOL COOLING & TORUS WTR CLEANUP
EC

P&ID
M-53-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M082Q	1A-P-211		Pump Motor, Fuel Pool Cooling	Reactor	162	No	No	80
M082Q	1B-P-211		Pump Motor, Fuel Pool Cooling	Reactor	162	No	No	80
J301Q	1-EC-FT-4649A		Flow Transmitter	Reactor	162	No	No	29
J301Q	1-EC-FT-4649B		Flow Transmitter	Reactor	162	No	No	29
P301Q	1-EE-HV-4652		Control Valve	Reactor	54	No	No	127
P301Q	1-EE-ZS-4652		Limit Switch	Reactor	54	Yes	No	127
P301Q	1-EE-SV-4655		Solenoid Valve	Reactor	54	No	No	124
P301Q	1-EE-ZS-4655		Position Switch	Reactor	54	No	No	125
P301Q	1-EE-SV-4656		Solenoid Valve	Reactor	54	No	No	124
P301Q	1-EE-ZS-4656		Position Switch	Reactor	54	No	No	125
J301Q	1-EC-LT-4661A		Level Transmitter	Reactor	162	No	No	29
J301Q	1-EC-LT-4661B		Level Transmitter	Reactor	162	No	No	29
P301Q	1-EE-SV-4663		Solenoid Valve	Reactor	77	No	No	124
P301Q	1-EE-ZS-4663		Position Switch	Reactor	77	No	No	125
J301Q	1-EC-PT-4669A		Pressure Transmitter	Reactor	162	No	No	29
J301Q	1-EC-PT-4669B		Pressure Transmitter	Reactor	162	No	No	29

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: FUEL POOL COOLING & TORUS WTR CLEANUP
EC

P&ID
M-53-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P301Q	1-EC-SV-4676A		Solenoid Valve	Reactor	77	No	No	124
P301Q	1-EC-ZS-4676A		Position Switch	Reactor	77	No	No	125
P301Q	1-EC-SV-4676B		Solenoid Valve	Reactor	77	No	No	124
P301Q	1-EC-ZS-4676B		Position Switch	Reactor	77	No	No	125
P301Q	1-EC-SV-4678		Solenoid Valve	Reactor	77	No	No	124
P301Q	1-EC-ZS-4678		Position Switch	Reactor	77	No	No	125
P301Q	1-EE-HV-4679		Control Valve	Reactor	54	No	No	127
P301Q	1-EE-ZS-4679		Limit Switch	Reactor	54	Yes	No	127
P301Q	1-EE-HV-4680		Control Valve	Reactor	54	No	No	127
P301Q	1-EE-ZS-4680		Limit Switch	Reactor	54	Yes	No	127
P301Q	1-EE-HV-4681		Control Valve	Reactor	54	No	No	127
P301Q	1-EE-ZS-4681		Limit Switch	Reactor	54	Yes	No	127
J556Q	1-EC-TE-4683		Temp. Elemt.	Reactor	162	No	No	43
P301Q	1-EC-HV-4689A		Control Valve	Reactor	162	No	No	127
P301Q	1-EC-ZS-4689A		Limit Switch	Reactor	162	No	No	127
P301Q	1-EC-HV-4689B		Control Valve	Reactor	162	No	No	127
P301Q	1-EC-ZS-4689B		Limit Switch	Reactor	162	No	No	127

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: HIGH PRESS COOL. INJECTION
BJ

P&ID
M-55-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P302Q	1-FD-HV-F001		Control Valve	Reactor	54	No	No	133
P302Q	1-FD-ZS-F001		Limit Switch	Reactor	54	No	No	133
P302Q	1-FD-HV-F002		Control Valve	Reactor	102	No	No	132
P302Q	1-FD-ZS-F002		Limit Switch	Reactor	100	Yes	No	132
P302Q	1-FD-HV-F003		Control Valve	Reactor	102	No	No	132
P302Q	1-FD-ZS-F003		Limit Switch	Reactor	102	Yes	No	132
P301Q	1-BJ-HV-F004		Control Valve	Reactor	54	No	No	126
P301Q	1-BJ-ZS-F004		Limit Switch	Reactor	54	No	No	126
P302Q	1-BJ-HV-F006		Control Valve	Reactor	102	No	No	133
P302Q	1-BJ-ZS-F006		Limit Switch	Reactor	102	Yes	No	133
P302Q	1-BJ-HV-F007		Control Valve	Reactor	54	No	No	133
P302Q	1-BJ-ZS-F007		Limit Switch	Reactor	54	No	No	133
P302Q	1-BJ-HV-F008		Control Valve	Reactor	77	No	No	133
P302Q	1-BJ-ZS-F008		Limit Switch	Reactor	77	No	No	133
P302Q	1-AP-HV-F011		Control Valve	Reactor	77	No	No	133
P302Q	1-AP-ZS-F011		Limit Switch	Reactor	77	No	No	133
P302Q	1-BJ-HV-F012		Control Valve	Reactor	54	No	No	133
P302Q	1-BJ-ZS-F012		Limit Switch	Reactor	54	Yes	No	133
P303AQ	1-FD-SV-F028		Solenoid Valve	Reactor	54	No	No	140
P303AQ	1-FD-ZS-F028		Position Switch	Reactor	54	No	No	141
P303AQ	1-FD-SV-F029		Solenoid Valve	Reactor	54	No	No	140
P303AQ	1-FD-ZS-F029		Position Switch	Reactor	54	No	No	141
P301Q	1-BJ-HV-F042		Control Valve	Reactor	54	Yes	No	126
P301Q	1-BJ-ZS-F042		Limit Switch	Reactor	54	Yes	No	126
J601Q	1-FD-SV-F054		Solenoid Valve	Reactor	54	No	No	44
J601Q	1-FD-ZS-F054		Position Switch	Reactor	54	No	No	45
P301Q	1-FD-HV-F071		Control Valve	Reactor	77	No	No	126

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-55-1

SYSTEM: HIGH PRESS COOL. INJECTION
BJ

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P302Q	1-FD-HV-F001		Control Valve	Reactor	54	No	No	133
P302Q	1-FD-ZS-F001		Limit Switch	Reactor	54	No	No	133
P302Q	1-FD-HV-F002		Control Valve	Reactor	102	No	No	132
P302Q	1-FD-ZS-F002		Limit Switch	Reactor	100	Yes	No	132
P302Q	1-FD-HV-F003		Control Valve	Reactor	102	No	No	132
P302Q	1-FD-ZS-F003		Limit Switch	Reactor	102	Yes	No	132
P301Q	1-BJ-HV-F004		Control Valve	Reactor	54	No	No	126
P301Q	1-BJ-ZS-F004		Limit Switch	Reactor	54	No	No	126
P302Q	1-BJ-HV-F006		Control Valve	Reactor	102	No	No	133
P302Q	1-BJ-ZS-F006		Limit Switch	Reactor	102	Yes	No	133
P302Q	1-BJ-HV-F007		Control Valve	Reactor	54	No	No	133
P302Q	1-BJ-ZS-F007		Limit Switch	Reactor	54	No	No	133
P302Q	1-BJ-HV-F008		Control Valve	Reactor	77	No	No	133
P302Q	1-BJ-ZS-F008		Limit Switch	Reactor	77	No	No	133
P302Q	1-AP-HV-F011		Control Valve	Reactor	77	No	No	133
P302Q	1-AP-ZS-F011		Limit Switch	Reactor	77	No	No	133
P302Q	1-BJ-HV-F012		Control Valve	Reactor	54	No	No	133
P302Q	1-BJ-ZS-F012		Limit Switch	Reactor	54	Yes	No	133
P303AQ	1-FD-SV-F028		Solenoid Valve	Reactor	54	No	No	140
P303AQ	1-FD-ZS-F028		Position Switch	Reactor	54	No	No	141
P303AQ	1-FD-SV-F029		Solenoid Valve	Reactor	54	No	No	140
P303AQ	1-FD-ZS-F029		Position Switch	Reactor	54	No	No	141
P301Q	1-BJ-HV-F042		Control Valve	Reactor	54	Yes	No	126
P301Q	1-BJ-ZS-F042		Limit Switch	Reactor	54	Yes	No	126
J601Q	1-FD-SV-F054		Solenoid Valve	Reactor	54	No	No	44
J601Q	1-FD-ZS-F054		Position Switch	Reactor	54	No	No	45
P301Q	1-FD-HV-F071		Control Valve	Reactor	77	No	No	126

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: HIGH PRESS COOL. INJECTION
BJ

P&ID
M-55-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P301Q	1-FD-ZS-F071		Limit Switch	Reactor	77	Yes	No	126
P301Q	1-FD-HV-F075		Control Valve	Reactor	77	No	No	127
P301Q	1-FD-ZS-F075		Limit Switch	Reactor	77	Yes	No	127
P301Q	1-FD-HV-F079		Control Valve	Reactor	77	No	No	127
P301Q	1-FD-ZS-F079		Limit Switch	Reactor	77	Yes	No	127
P303AQ	1-FD-HV-F100		Control Valve	Reactor	100	No	No	139
P303AQ	1-FD-ZS-F100		Limit Switch	Reactor	100	Yes	No	139
M001	1-FD-FT-N008	E41	Flow Trans.	Reactor	54	Yes	No	155
M001	1-FD-PT-N013	E41	Press. Trans.	Reactor	54	No	No	106
M001	1-FD-LSH-N014	E41	Level Switch High	Reactor	54	No	No	150
M001	1-BJ-PT-N050	E41	Press. Trans.	Reactor	54	No	No	155
M001	1-BJ-FT-N051	E41	Flow Trans.	Reactor	54	No	No	155
M001	1-FD-PDT-N057A	E41	Press. Diff. Trans.	Reactor	77	No	No	155
M001	1-FD-PDT-N057C	E41	Press. Diff. Trans.	Reactor	77	No	No	155
M001	1-FD-PT-N058A	E41	Press. Transmitter	Reactor	77	No	No	155
M001	1-FD-PT-N058C	E41	Press. Transmitter	Reactor	77	No	No	155
M001	1-FD-PT-N058E	E41	Press. Transmitter	Reactor	77	No	No	155
M001	1-FD-PT-N058G	E41	Press. Transmitter	Reactor	77	No	No	155
M001	1-BJ-LT-N062A	E41	Level Transmitter	Reactor	54	No	No	120
M001	1-BJ-LT-N062E	E41	Level Trans.	Reactor	54	No	No	120
J301Q	1-BJ-PT-4771		Press Trans.	Reactor	54	No	No	29
J301Q	1-BJ-LT-4801		Level Trans.	Reactor	54	Yes	Yes	28
P303AQ	1-BJ-HV-4803		Control Valve	Reactor	54	No	No	139
P303AQ	1-BJ-ZS-4803		Limit Switch	Reactor	54	Yes	No	139
P303AQ	1-BJ-HV-4804		Control Valve	Reactor	54	No	No	139
P303AQ	1-BJ-ZS-4804		Limit Switch	Reactor	54	Yes	No	139
M001	1-BJ-LT-4805-1		Level Trans.	Reactor	54	Yes	No	155A

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-55-1

SYSTEM: HIGH PRESS COOL. INJECTION
BJ

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-BJ-LT-4805-2		Level Trans.	Reactor	54	No	No	155A
P303AQ	1-BJ-HV-4865		Control Valve	Reactor	54	No	No	139
P303AQ	1-BJ-ZS-4865		Limit Switch	Reactor	54	Yes	No	139
P303AQ	1-BJ-HV-4866		Control Valve	Reactor	54	No	No	139
P303AQ	1-BJ-ZS-4866		Limit Switch	Reactor	54	Yes	No	139
P302Q	1-BJ-HV-8278		Control Valve	Reactor	102	No	No	133
P302Q	1-BJ-ZS-8278		Limit Switch	Reactor	102	Yes	No	133

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-56-1

SYSTEM: HPCI PUMP TURBINE
FD

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	10-S-211	E41-C002	HPCI Turbine	Reactor	54	No	No	123
M001	10-P-213	E41-C002	Aux. Oil Pump Motor	Reactor	54	No	No	123
M001	10-P-215	E41-C002	HPCI Vac Tank Cond. Pump	Reactor	54	No	No	123
M001	10-P-216	E41-C002	HPCI Gland Seal Cond. Vac. Pump	Reactor	54	No	No	123
M001	No Tag No.	E41-C002	HPCI Turbine Governor	Reactor	54	No	No	123
M082Q	1A-P-228		Jockey Pump Motor, ECCS	Reactor	54	No	No	80
J601Q	1-FD-SV-F025		Solenoid Valve	Reactor	54	No	No	44
J601Q	1-FD-ZS-F025		Position Switch	Reactor	54	No	No	45
P303AQ	1-FD-SV-F026		Solenoid Valve	Reactor	54	No	No	140
P303AQ	1-FD-ZS-F026		Position Switch	Reactor	54	No	No	141
P303AQ	1-BJ-HV-F059		Control Valve	Reactor	54	No	No	138
P303AQ	1-BJ-ZS-F059		Limit Switch	Reactor	54	No	No	138
M001	1-BJ-PT-N052	E41	Press. Trans.	Reactor	54	No	No	106
M001	1-BJ-PT-N053	E41	Press. Trans.	Reactor	54	No	No	155
M001	1-FD-PT-N055A	E41	Press. Trans.	Reactor	77	No	No	155

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: HPCI PUMP TURBINE
FD

P&ID
M-56-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-FD-PT-N055C	E41	Press. Trans.	Reactor	77	No	No	155
M001	1-FD-PT-N055E	E41	Press. Trans.	Reactor	77	No	No	155
M001	1-FD-PT-N055G	E41	Press. Trans.	Reactor	77	No	No	155
M001	1-FD-PT-N056A	E41	Press. Trans.	Reactor	54	No	No	155
M001	1-FD-PT-N056E	E41	Press. Trans.	Reactor	54	No	No	155
M001	1-FD-FV-4879	E41	Flow Control Valve Actuator	Reactor	54	No	No	123
M001	1-FD-FV-4880	E41	Flow Control Valve Actuator	Reactor	54	No	No	123
M001	1-FD-LSH-4890	E41	Level Switch High	Reactor	54	No	No	123
J301Q	1-BJ-PT-4891		Press Trans.	Reactor	77	No	No	29
M001	1-FD-LSL-4903	E41-C002	Level Switch Low	Reactor	54	No	No	123
M001	1-FD-PSH-4905	E41-C002	Press Switch High	Reactor	54	No	No	123
M001	1-FD-ZS-4907	E41-C002	Limit Switch	Reactor	54	No	No	123
M001	1-FD-PSL-4908	E41-C002	Press. Switch Low	Reactor	54	No	No	123
M001	1-FD-TS-4909	E41-C002	Temp Switch	Reactor	54	No	No	123
M001	1-FD-PDSH-4910	E41-C002	Press Diff. Switch High	Reactor	54	No	No	123
M001	1-FD-LSHL-4912	E41-C002	Level Switch High Low	Reactor	54	No	No	123
M001	1-FD-PS-4913	E41-C002	Press. Switch	Reactor	54	No	No	123
M001	1-FD-SE-4919	E41-C002	Speed Elemt.	Reactor	54	No	No	123

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-57-1

SYSTEM: CONTAINMENT ATMOS. CONTRL.
GS

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
J359Q	1A-C-200		H2/O2 Analyzer PNL A	Reactor	162	No	Yes	30
J359Q	1B-C-200		H2/O2 Analyzer PNL B	Reactor	162	No	Yes	30
J359Q	1C-C-200		H2/O2 Analyzer Heat Trace PNL	Reactor	162	No	No	31
J359Q	1D-C-200		H2/O2 Analyzer Heat Trace PNL	Reactor	162	No	No	31
J359Q	1-GS-TE-0351		Temperature Element	Reactor	145	No	Yes	31
J359Q	1-GS-TE-0352		Temperature Element	Reactor	145	No	Yes	31
J359Q	1-GS-TE-0353		Temperature Element	Reactor	77	No	Yes	31
J359Q	1-GS-TE-0354		Temperature Element	Reactor	162	No	Yes	31
J359Q	1-GS-TE-0355		Temperature Element	Reactor	102	No	Yes	31
J359Q	1-GS-TE-0356		Temperature Element	Reactor	162	No	Yes	31
J359Q	1-GS-TE-0357		Temperature Element	Reactor	162	No	Yes	31
J359Q	1-GS-TE-0358		Temperature Element	Reactor	162	No	Yes	31
J359Q	1-GS-TE-0359		Temperature Element	Reactor	162	No	Yes	31
P305Q	1-GS-SV-4950		Solenoid Valve	Reactor	145	No	No	145
P305Q	1-GS-ZS-4950		Position Switch	Reactor	145	Yes	No	146
P303AQ	1-GS-HV-4951		Control Valve	Reactor	145	No	No	139
P303AQ	1-GS-ZS-4951		Limit Switch	Reactor	145	Yes	No	139
P305Q	1-GS-SV-4952		Solenoid Valve	Reactor	145	No	No	145
P305Q	1-GS-ZS-4952		Position Switch	Reactor	145	Yes	No	146
P303AQ	1-GS-HV-4955A		Control Valve	Reactor	162	No	No	139
P303AQ	1-GS-ZS-4955A		Limit Switch	Reactor	162	Yes	No	139
P303AQ	1-GS-HV-4955B		Control Valve	Reactor	162	No	No	139
P303AQ	1-GS-ZS-4955B		Limit Switch	Reactor	162	Yes	No	139
P305Q	1-GS-SV-4956		Solenoid Valve	Reactor	102	No	No	145
P305Q	1-GS-ZS-4956		Position Switch	Reactor	102	Yes	No	146
P305Q	1-GS-SV-4958		Solenoid Valve	Reactor	77	No	No	145
P305Q	1-GS-ZS-4958		Position Switch	Reactor	77	Yes	No	146
P303AQ	1-GS-HV-4959A		Control Valve	Reactor	77	No	No	139

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM CONTAINMENT ATMOS. CONTRL.
GS

P&ID
M-57-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P303AQ	1-GS-ZS-4959A		Limit Switch	Reactor	77	Yes	No	139
P303AQ	1-GS-HV-4959B		Control Valve	Reactor	77	No	No	139
P303AQ	1-GS-ZS-4959B		Limit Switch	Reactor	77	Yes	No	139
J301Q	1-GS-PT-4960A1		Press. Trans.	Reactor	102	Yes	No	28
J301Q	1-GS-PT-4960B1		Press. Trans.	Reactor	102	Yes	No	28
J301Q	1-GS-PT-4960B3		Press. Trans.	Reactor	102	Yes	No	29
P305Q	1-GS-SV-4962		Solenoid Valve	Reactor	77	No	No	145
J05Q	1-GS-ZS-4962		Position Switch	Reactor	77	Yes	No	146
P303AQ	1-GS-HV-4963		Control Valve	Reactor	77	No	No	139
P303AQ	1-GS-ZS-4963		Position Switch	Reactor	77	Yes	No	139
P305Q	1-GS-SV-4964		Solenoid Valve	Reactor	77	No	No	145
P305Q	1-GS-ZS-4964		Limit Switch	Reactor	77	Yes	No	146
P303AQ	1-GS-HV-4965A		Control Valve	Reactor	77	No	No	139
P303AQ	1-GS-ZS-4965A		Limit Switch	Reactor	77	Yes	No	139
P303AQ	1-GS-HV-4965B		Control Valve	Reactor	77	No	No	139
P303AQ	1-GS-ZS-4965B		Limit Switch	Reactor	77	Yes	No	139
P303AQ	1-GS-HV-4966A		Control Valve	Reactor	77	No	No	139
P303AQ	1-GS-ZS-4966A		Limit Switch	Reactor	77	Yes	No	139
P303AQ	1-GS-HV-4966B		Control Valve	Reactor	102	Yes	No	139
P303AQ	1-GS-ZS-4966B		Limit Switch	Reactor	102	Yes	No	139
J556Q	1-GS-TE-4967A1		Temp. Elemt.	Reactor	77	No	No	43
J556Q	1-GS-TE-4967A2		Temp. Elemt.	Reactor	121	Yes	No	43
J556Q	1-GS-TE-4967A3		Temp. Elemt.	Reactor	121	No	No	43
J556Q	1-GS-TE-4967B1		Temp. Elemt.	Reactor	77	No	No	43
J556Q	1-GS-TE-4967B2		Temp. Elemt.	Reactor	121	Yes	No	43
J556Q	1-GS-TE-4967B3		Temp. Elemt.	Reactor	121	No	No	43

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: CONTAINMENT ATMOS. CONTRL.
GS

P&ID
M-57-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P303AQ	1-GS-HV-4974		Control Valve	Reactor	102	No	No	139
P303AQ	1-GS-ZS-4974		Limit Switch	Reactor	102	Yes	No	139
P305Q	1-GS-SV-4978		Solenoid Valve	Reactor	102	No	No	145
P305Q	1-GS-ZS-4978		Position Switch	Reactor	102	Yes	No	146
P305Q	1-GS-SV-4979		Solenoid Valve	Reactor	102	No	No	145
P305Q	1-GS-ZS-4979		Position Switch	Reactor	102	Yes	No	146
P305Q	1-GS-SV-4980		Solenoid Valve	Reactor	77	No	No	145
P305Q	1-GS-ZS-4980		Position Switch	Reactor	77	Yes	No	146
P303AQ	1-GS-HV-4983A		Control Valve	Reactor	162	No	No	139
P303AQ	1-GS-ZS-4983A		Limit Switch	Reactor	162	Yes	No	139
P303AQ	1-GS-HV-4983B		Control Valve	Reactor	162	No	No	139
P303AQ	1-GS-ZS-4983B		Limit Switch	Reactor	162	Yes	No	139
P303AQ	1-GS-HV-4984A		Control Valve	Reactor	162	No	No	139
P303AQ	1-GS-ZS-4984A		Limit Switch	Reactor	162	Yes	No	139
P303AQ	1-GS-HV-4984B		Control Valve	Reactor	162	No	No	139
P303AQ	1-GS-ZS-4984B		Limit Switch	Reactor	162	Yes	No	139
P303AQ	1-GS-HV-5019A		Control Valve	Reactor	162	No	No	139
P303AQ	1-GS-ZS-5019A		Limit Switch	Reactor	162	Yes	No	139
P303AQ	1-GS-HV-5019B		Control Valve	Reactor	162	No	No	139
P303AQ	1-GS-ZS-5019B		Limit Switch	Reactor	162	Yes	No	139
P303AQ	1-GS-HV-5022A		Control Valve	Reactor	77	No	No	139
P303AQ	1-GS-ZS-5022A		Limit Switch	Reactor	77	Yes	No	139
P303AQ	1-GS-HV-5022B		Control Valve	Reactor	102	No	No	139
P303AQ	1-GS-ZS-5022B		Limit Switch	Reactor	102	Yes	No	139
J301Q	1-GS-PDT-5029		Press. Diff. Trans.	Reactor	102	No	No	28
P305Q	1-GS-SV-5029		Solenoid Valve	Reactor	77	No	No	145
P305Q	1-GS-ZS-5029		Limit Switch	Reactor	77	Yes	No	146
J301Q	1-GS-PDT-5031		Press. Diff. Trans.	Reactor	102	No	No	28

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P.I.D
M-57-1

SYSTEM: CONTAINMENT ATMOS. CONTRL.
GS

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P305Q	1-GS-SV-5031		Solenoid Valve	Reactor	77	No	No	145
P305Q	1-GS-ZS-5031		Position Switch	Reactor	77	Yes	No	146
P301Q	1-KH-SV-5035		Solenoid Valve	Reactor	77	No	No	124
P301Q	1-KH-ZS-5035		Position Switch	Reactor	77	No	No	125
J359Q	1-GS-AE-5039A1		Analysis Elemt.	Reactor	162	Yes	No	30
J359Q	1-GS-AE-5039A2		Analysis Elemt.	Reactor	162	Yes	No	30
J359Q	1-GS-AE-5039B1		Analysis Elemt.	Reactor	162	Yes	No	30
J359Q	1-GS-AE-5039B2		Analysis Elemt.	Reactor	162	Yes	No	30
J359Q	1-GS-AI-5040A		Anal. Indicator	Reactor	162	No	No	30
J359Q	1-GS-AI-5040B		Anal. Indicator	Reactor	162	No	No	30
J359Q	1-GS-XA-5042A		Alarm	Reactor	162	No	No	30
J359Q	1-GS-XA-5042B		Alarm	Reactor	162	No	No	30
J359Q	1-GS-PAHL-5081A		Press Alarm High Low	Reactor	162	No	No	30
J359Q	1-GS-PAHL-5081B		Press Alarm High Low	Reactor	162	No	No	30
J359Q	1-GS-PSH-5081A		Press. Sw. High	Reactor	162	No	No	30
J359Q	1-GS-PSL-5081A		Press. Sw. Low	Reactor	162	No	No	30
J359Q	1-GS-PSH-5081B		Press. Sw. High	Reactor	162	No	No	30
J359Q	1-GS-PSL-5081B		Press. Sw. Low	Reactor	162	No	No	30
J359Q	1-GS-PAL-5085A		Alarm Point	Reactor	162	No	No	30
J359Q	1-GS-PSL-5085A1		Press. Sw. Low	Reactor	162	No	No	30
J359Q	1-GS-PSL-5085A2		Press. Sw. Low	Reactor	162	No	No	30
J359Q	1-GS-PSL-5085A3		Press. Sw. Low	Reactor	162	No	No	30
J359Q	1-GS-PSL-5085A4		Press. Sw. Low	Reactor	162	No	No	30
J359Q	1-GS-PAL-5085B		Alarm Point	Reactor	162	No	No	30
J359Q	1-GS-PSL-5085B1		Press. Sw. Low	Reactor	162	No	No	30
J359Q	1-GS-PSL-5085B2		Press. Sw. Low	Reactor	162	No	No	30
J359Q	1-GS-PSL-5085B3		Press. Sw. Low	Reactor	162	No	No	30
J359Q	1-GS-PSL-5085B4		Press. Sw. Low	Reactor	162	No	No	30

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-57-1

SYSTEM: CONTAINMENT ATMOS. CONTRL.
GS

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
J359Q	1-GS-SV-5086A1		Solenoid Valve	Reactor	162	No	No	30
J359Q	1-GS-SV-5086A2		Solenoid Valve	Reactor	162	No	No	30
J359Q	1-GS-SV-5086B1		Solenoid Valve	Reactor	162	No	No	30
J359Q	1-GS-SV-5086B2		Solenoid Valve	Reactor	162	No	No	30
J359Q	1-GS-HS-5087A		Hand Sw.	Reactor	162	No	No	30
J359Q	1-GS-SV-5087A1		Solenoid Valve	Reactor	162	No	No	30
J359Q	1-GS-SV-5087A2		Solenoid Valve	Reactor	162	No	No	30
J359Q	1-GS-HS-5087B		Hand Sw.	Reactor	162	No	No	30
J359Q	1-GS-SV-5087B1		Solenoid Valve	Reactor	162	No	No	30
J359Q	1-GS-SV-5087B2		Solenoid Valve	Reactor	162	No	No	30
J359Q	1-GS-TAH-5092A		Temp. Alarm High	Reactor	162	No	No	30
J359Q	1-GS-TAL-5092A		Temp. Alarm Low	Reactor	162	No	No	30
J359Q	1-GS-TAH-5092B		Temp. Alarm High	Reactor	162	No	No	30
J359Q	1-GS-TAL-5092B		Temp. Alarm Low	Reactor	162	No	No	30
J359Q	1-GS-TSH-5092A		Temp Sw. High	Reactor	162	No	No	30
J359Q	1-GS-TSL-5092A		Temp. Sw. Low	Reactor	162	No	No	30
J359Q	1-GS-TSH-5092B		Temp. Sw. High	Reactor	162	No	No	30
J359Q	1-GS-TSL-5092B		Temp. Sw. Low	Reactor	162	No	No	30
J359Q	1-GS-FAH-5094A		Flow Alarm High	Reactor	162	No	No	30
J359Q	1-GS-FAL-5094B		Flow Alarm Low	Reactor	162	No	No	30
J359Q	1-GS-PDS-5094A1		Press. Diff. Sw.	Reactor	162	No	No	30
J359Q	1-GS-PDS-5094A2		Press. Diff. Sw.	Reactor	162	No	No	30
J359Q	1-GS-PDS-5094B1		Press Diff. Sw.	Reactor	162	No	No	30
J359Q	1-GS-PDS-5094B2		Press Diff. Sw.	Reactor	162	No	No	30
P303AQ	1-GS-HV-5741A		Control Valve	Reactor	132	No	No	139
P303AQ	1-GS-ZS-5741A		Limit Switch	Reactor	132	No	No	139
P303AQ	1-GS-HV-5741B		Control Valve	Reactor	132	No	No	139
P303AQ	1-GS-ZS-5741B		Limit Switch	Reactor	132	No	No	139
J359Q	NO TAG NO.		Heat Tracing	Reactor	N/A	No	No	31

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-58-1

SYSTEM: CONTAINMENT HYDROGEN RECOMBINATION SYSTEM
GS

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M047AQ	1A-S-205		Hydrogen Recombiner	Reactor	162	No	No	55
M047AQ	1B-S-205		Hydrogen Recombiner	Reactor	162	No	No	55
M047AQ	1A-C-215		Power Panel	Reactor	162	No	No	54
M047AQ	1A-E-215		Heater	Reactor	162	No	No	56
M047AQ	1A-V-215		Fan Motor	Reactor	162	No	No	52
M047AQ	1B-C-215		Power Panel	Reactor	162	No	No	54
M047AQ	1B-E-215		Heater	Reactor	162	No	No	56
M047AQ	1B-V-215		Fan Motor	Reactor	162	No	No	52
P301Q	1-GS-HV-5050A		Contr. Valve	Reactor	145	No	Yes	127
P301Q	1-GS-ZS-5050A		Limit Switch	Reactor	145	Yes	No	127
P301Q	1-GS-HV-5050B		Contr. Valve	Reactor	102	No	Yes	127
P301Q	1-GS-ZS-5050B		Limit Switch	Reactor	102	Yes	No	127
P301Q	1-GS-HV-5052A		Contr. Valve	Reactor	145	No	Yes	127
P301Q	1-GS-ZS-5052A		Limit Switch	Reactor	145	Yes	No	127
P301Q	1-GS-HV-5052B		Contr. Valve	Reactor	102	No	Yes	127
P301Q	1-GS-ZS-5052B		Limit Switch	Reactor	102	Yes	No	127
P301Q	1-GS-HV-5053A		Contr. Valve	Reactor	77	No	Yes	127
P301Q	1-GS-ZS-5053A		Limit Switch	Reactor	77	Yes	No	127
P301Q	1-GS-HV-5053B		Contr. Valve	Reactor	77	No	Yes	127
P301Q	1-GS-ZS-5053B		Limit Switch	Reactor	77	Yes	No	127
P301Q	1-GS-HV-5054A		Contr. Valve	Reactor	77	No	Yes	127
P301Q	1-GS-ZS-5054A		Limit Switch	Reactor	77	Yes	No	127
P301Q	1-GS-HV-5054B		Contr. Valve	Reactor	77	No	Yes	127
P301Q	1-GS-ZS-5054B		Limit Switch	Reactor	77	Yes	No	127
P303AQ	1-BC-HV-5055A		Contr. Valve	Reactor	54	No	No	139
P303AQ	1-BC-ZS-5055A		Limit Switch	Reactor	54	No	No	139
P303AQ	1-BC-HV-5055B		Contr. Valve	Reactor	77	No	No	139

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: CONTAINMENT HYDROGEN RECOMBINATION SYSTEM
GS

P&ID
M-58-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P303AQ	1-BC-ZS-5055B		Limit Switch	Reactor	77	No	No	139
P303AQ	1-GS-HV-5057A		Contr. Valve	Reactor	54	No	No	139
P303AQ	1-GS-ZS-5057A		Limit Switch	Reactor	54	No	No	139
P303AQ	1-GS-HV-5057B		Contr. Valve	Reactor	77	No	No	139
P303AQ	1-GS-ZS-5057B		Limit Switch	Reactor	77	No	No	139
M047AQ	1-GS-FT-5066A		Flow Trans.	Reactor	162	No	No	57
M047AQ	1-GS-FT-5066B		Flow Trans.	Reactor	162	No	No	57
M047AQ	1-GS-FT-5067A		Flow Trans.	Reactor	162	No	No	57
M047AQ	1-GS-FT-5067B		Flow Trans.	Reactor	162	No	No	57
M047AQ	1-GS-TE-5068A		Temp. Elemt.	Reactor	162	No	No	58
M047AQ	1-GS-TE-5068B		Temp. Elemt.	Reactor	162	No	No	58
M047AQ	1-GS-TE-5069A		Temp. Elemt.	Reactor	162	No	No	58
M047AQ	1-GS-TE-5069B		Temp. Elemt.	Reactor	162	No	No	58
M047AQ	1-GS-TE-5070A		Temp. Elemt.	Reactor	162	No	No	58
M047AQ	1-GS-TE-5070B		Temp. Elemt.	Reactor	162	No	No	58
M047AQ	1-GS-TE-5073A		Temp. Elemt.	Reactor	162	No	No	58
M047AQ	1-GS-TE-5073B		Temp. Elemt.	Reactor	162	No	No	58
M047AQ	1-GS-TE-5074A1		Temp. Elemt.	Reactor	162	No	No	58
M047AQ	1-GS-TE-5074A2		Temp. Elemt.	Reactor	162	No	No	58
M047AQ	1-GS-TE-5074B1		Temp. Elemt.	Reactor	162	No	No	58
M047AQ	1-GS-TE-5074B2		Temp. Elemt.	Reactor	162	No	No	58
M047AQ	1-GS-TE-5075A		Temp. Elemt.	Reactor	162	No	No	58
M047AQ	1-GS-TE-5075B		Temp. Elemt.	Reactor	162	No	No	58
M047AQ	1-GS-TE-5076A		Temp. Elemt.	Reactor	162	No	No	58
M047AQ	1-GS-TE-5076B		Temp. Elemt.	Reactor	162	No	No	58
M047AQ	1-GS-HV-5077A		Contr. Valve	Reactor	162	No	No	59
M047AQ	1-GS-ZS-5077A		Limit Switch	Reactor	162	No	No	59

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: CONTAINMENT HYDROGEN RECOMBINATION SYSTEM
GS

P&ID
M-58-1

F.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M047AQ	1-GS-HV-5077B		Contr. Valve	Reactor	162	No	No	58
M047AQ	1-GS-ZS-5077B		Limit Switch	Reactor	162	No	No	59
M047AQ	1-GS-HV-5078A		Contr. Valve	Reactor	162	No	No	59
M047AQ	1-GS-ZS-5078A		Limit Switch	Reactor	162	No	No	59
M047AQ	1-GS-HV-5078B		Contr. Valve	Reactor	162	No	No	59
M047AQ	1-GS-ZS-5078B		Limit Switch	Reactor	162	No	No	59
M047AQ	1-GS-HV-5080A		Contr. Valve	Reactor	162	No	No	59
M047AQ	1-GS-ZS-5080A		Limit Switch	Reactor	162	No	No	59
M047AQ	1-GS-HV-5080B		Contr. Valve	Reactor	162	No	No	59
M047AQ	1-GS-ZS-5080B		Limit Switch	Reactor	162	No	No	59
M047AQ	1-GS-TE-5097A		Temp. Elemt.	Reactor	162	No	No	59
M047AQ	1-GS-TE-5097B		Temp. Elemt.	Reactor	162	No	No	58
M047AQ	1-GS-PT-5098A		Press. Trans.	Reactor	162	No	No	58
M047AQ	1-GS-PT-5098B		Press. Trans.	Reactor	162	No	No	60

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-59-1

SYSTEM: PRIMARY CONTAINMENT INSTRUMENT GAS
KL

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M048Q	1A-K-202		Compressor Instr. Gas	Reactor	132	No	No	72
M048Q	1B-K-202		Compressor Instr. Gas	Reactor	132	No	No	72
M048Q	1A-C-213		Compressor A CTRL PNL	Reactor	132	No	No	77,79
M048Q	1B-C-213		Compresssor B CTRL PNL	Reactor	132	No	No	77,79
M048Q	1A-S-934		Instr. Gas Compressor Pkg.	Reactor	132	No	No	73
M048Q	1B-S-934		Instr. Gas Compressor Pkg.	Reactor	132	No	No	73
M048Q	1-KL-ME-5031A		Moisture Element	Reactor	132	No	No	73
M048Q	1-KL-MISH-5031A		Moisture Ind. Switch-High	Reactor	132	No	No	71
M048Q	1-KL-ME-5031B		Moisture Element	Reactor	132	No	No	73
M048Q	1-KL-MISH-5031B		Moisture Ind. Switch-High	Reactor	132	No	No	71
P303AQ	1-KL-HV-5124A		Control Valve	Reactor	102	No	No	139
P303AQ	1-KL-ZS-5124A		Limit Switch	Reactor	102	No	No	139
P303AQ	1-KL-HV-5124B		Control Valve	Reactor	121	No	No	139
P303AQ	1-KL-ZS-5124B		Limit Switch	Reactor	121	No	No	139
P303AQ	1-KL-HV-5126A		Control Valve	Reactor	102	No	No	139
P303AQ	1-KL-ZS-5126A		Limit Switch	Reactor	102	Yes	No	139
P303AQ	1-KL-HV-5126B		Control Valve	Reactor	102	No	No	139
P303AQ	1-KL-ZS-5126B		Limit Switch	Reactor	102	Yes	No	139
M048Q	1-KL-PSL-5130A		Press Switch Low	Reactor	132	No	No	74
M048Q	1-KL-PSL-5130B		Press Switch Low	Reactor	132	No	No	74
M048Q	1-KL-PSH-5131A		Press Switch High	Reactor	132	No	No	74
M048Q	1-KL-PSH-5131B		Press Switch High	Reactor	132	No	No	74
M048Q	1-KL-PSLL-5132A		Press Switch Low Low	Reactor	132	No	No	74
M048Q	1-KL-PSLL-5132B		Press Switch Low Low	Reactor	132	No	No	74
M048Q	1-KL-HS-5137A-2		Hand Switch	Reactor	132	No	No	73
M048Q	1-KL-HS-5137B-2		Hand Switch	Reactor	132	No	No	73
M048Q	1-KL-PSH-5140A		Press Switch High	Reactor	132	No	No	74

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: PRIMARY CONTAINMENT INSTRUMENT GAS
KL

P&ID
M-59-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M048Q	1-KL-PSH-5140B		Press Switch High	Reactor	132	No	No	74
M048Q	1-KL-TSH-5141A		Temp. Switch High	Reactor	132	No	No	75
M048Q	1-KL-TSH-5141B		Temp. Switch High	Reactor	132	No	No	75
M048Q	1-KL-PSL-5142A		Press Switch Low	Reactor	132	No	No	74
M048Q	1-KL-PSL-5142B		Press Switch Low	Reactor	132	No	No	74
M048Q	1-KL-TSH-5143A		Temp. Switch High	Reactor	132	No	No	75
M048Q	1-KL-TSH-5143B		Temp. Switch High	Reactor	132	No	No	75
M048Q	1-KL-TSH-5144A		Temp. Switch High	Reactor	132	No	No	75
M048Q	1-KL-TSH-5144B		Temp. Switch High	Reactor	132	No	No	75
M048Q	1-KL-PSL-5145A		Press Switch Low	Reactor	132	No	No	74
M048Q	1-KL-PSL-5145B		Press Switch Low	Reactor	132	No	No	74
P303AQ	1-KL-HV-5147		Control Valve	Reactor	145	No	No	139
P303AQ	1-KL-ZS-5147		Limit Switch	Reactor	145	Yes	No	139
P303AQ	1-KL-HV-5148		Control Valve	Reactor	145	No	No	139
P303AQ	1-KL-ZS-5148		Limit Switch	Reactor	145	Yes	No	139
P303AQ	1-KL-HV-5152A		Control Valve	Reactor	100	No	No	139
P303AQ	1-KL-ZS-5152A		Limit Switch	Reactor	100	Yes	No	139
P303AQ	1-KL-HV-5152B		Control Valve	Reactor	100	No	No	139
P303AQ	1-KL-ZS-5152B		Limit Switch	Reactor	100	Yes	No	139
P303AQ	1-KL-SV-5154		Solenoid Valve	Reactor	77	No	No	140
P303AQ	1-KL-ZS-5154		Position Switch	Reactor	77	Yes	No	141
P303AQ	1-KL-SV-5155		Solenoid Valve	Reactor	77	No	No	140
P303AQ	1-KL-ZS-5155		Position Switch	Reactor	77	Yes	No	141
P303AQ	1-KL-SV-5156A		Solenoid Valve	Reactor	132	No	No	140
P303AQ	1-KL-ZS-5156A		Position Switch	Reactor	132	No	No	141

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-59-1

SYSTEM: PRIMARY CONTAINMENT INSTRUMENT GAS
KL

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P303AQ	1-KL-SV-5156B		Solenoid Valve	Reactor	132	No	No	140
P303AQ	1-KL-ZS-5156B		Position Switch	Reactor	132	No	No	141
M048Q	1-KL-SV-5157A		Solenoid Valve	Reactor	132	No	No	76
M048Q	1-KL-SV-5157B		Solenoid Valve	Reactor	132	No	No	76
M048Q	1-KL-PSL-5158A		Press Switch Low	Reactor	132	No	No	74
M048Q	1-KL-PSL-5158B		Press Switch Low	Reactor	132	No	No	74
M048Q	1-KL-TSH-5159A		Temp. Switch High	Reactor	132	No	No	75
M048Q	1-KL-TSH-5159B		Temp. Switch High	Reactor	132	No	No	75
P303AQ	1-KL-HV-5160A		Control Valve	Reactor	132	No	No	139
P303AQ	1-KL-ZS-5160A		Limit Switch	Reactor	132	No	No	139
P303AQ	1-KL-HV-5160B		Control Valve	Reactor	132	No	No	139
P303AQ	1-KL-ZS-5160B		Limit Switch	Reactor	132	No	No	139
P303AQ	1-SE-SV-5161		Solenoid Valve	Reactor	100	No	No	140
P303AQ	1-SE-ZS-5161		Position Switch	Reactor	100	Yes	No	141
P303AQ	1-KL-HV-5162		Control Valve	Reactor	132	No	No	139
P303AQ	1-KL-ZS-5162		Limit Switch	Reactor	132	Yes	No	139
M048Q	1-KL-SV-5164A		Solenoid Valve	Reactor	132	No	No	76
M048Q	1-KL-SV-5164B		Solenoid Valve	Reactor	132	No	No	76
P303AQ	1-KL-HV-5172A		Control Valve	Reactor	102	No	No	139
P303AQ	1-KL-ZS-5172A		Limit Switch	Reactor	102	No	No	139
P303AQ	1-KL-HV-5172B		Control Valve	Reactor	102	No	No	139
P303AQ	1-KL-ZS-5172B		Limit Switch	Reactor	102	No	No	139
M048Q	1-KL-TSH-5221A		Temp. Switch High	Reactor	132	No	No	75
M048Q	1-KL-TSH-5221B		Temp. Switch High	Reactor	132	No	No	75
M048Q	1-KL-TSH-5223A		Temp. Switch High	Reactor	132	No	No	75
M048Q	1-KL-TSH-5223B		Temp. Switch High	Reactor	132	No	No	75

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: LIQUID RADWASTE COLLECTION
HB

P&ID
M-61-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P301Q	1-HB-HV-F003		Control Valve	Reactor	77	No	No	127
P301Q	1-HB-ZS-F003-1		Limit Switch	Reactor	77	Yes	No	127
P301Q	1-HB-HV-F004		Control Valve	Reactor	77	No	No	127
P301Q	1-HB-ZS-F004-1		Limit Switch	Reactor	77	Yes	No	127
P301Q	1-HB-HV-F019		Control Valve	Reactor	77	No	No	127
P301Q	1-HB-ZS-F019-1		Limit Switch	Reactor	77	Yes	No	127
P301Q	1-HB-HV-F020		Control Valve	Reactor	77	No	No	127
P301Q	1-HB-ZS-F020-1		Limit Switch	Reactor	77	Yes	No	127
P301Q	1-HB-HV-5262		Control Valve	Reactor	77	No	No	127
P301Q	1-HB-ZS-5262		Limit Switch	Reactor	77	No	No	127
P301Q	1-HB-HV-5275		Control Valve	Reactor	77	No	No	127
P301Q	1-HB-ZS-5275		Limit Switch	Reactor	77	No	No	127

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: SOLID RADWASTE COLLECTION
HC

P&ID
M-66-0

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P305Q	1-GH-HV-5543		Contr. Valve	Reactor	77	No	No	144
P305Q	1-GH-ZS-5543		Limit Switch	Reactor	77	No	No	144
P301Q	1-HC-HV-5551		Contr. Valve	Reactor	132	No	No	127
P301Q	1-HC-ZS-5551		Limit Switch	Reactor	132	No	No	127

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: MAIN STEAM ISO VLV SEAL SYS
KP

P&ID
M-72-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-BB-PT-5824A		Press Trans.	Reactor	77	Yes	No	155A
M001	1-BB-PT-5824B		Press Trans.	Reactor	77	Yes	No	155A
J603Q	1-KL-PDV-5825A		Press. Diff. Contr. Valve	Reactor	102	No	No	46
J603Q	1-KL-PDV-5825B		Press. Diff. Contr. Valve	Reactor	102	No	No	46
J301Q	1-KP-PT-5827A		Press Trans.	Reactor	102	Yes	No	29
J301Q	1-KP-PT-5827B		Press Trans.	Reactor	102	Yes	No	29
P303AQ	1-KP-HV-5829A		Control Valve	Reactor	102	No	No	139
P303AQ	1-KP-ZS-5829A		Limit Switch	Reactor	102	No	No	139
P303AQ	1-KP-HV-5829B		Control Valve	Reactor	102	No	No	139
P303AQ	1-KP-ZS-5829B		Limit Switch	Reactor	102	No	No	139
P303AQ	1-KP-HV-5834A		Control Valve	Reactor	102	No	No	139
M001	1-AB-PT-5834A		Press Trans.	Reactor	102	No	No	155A
P303AQ	1-KP-ZS-5834A		Limit Switch	Reactor	102	Yes	No	139
P303AQ	1-KP-HV-5834B		Control Valve	Reactor	102	No	No	139
M001	1-AB-PT-5834B		Press Trans.	Reactor	102	No	No	155A
P303AQ	1-KP-ZS-5834B		Limit Switch	Reactor	102	No	No	139

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-72-1

SYSTEM: MAIN STEAM ISO VLV SEAL SYS
KP

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P303AQ	1-KP-HV-5835A		Control Valve	Reactor	102	No	No	139
M001	1-AB-PT-5835A		Press Trans.	Reactor	102	Yes	No	155A
P303AQ	1-KP-ZS-5835A		Limit Switch	Reactor	102	Yes	No	139
P303AQ	1-KP-HV-5835B		Control Valve	Reactor	102	No	No	139
M001	1-AB-PT-5835B		Press Trans.	Reactor	102	No	No	155A
P303AQ	1-KP-ZS-5835B		Limit Switch	Reactor	102	No	No	139
P303AQ	1-KP-HV-5836A		Control Valve	Reactor	102	No	No	139
M001	1-AB-PT-5836A		Press Trans.	Reactor	102	Yes	No	155A
P303AQ	1-KP-ZS-5836A		Limit Switch	Reactor	102	Yes	No	139
P303AQ	1-KP-HV-5836B		Control Valve	Reactor	102	No	No	139
M001	1-AB-PT-5836B		Press Trans.	Reactor	102	No	No	155A
P303AQ	1-KP-ZS-5836B		Limit Switch	Reactor	102	No	No	139
P303AQ	1-KP-HV-5837A		Control Valve	Reactor	102	No	No	139
M001	1-AB-PT-5837A		Press Trans.	Reactor	102	Yes	No	155A
P303AQ	1-KP-ZS-5837A		Limit Switch	Reactor	102	Yes	No	139
P303AQ	1-KP-HV-5837B		Control Valve	Reactor	102	No	No	139

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-72-1

SYSTEM: MAIN STEAM ISO VLV SEAL SYS
KP

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M001	1-AB-PT-5837B		Press Trans.	Reactor	102	No	No	155A
P303AQ	1-KP-ZS-5837B		Limit Switch	Reactor	102	No	No	139
J301Q	1-KP-FT-6053A		Flow Trans.	Reactor	102	No	No	29
J301Q	1-KP-FT-6053B		Flow Trans.	Reactor	102	No	No	29
P303AQ	1-KP-SV-6055A		Solenoid Valve	Reactor	77	No	No	140
P303AQ	1-KP-ZS-6055A		Position Switch	Reactor	77	No	No	141

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: MAIN STEAM ISO VLV SEAL SYS
KP

P&ID
M-72-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P303AQ	1-KP-SV-6055B		Solenoid Valve	Reactor	77	No	No	140
P303AQ	1-KP-ZS-6055B		Position Switch	Reactor	77	No	No	141
P303AQ	1-KL-SV-6057		Solenoid Valve	Reactor	77	No	No	140
P303AQ	1-KL-ZS-6057		Position Switch	Reactor	77	No	No	141

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-83-1

SYSTEM: REACTOR BLDG. SUPPLY CONTROL DIAG.
GR

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M786Q	1AC-043		Heater Control Panel	Reactor	132	No	No	100
M786Q	1BC-043		Heater Control Panel	Reactor	178	No	No	100
M786Q	1CC-043		Heater Control Panel	Reactor	132	No	No	100
M786Q	1DC-043		Heater Control Panel	Reactor	54	No	No	100
M786Q	1AC-044		Heater Control Panel	Reactor	162	No	No	100
M786Q	1BC-044		Heater Control Panel	Reactor	178	No	No	100
M711Q	1A-VH-208		Unit Cooler	Reactor	54	No	No	81
M711Q	1B-VH-208		Unit Cooler	Reactor	54	No	No	81
M711Q	1A-VH-209		Unit Cooler	Reactor	54	No	No	81
M711Q	1B-VH-209		Unit Cooler	Reactor	54	No	No	81
M711Q	1A-VH-210		Unit Cooler	Reactor	54	No	No	81
M711Q	1B-VH-210		Unit Cooler	Reactor	54	No	No	81
M711Q	1C-VH-210		Unit Cooler	Reactor	54	No	No	81
M711Q	1D-VH-210		Unit Cooler	Reactor	54	No	No	81
M711Q	1E-VH-210		Unit Cooler	Reactor	77	No	No	81
M711Q	1F-VH-210		Unit Cooler	Reactor	77	No	No	81
M711Q	1G-VH-210		Unit Cooler	Reactor	54	No	No	81
M711Q	1H-VH-210		Unit Cooler	Reactor	54	No	No	81
M711Q	1A-VH-211		Unit Cooler	Reactor	54	No	No	81
M711Q	1B-VH-211		Unit Cooler	Reactor	54	No	No	81
M711Q	1C-VH-211		Unit Cooler	Reactor	54	No	No	81
M711Q	1D-VH-211		Unit Cooler	Reactor	54	No	No	81
M711Q	1E-VH-211		Unit Cooler	Reactor	54	No	No	81
M711Q	1F-VH-211		Unit Cooler	Reactor	54	No	No	81
M711Q	1G-VH-211		Unit Cooler	Reactor	54	No	No	81
M711Q	1H-VH-211		Unit Cooler	Reactor	54	No	No	81
M713Q	1A-V-213		Fan & E-H Actuator	Reactor	132	No	No	83
M713Q	1B-V-213		Fan & E-H Actuator	Reactor	178	No	No	83

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REACTOR BLDG. SUPPLY CONTROL DIAG.
GR

P&ID
M-83-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M786Q	1AC-043		Heater Control Panel	Reactor	132	No	No	100
M786Q	1BC-043		Heater Control Panel	Reactor	178	No	No	100
M786Q	1CC-043		Heater Control Panel	Reactor	132	No	No	100
M786Q	1DC-043		Heater Control Panel	Reactor	54	No	No	100
M786Q	1AC-044		Heater Control Panel	Reactor	162	No	No	100
M786Q	1BC-044		Heater Control Panel	Reactor	178	No	No	100
M711Q	1A-VH-208		Unit Cooler	Reactor	54	No	No	81
M711Q	1B-VH-208		Unit Cooler	Reactor	54	No	No	81
M711Q	1A-VH-209		Unit Cooler	Reactor	54	No	No	81
M711Q	1B-VH-209		Unit Cooler	Reactor	54	No	No	81
M711Q	1A-VH-210		Unit Cooler	Reactor	54	No	No	81
M711Q	1B-VH-210		Unit Cooler	Reactor	54	No	No	81
M711Q	1C-VH-210		Unit Cooler	Reactor	54	No	No	81
M711Q	1D-VH-210		Unit Cooler	Reactor	54	No	No	81
M711Q	1E-VH-210		Unit Cooler	Reactor	77	No	No	81
M711Q	1F-VH-210		Unit Cooler	Reactor	77	No	No	81
M711Q	1G-VH-210		Unit Cooler	Reactor	54	No	No	81
M711Q	1H-VH-210		Unit Cooler	Reactor	54	No	No	81
M711Q	1A-VH-211		Unit Cooler	Reactor	54	No	No	81
M711Q	1B-VH-211		Unit Cooler	Reactor	54	No	No	81
M711Q	1C-VH-211		Unit Cooler	Reactor	54	No	No	81
M711Q	1D-VH-211		Unit Cooler	Reactor	54	No	No	81
M711Q	1E-VH-211		Unit Cooler	Reactor	54	No	No	81
M711Q	1F-VH-211		Unit Cooler	Reactor	54	No	No	81
M711Q	1G-VH-211		Unit Cooler	Reactor	54	No	No	81
M711Q	1H-VH-211		Unit Cooler	Reactor	54	No	No	81
M713Q	1A-V-213		Fan & E-H Actuator	Reactor	132	No	No	83
M713Q	1B-V-213		Fan & E-H Actuator	Reactor	178	No	No	83

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REACTOR BLDG. SUPPLY CONTROL DIAG.
GR

P&ID
M-83-1

P.D.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M713Q	1C-V-213		Fan & E-H Actuator	Reactor	132	No	No	83
M713Q	1D-V-213		Fan & E-H Actuator	Reactor	162	No	No	83
M713Q	1E-V-213		Fan & E-H Actuator	Reactor	162	No	No	83
M713Q	1F-V-213		Fan & E-H Actuator	Reactor	178	No	No	83
M711Q	1A-VH-214		Unit Cooler	Reactor	102	No	No	81
M711Q	1B-VH-214		Unit Cooler	Reactor	102	No	No	81
M711Q	1C-VH-214		Unit Cooler	Reactor	102	No	No	81
M711Q	1D-VH-214		Unit Cooler	Reactor	102	No	No	81
M780AQ	1A-C-281		Unit Cooler Ctrl Pnl.	Reactor	102	No	No	91,97,98,166
M780AQ	1B-C-281		Unit Cooler Ctrl Pnl.	Reactor	102	No	No	91,97,98,166
M780AQ	1C-C-281		Unit Cooler Ctrl Pnl.	Reactor	102	No	No	91,97,98,166
M780AQ	1D-C-281		Unit Cooler Ctrl Pnl.	Reactor	77	No	No	91,97,98,166

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: CHILLED WATER SYSTEM
GB

P&ID
M-83-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M728Q	1-GU-SV-9370B		Solenoid Valve	Reactor	178	No	No	88
M728Q	1-GU-ZS-9370B		Position Switch	Reactor	178	Yes	No	89
M780AQ	1-GU-SV-9372A		Solenoid Valve	Reactor	162	No	No	90
M717Q	1-GT-ZS-9372A		Position Switch	Reactor	145	Yes	No	86
M780AQ	1-GU-SV-9372C		Solenoid Valve	Reactor	162	No	No	90
M717Q	1-GT-ZS-9372C		Position Switch	Reactor	162	Yes	No	86
M713Q	1-GU-FD-9377A		Flow Damper Actuator	Reactor	145	No	No	84
M780AQ	1-GU-FT-9377A		Flow Trans.	Reactor	132	No	No	99
M780AQ	1-GU-PDT-9377A		Press. Diff. Trans.	Reactor	132	No	No	99
M780AQ	1-GU-TE-9377A		Temp. Elemt.	Reactor	132	No	No	93
M780AQ	1-GU-PDSH-9377A1		Press. Diff. Sw. High	Reactor	132	No	No	92
M717Q	1-GU-HD-9377A-1		Hand Damper Actuator	Reactor	132	No	No	87
M717Q	1-GU-HD-9377A-2		Hand Damper Actuator	Reactor	145	No	No	87
M780AQ	1-GU-FSL-9377AA		Flow Sw. Low	Reactor	132	No	No	92
M780AQ	1-GU-FSL-9377AB		Flow Sw. Low	Reactor	132	No	No	92
M713Q	1-GU-FD-9377B		Flow Damper Actuator	Reactor	145	No	No	84
M780AQ	1-GU-FT-9377B		Flow Trans.	Reactor	178	No	No	99
M780AQ	1-GU-PDT-9377B		Press. Diff. Trans.	Reactor	178	No	No	99
M780AQ	1-GU-TE-9377B		Temp. Elemt.	Reactor	178	No	No	93
M780AQ	1-GU-PDSH-9377B1		Press. Diff. Sw. High	Reactor	178	No	No	92
M717Q	1-GU-HD-9377B-1		Hand Damper Actuator	Reactor	178	No	No	87

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-83-1

SYSTEM: CHILLED WATER SYSTEM
GB

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M717Q	1-GU-HD-9377B-2		Hand Damper Actuator	Reactor	178	No	No	87
M780AQ	1-GU-FSL-9377BA		Flow Sw. Low	Reactor	178	No	No	92
M780AQ	1-GU-FSL-9377BB		Flow Sw. Low	Reactor	178	No	No	92
M713Q	1-GU-FD-9377C		Flow Damper Actuator	Reactor	145	No	No	84
M780AQ	1-GU-FT-9377C		Flow Trans.	Reactor	132	No	No	99
M780AQ	1-GU-PDT-9377C		Press. Diff. Trans.	Reactor	132	No	No	99
M780AQ	1-GU-TE-9377C		Temp. Elemt.	Reactor	132	No	No	93
M780AQ	1-GU-PDSH-9377C1		Press. Diff. Sw. High	Reactor	132	No	No	92
M717Q	1-GU-HD-9377C-1		Hand Damper Actuator	Reactor	132	No	No	87
M717Q	1-GU-HD-9377C-2		Hand Damper Actuator	Reactor	145	No	No	87
M780AQ	1-GU-FSL-9377CA		Flow Sw. Low	Reactor	132	No	No	92
M780AQ	1-GU-FSL-9377CB		Flow Sw. Low	Reactor	132	No	No	92
M713Q	1-GU-FD-9377D		Flow Damper Actuator	Reactor	145	No	No	84
M780AQ	1-GU-FT-9377D		Flow Trans.	Reactor	162	No	No	99
M780AQ	1-GU-PDT-9377D		Press. Diff. Trans.	Reactor	162	No	No	99
M780AQ	1-GU-TE-9377D		Temp. Elemt.	Reactor	162	No	No	93
M780AQ	1-GU-PDSH-9377D1		Press. Diff. Sw. High	Reactor	162	No	No	92
M717Q	1-GU-HD-9377D-1		Hand Damper Actuator	Reactor	162	No	No	87
M717Q	1-GU-HD-9377D-2		Hand Damper Actuator	Reactor	162	No	No	87
M780AQ	1-GU-FSL-9377DA		Flow Sw. Low	Reactor	162	No	No	92
M780AQ	1-GU-FSL-9377DB		Flow Sw. Low	Reactor	162	No	No	92

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-83-1

SYSTEM: CHILLED WATER SYSTEM
GB

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M713Q	1-GU-FD-9377E		Flow Damper Actuator	Reactor	145	No	No	84
M780AQ	1-GU-FT-9377E		Flow Trans.	Reactor	162	No	No	99
M780AQ	1-GU-PDT-9377E		Press. Diff. Trans.	Reactor	162	No	No	99
M780AQ	1-GU-TE-9377E		Temp. Elemt.	Reactor	162	No	No	93
M780AQ	1-GU-PDSH-9377E1		Press. Diff. Sw. High	Reactor	162	No	No	92
M717Q	1-GU-HD-9377E-1		Hand Damper Actuator	Reactor	162	No	No	87
M717Q	1-GU-HD-9377E-2		Hand Damper Actuator	Reactor	162	No	No	87
M713Q	1-GU-FD-9377F		Flow Damper Actuator	Reactor	145	No	No	84
M780AQ	1-GU-FT-9377F		Flow Trans.	Reactor	178	No	No	99
M780AQ	1-GU-PDT-9377F		Press. Diff. Trans.	Reactor	178	No	No	99
M780AQ	1-GU-TE-9377F		Temp. Elemt.	Reactor	178	No	No	93
M780AQ	1-GU-PDSH-9377F1		Press. Diff. Sw. High	Reactor	178	No	No	92
M717Q	1-GU-HD-9377F-1		Hand Damper Actuator	Reactor	162	No	No	87
M717Q	1-GU-HD-9377F-2		Hand Damper Actuator	Reactor	178	No	No	87
M780AQ	1-GU-TE-9378A		Temp. Elemt.	Reactor	132	No	No	93
M780AQ	1-GU-TE-9378B		Temp. Elemt.	Reactor	178	No	No	93
M780AQ	1-GU-TE-9378C		Temp. Elemt.	Reactor	132	No	No	93
M780AQ	1-GU-TE-9378D		Temp. Elemt.	Reactor	162	No	No	93
M780AQ	1-GU-TE-9378E		Temp. Elemt.	Reactor	162	No	No	93
M780AQ	1-GU-TE-9378F		Temp. Elemt.	Reactor	178	No	No	93

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: CHILLED WATER SYSTEM
GB

P&ID
M-83-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M780AQ	1-GU-ME-9379A		Moisutre Trans.	Reactor	132	No	No	165
M780AQ	1-GU-MT-9379A		Moisture Trans.	Reactor	132	No	No	165
M786Q	1-GU-MY-9379A		Moisture Controller (SCR)	Reactor	132	No	No	~~101~~ 100 **
M780AQ	1-GU-ME-9379B		Moisture Trans.	Reactor	178	No	No	165
M780AQ	1-GU-MT-9379B		Moisture Trans.	Reactor	178	No	No	165
M786Q	1-GU-MY-9379B		Moisture Controller (SCR)	Reactor	178	No	No	~~101~~ 100 **
M780AQ	1-GU-ME-9379C		Moisture Trans.	Reactor	132	No	No	165
M780AQ	1-GU-MT-9379C		Moisture Trans.	Reactor	132	No	No	165
M786Q	1-GU-MY-9379C		Moisture Controller (SCR)	Reactor	132	No	No	~~101~~ 100 **
M780AQ	1-GU-ME-9379D		Moisture Trans.	Reactor	162	No	No	165
M780AQ	1-GU-MT-9379D		Moisture Trans.	Reactor	162	No	No	165
M786Q	1-GU-MY-9379D		Moisture Controllr (SCR)	Reactor	162	No	No	~~101~~ 100 **
M780AQ	1-GU-ME-9379E		Moisture Trans.	Reactor	162	No	No	165
M780AQ	1-GU-MT-9379E		Moisture Trans.	Reactor	162	No	No	165
M786Q	1-GU-MY-9379E		Moisture Controller (SCR)	Reactor	162	No	No	~~101~~ 100 **
M780AQ	1-GU-ME-9379F		Moisture Trans.	Reactor	178	No	No	165
M780AQ	1-GU-MT-9379F		Moisture Trans.	Reactor	178	No	No	165
M786Q	1-GU-MY-9379F		Moisture Controller (SCR)	Reactor	178	No	No	~~101~~ 100 **
M780AQ	1-GR-HS-9381A		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GR-TE-9381A		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GR-TS-9381A		Temp. Sw.	Reactor	54	No	No	95
M780AQ	1-GR-FSL-9391A1		Flow Sw. Low	Reactor	54	No	No	92

** FSAR Amendment 14 Change Notice
T Nag
11/5/85

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: CHILLED WATER SYSTEM
GB

P&ID
M-83-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M780AQ	1-GR-FSL-9381A3		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-HS-9381B		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GR-TE-9381B		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GR-TS-9381B		Temp. Sw.	Reactor	54	No	No	95
M780AQ	1-GR-FSL-9381B1		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-FSL-9381B3		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-HS-9382A		Hand Switch	Reactor	102	No	No	96

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REACTOR BLDG. SUPPLY CONTROL DIAG.
GR

P&ID
M-83-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M780AQ	1-GR-TE-9382A		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GR-FSL-9382A1		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-TS-9382A		Temp. Sw.	Reactor	54	No	No	95
M780AQ	1-GR-FSL-9382A3		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-HS-9382B		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GR-TE-9382B		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GR-TS-9382B		Temp. Sw.	Reactor	54	No	No	95
M780AQ	1-GR-FSL-9382B1		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-FSL-9382B3		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-HS-9383A		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GR-TE-9383A		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GR-TS-9383A		Temp. Sw.	Reactor	54	No	No	95
M780AQ	1-GR-FSL-9383A1		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-FSL-9383A3		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-HS-9383B		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GR-TE-9383B		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GR-TS-9383B		Temp. Sw.	Reactor	54	No	No	95
M780AQ	1-GR-FSL-9383B1		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-FSL-9383B3		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-HS-9383C		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GR-TE-9383C		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GR-TS-9383C		Temp. Sw.	Reactor	54	No	No	95
M780AQ	1-GR-FSL-9383C1		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-FSL-9383C3		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-HS-9383D		Hand Switch	Reactor	77	No	No	96
M780AQ	1-GR-TE-9383D		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GR-TS-9383D		Temp. Sw.	Reactor	54	No	No	95
M780AQ	1-GR-FSL-9383D1		Flow Sw. Low	Reactor	54	No	No	92

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REACTOR BLDG. SUPPLY CONTROL DIAG. GR

P&ID M-83-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M780AQ	1-GR-FSL-9383D3		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-HS-9383E		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GR-TE-9383E		Temp. Elemt.	Reactor	77	No	No	93
M780AQ	1-GR-TS-9383E		Temp. Sw.	Reactor	77	No	No	95
M780AQ	1-GR-FSL-9383E1		Flow Sw. Low	Reactor	77	No	No	92
M780AQ	1-GR-FSL-9383E3		Flow Sw. Low	Reactor	77	No	No	92
M780AQ	1-GR-HS-9383F		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GR-TE-9383F		Temp. Elemt.	Reactor	77	No	No	93
M780AQ	1-GR-TS-9383F		Temp. Sw.	Reactor	77	No	No	95
M780AQ	1-GR-FSL-9383F1		Flow Sw. Low	Reactor	77	No	No	92
M780AQ	1-GR-FSL-9383F3		Flow Sw. Low	Reactor	77	No	No	92
M780AQ	1-GR-HS-9383G		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GR-TE-9383G		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GR-TS-9383G		Temp. Sw.	Reactor	54	No	No	95
M780AQ	1-GR-FSL-9383G1		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-FSL-9383G3		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-HS-9383H		Hand Switch	Reactor	77	No	No	96
M780AQ	1-GR-TE-9383H		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GR-TS-9383H		Temp. Sw.	Reactor	54	No	No	95
M780AQ	1-GR-FSL-9383H1		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-FSL-9383H3		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-HS-9384A		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GR-TE-9384A		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GR-TS-9384A		Temp. Sw.	Reactor	54	No	No	95
M780AQ	1-GR-FSL-9384A1		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-FSL-9384A3		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-HS-9384B		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GR-TE-9384B		Temp. Elemt.	Reactor	54	No	No	93

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REACTOR BLDG. SUPPLY CONTROL DIAG.
GR

P&ID
M-83-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M780AQ	1-GR-TS-9384B		Temp. Sw.	Reactor	54	No	No	95
M780AQ	1-GR-FSL-9384B1		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-FSL-9384B3		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-HS-9384C		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GR-TS-9384C		Temp. Sw.	Reactor	54	No	No	95
M780AQ	1-GR-TE-9384C		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GR-FSL-9384C1		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-FSL-9384C3		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-HS-9384D		Hand Switch	Reactor	77	No	No	96
M780AQ	1-GR-TE-9384D		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GR-TS-9384D		Temp. Sw.	Reactor	54	No	No	95
M780AQ	1-GR-FSL-9384D1		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-FSL-9384D3		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-HS-9384E		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GR-TE-9384E		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GR-TS-9384E		Temp. Sw.	Reactor	54	No	No	95
M780AQ	1-GR-FSL-9384E1		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-FSL-9384E3		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-HS-9384F		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GR-TE-9384F		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GR-TS-9384F		Temp. Sw.	Reactor	54	No	No	95
M780AQ	1-GR-FSL-9384F1		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-FSL-9384F3		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-HS-9384G		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GR-TE-9384G		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GR-TS-9384G		Temp. Sw.	Reactor	54	No	No	95
M780AQ	1-GR-FSL-9384G1		Flow Sw. Low	Reactor	54	No	No	92

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-83-1

SYSTEM: REACTOR BLDG. SUPPLY CONTROL DIAG.
GR

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M780AQ	1-GR-FSL-9384G3		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-HS-9384H		Hand Switch	Reactor	77	No	No	96
M780AQ	1-GR-TE-9384H		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GR-TS-9384H		Temp. Sw.	Reactor	54	No	No	95
M780AQ	1-GR-FSL-9384H1		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-FSL-9384H3		Flow Sw. Low	Reactor	54	No	No	92
M780AQ	1-GR-HS-9385A		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GR-TE-9385A		Temp. Elemt.	Reactor	102	No	No	93
M780AQ	1-GR-TS-9385A		Temp. Sw.	Reactor	102	No	No	94
M780AQ	1-GR-FSL-9385A1		Flow Sw. Low	Reactor	102	No	No	92
M780AQ	1-GR-FSL-9385A3		Flow Sw. Low	Reactor	102	No	No	92
M780AQ	1-GR-HS-9385B		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GR-TE-9385B		Temp. Elemt.	Reactor	102	No	No	93
M780AQ	1-GR-TS-9385B		Temp. Sw.	Reactor	102	No	No	94
M780AQ	1-GR-FSL-9385B1		Flow Sw. Low	Reactor	102	No	No	92
M780AQ	1-GR-FSL-9385B3		Flow Sw. Low	Reactor	102	No	No	92

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REACTOR BLDG. SUPPLY CONTROL DIAG.
GR

P&ID
M-83-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M780AQ	1-GR-HS-9385C		Hand Switch	Reactor	77	No	No	96
M780AQ	1-GR-TE-9385C		Temp. Elemt.	Reactor	102	No	No	93
M780AQ	1-GR-TS-9385C		Temp. Sw.	Reactor	102	No	No	94
M780AQ	1-GR-FSL-9385C1		Flow Sw. Low	Reactor	102	No	No	92
M780AQ	1-GR-FSL-9385C3		Flow Sw. Low	Reactor	102	No	No	92
M780AQ	1-GR-HS-9385D		Hand Switch	Reactor	77	No	No	96
M780AQ	1-GR-TE-9385D		Temp. Elemt.	Reactor	102	No	No	93
M780AQ	1-GR-TS-9385D		Temp. Sw.	Reactor	102	No	No	94
M780AQ	1-GR-FSL-9385D1		Flow Sw. Low	Reactor	102	No	No	92
M780AQ	1-GR-FSL-9385D3		Flow Sw. Low	Reactor	102	No	No	92
J301Q	1-GU-FT-9394A		Flow Trans.	Reactor	132	No	No	29
J301Q	1-GU-FT-9394B		Flow Trans.	Reactor	178	No	No	29
J301Q	1-GU-FT-9394C		Flow Trans.	Reactor	132	No	No	29
J301Q	1-GU-FT-9394D		Flow Trans.	Reactor	162	No	No	29
J301Q	1-GU-FT-9394E		Flow Trans.	Reactor	162	No	No	29
J301Q	1-GU-FT-9394F		Flow Trans.	Reactor	178	No	No	29
M780AQ	1-GU-SV-9395A		Solenoid Valve	Reactor	178	No	No	90
M717Q	1-GU-ZS-9395A		Position Switch	Reactor	178	No	No	86
M780AQ	1-GU-SV-9395B		Solenoid Valve	Reactor	178	No	No	90
M717Q	1-GU-ZS-9395B		Position Switch	Reactor	178	No	No	86
M780AQ	1-GU-ME-9425A		Moisture Trans.	Reactor	145	No	No	165
M780AQ	1-GU-MT-9425A		Moisture Trans.	Reactor	145	No	No	165
M786Q	1-GU-MY-9425A		Moisture Controller (SCR)	Reactor	145	No	No	~~101~~ 100 **
M780AQ	1-GU-ME-9425B		Moisture Trans.	Reactor	145	No	No	165
M780AQ	1-GU-MT-9425B		Moisture Trans.	Reactor	145	No	No	165
M786Q	1-GU-MY-9425B		Moisture Controller (SCR)	Reactor	145	No	No	~~101~~ 100 **

** FSAR Amendment 14 Change Notice.
I Nag
11/5/85

SYSTEM: REAC BLDG EXH CONTRL
GU

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-84-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M786Q	1AC-045		Heater Control Panel	Reactor	145	No	No	100
M786Q	1BC-045		Heater Control Panel	Reactor	145	No	No	100
M713Q	1A-V-206		Fan & EH Actuator	Reactor	145	No	No	83
M713Q	1B-V-206		Fan & EH Actuator	Reactor	145	No	No	83
M728Q	1-GU-SV-9414A		Solenoid Valve	Reactor	178	No	No	88
M728Q	1-GU-ZS-9414A		Position Switch	Reactor	178	Yes	No	89
M728Q	1-GU-SV-9414B		Solenoid Valve	Reactor	178	No	No	88
M728Q	1-GU-ZS-9414B		Position Switch	Reactor	178	Yes	No	89
J301Q	1-GU-FT-9425A		Flow Trans.	Reactor	145	No	No	29
M780AQ	1-GU-PDT-9425A		Press. Diff. Trans.	Reactor	145	No	No	99
M780AQ	1-GU-TE-9425A		Temp. Elemt.	Reactor	145	No	No	93
M717Q	1-GU-HD-9425A1		Hand Damper Actuator	Reactor	162	No	No	87
M717Q	1-GU-HD-9425A2		Hand Damper Actuator	Reactor	145	No	No	87
M717Q	1-GU-FD-9425A3		Flow Damper Actuator	Reactor	145	No	No	87
M717Q	1-GU-FD-9425A5		Flow Damper Actuator	Reactor	145	No	No	87
J301Q	1-GU-FT-9425B		Flow Trans.	Reactor	145	No	No	29
M780AQ	1-GU-PDT-9425B		Press. Diff. Trans.	Reactor	145	No	No	99
M780AQ	1-GU-TE-9425B		Temp. Elemt.	Reactor	145	No	No	93
M717Q	1-GU-HD-9425B1		Hand Damper Actuator	Reactor	162	No	No	87
M717Q	1-GU-HD-9425B2		Hand Damper Actuator	Reactor	145	No	No	87
M717Q	1-GU-FD-9425B3		Flow Damper Actuator	Reactor	145	No	No	87
M717Q	1-GU-FD-9425B5		Flow Damper Actuator	Reactor	145	No	No	87
M713Q	1-GU-FD-9426A		Flow Damper Actuator	Reactor	145	No	No	84
M780AQ	1-GU-FT-9426A		Flow Trans.	Reactor	145	No	No	99
M780AQ	1-GU-FSL-9426A1		Flow Sw. Low	Reactor	145	No	No	92
M780AQ	1-GU-PDT-9426A1		Press. Diff. Trans.	Reactor	102	No	No	99
M780AQ	1-GU-FSL-9426A2		Flow Sw. Low	Reactor	145	No	No	92
M780AQ	1-GU-PDT-9426A2		Press. Diff. Trans.	Reactor	102	No	No	99

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REAC BLDG EXH CONTRL
GU

P&ID
M-84-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M786Q	1AC-045		Heater Control Panel	Reactor	145	No	No	100
M786Q	1BC-045		Heater Control Panel	Reactor	145	No	No	100
M713Q	1A-V-206		Fan & EH Actuator	Reactor	145	No	No	83
M713Q	1B-V-206		Fan & EH Actuator	Reactor	145	No	No	83
M728Q	1-GU-SV-9414A		Solenoid Valve	Reactor	178	No	No	86
M728Q	1-GU-ZS-9414A		Position Switch	Reactor	178	Yes	No	89
M728Q	1-GU-SV-9414B		Solenoid Valve	Reactor	178	No	No	88
M728Q	1-GU-ZS-9414B		Position Switch	Reactor	178	Yes	No	89
J301Q	1-GU-FT-9425A		Flow Trans.	Reactor	145	No	No	29
M780AQ	1-GU-PDT-9425A		Press. Diff. Trans.	Reactor	145	No	No	99
M780AQ	1-GU-TE-9425A		Temp. Elemt.	Reactor	145	No	No	93
M717Q	1-GU-HD-9425A1		Hand Damper Actuator	Reactor	162	No	No	87
M717Q	1-GU-HD-9425A2		Hand Damper Actuator	Reactor	145	No	No	87
M717Q	1-GU-FD-9425A3		Flow Damper Actuator	Reactor	145	No	No	87
M717Q	1-GU-FD-9425A5		Flow Damper Actuator	Reactor	145	No	No	87
J301Q	1-GU-FT-9425B		Flow Trans.	Reactor	145	No	No	29
M780AQ	1-GU-PDT-9425B		Press. Diff. Trans.	Reactor	145	No	No	99
M780AQ	1-GU-TE-9425B		Temp. Elemt.	Reactor	145	No	No	93
M717Q	1-GU-HD-9425B1		Hand Damper Actuator	Reactor	162	No	No	87
M717Q	1-GU-HD-9425B2		Hand Damper Actuator	Reactor	145	No	No	87
M717Q	1-GU-FD-9425B3		Flow Damper Actuator	Reactor	145	No	No	87
M717Q	1-GU-FD-9425B5		Flow Damper Actuator	Reactor	145	No	No	87
M713Q	1-GU-FD-9426A		Flow Damper Actuator	Reactor	145	No	No	84
M780AQ	1-GU-FT-9426A		Flow Trans.	Reactor	145	No	No	99
M780AQ	1-GU-FSL-9426A1		Flow Sw. Low	Reactor	145	No	No	92
M780AQ	1-GU-PDT-9426A1		Press. Diff. Trans.	Reactor	102	No	No	99
M780AQ	1-GU-FSL-9426A2		Flow Sw. Low	Reactor	145	No	No	92
M780AQ	1-GU-PDT-9426A2		Press. Diff. Trans.	Reactor	102	No	No	99

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REAC BLDG EXH CONTRL
GU

P&ID
M-84-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M717Q	1-GU-FD-9426B		Flow Damper Actuator	Reactor	145	No	No	84
M780AQ	1-GU-FT-9426B		Flow Trans.	Reactor	145	No	No	99
M780AQ	1-GU-FSL-9426B1		Flow Sw. Low	Reactor	145	No	No	92
M780AQ	1-GU-PDT-9426B1		Press. Diff. Trans.	Reactor	102	No	No	99
M780AQ	1-GU-FSL-9426B2		Flow Sw. Low	Reactor	145	No	No	92
M780AQ	1-GU-PDT-9426B2		Press. Diff. Trans.	Reactor	102	No	No	99
M780AQ	1-GU-HS-9428-1		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GU-PDSH-9428-1		Press. Diff. Sw. High	Reactor	102	No	No	92
M780AQ	1-GU-TE-9428-1		Temp. Elemt.	Reactor	102	No	No	93
M780AQ	1-GU-HS-9428-2		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GU-PDSH-9428-2		Press. Diff. Sw. High	Reactor	102	No	No	92
M780AQ	1-GU-TE-9428-2		Temp. Elemt.	Reactor	102	No	No	93
M717Q	1-GU-PD-9428A1		Press. Damper Actuator	Reactor	102	No	No	85
M717Q	1-GU-ZS-9428A1		Position Switch	Reactor	102	No	No	86
M717Q	1-GU-PD-9428A2		Press. Damper Actuator	Reactor	102	No	No	85
M717Q	1-GU-ZS-9428A2		Position Switch	Reactor	102	No	No	86
M717Q	1-GU-PD-9428B1		Press. Damper Actuator	Reactor	145	No	No	85
M717Q	1-GU-ZS-9428B1		Position Switch	Reactor	145	No	No	86
M717Q	1-GU-PD-9428B2		Press. Damper Actuator	Reactor	145	No	No	85
M717Q	1-GU-ZS-9428B2		Position Switch	Reactor	145	No	No	86
M780AQ	1-GU-HS-9429-1		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GU-PDSH-9429-1		Press. Diff. Sw. High	Reactor	145	No	No	92
M780AQ	1-GU-TE-9429-1		Temp. Elemt.	Reactor	145	No	No	93
M780AQ	1-GU-HS-9429-2		Hand Switch	Reactor	77	No	No	96
M780AQ	1-GU-PDSH-9429-2		Press. Diff. Sw. High	Reactor	145	No	No	92
M780AQ	1-GU-TE-9429-2		Temp. Elemt.	Reactor	145	No	No	93
M717Q	1-GU-PD-9429A1		Press. Damper Actuator	Reactor	145	No	No	85
M717Q	1-GU-ZS-9429A1		Position Switch	Reactor	145	No	No	86

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REAC BLDG EXH CONTRL
GU

P&ID
M-84-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M717Q	1-GU-PD-9429A2		Press. Damper Actuator	Reactor	145	No	No	85
M717Q	1-GU-ZS-9429A2		Position Switch	Reactor	145	No	No	86
M780AQ	1-GU-HS-9432-1		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GU-PDSH-9432-1		Press. Diff. Sw. High	Reactor	54	No	No	92
M780AQ	1-GU-TE-9432-1		Temp. Elemt.	Reactor	77	No	No	93
M780AQ	1-GU-HS-9432-2		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GU-PDSH-9432-2		Press. Diff. Sw. High	Reactor	54	No	No	92
M780AQ	1-GU-TE-9432-2		Temp. Elemt.	Reactor	77	No	No	93
M717Q	1-GU-PD-9432A1		Press. Damper Actuator	Reactor	77	No	No	85
M717Q	1-GU-ZS-9432A1		Position Switch	Reactor	77	No	No	86
M717Q	1-GU-PD-9432A2		Press. Damper Actuator	Reactor	77	No	No	85
M717Q	1-GU-ZS-9432A2		Position Switch	Reactor	77	No	No	86
M717Q	1-GU-PD-9432B1		Press. Damper Actuator	Reactor	54	No	No	85
M717Q	1-GU-ZS-9432B1		Position Switch	Reactor	54	No	No	86
M717Q	1-GU-PD-9432B2		Press. Damper Actuator	Reactor	54	No	No	85
M717Q	1-GU-ZS-9432B2		Position Switch	Reactor	54	No	No	86
M780AQ	1-GU-HS-9433-1		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GU-PDSH-9433-1		Press. Diff. Sw. High	Reactor	54	No	No	92
M780AQ	1-GU-TE-9433-1		Temp. Elemt.	Reactor	77	No	No	93
M780AQ	1-GU-HS-9433-2		Hand Switch	Reactor	77	No	No	96
M780AQ	1-GU-PDSH-9433-2		Press. Diff. Sw. High	Reactor	54	No	No	92
M780AQ	1-GU-TE-9433-2		Temp. Elemt.	Reactor	77	No	No	93
M717Q	1-GU-PD-9433A1		Press. Damper Actuator	Reactor	54	No	No	85
M717Q	1-GU-ZS-9433A1		Position Switch	Reactor	54	No	No	86
M717Q	1-GU-PD-9433A2		Press. Damper Actuator	Reactor	54	No	No	85
M717Q	1-GU-ZS-9433A2		Position Switch	Reactor	54	No	No	86
M717Q	1-GU-PD-9433B1		Press. Damper Actuator	Reactor	77	No	No	85
M717Q	1-GU-ZS-9433B1		Position Switch	Reactor	77	No	No	86

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REAC BLDG EXH CONTRL
GU

P&ID
M-84-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M717Q	1-GU-PD-9433B2		Press. Damper Actuator	Reactor	77	No	No	85
M717Q	1-GU-ZS-9433B2		Position Switch	Reactor	77	No	No	86
M786Q	1-GU-TE-9434		Temp. Elemt.	Reactor	54	No	No	101
M786Q	1-GU-TY-9434		Temp. Converter	Reactor	54	No	No	101
M780AQ	1-GU-HS-9434-1		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GU-PDSH-9434-1		Press. Diff. Sw. High	Reactor	54	No	No	92
M780AQ	1-GU-TE-9434-1		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GU-HS-9434-2		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GU-PDSH-9434-2		Press. Diff. Sw. High	Reactor	54	No	No	92
M780AQ	1-GU-TE-9434-2		Temp. Elemt.	Reactor	54	No	No	93
M717Q	1-GU-PD-9434A1		Press. Damper Actuator	Reactor	54	No	No	85
M717Q	1-GU-ZS-9434A1		Position Switch	Reactor	54	No	No	86
M717Q	1-GU-PD-9434A2		Press. Damper Actuator	Reactor	54	No	No	85
M717Q	1-GU-ZS-9434A2		Position Switch	Reactor	54	No	No	86
M717Q	1-GU-PD-9434B1		Press. Damper Actuator	Reactor	77	No	No	85
M717Q	1-GU-ZS-9434B1		Position Switch	Reactor	77	No	No	86
M717Q	1-GU-PD-9434B2		Press. Damper Actuator	Reactor	77	No	No	85
M717Q	1-GU-ZS-9434b2		Position Switch	Reactor	77	No	No	86
M786Q	1-GU-TE-9435		Temp. Elemt.	Reactor	54	No	No	101
M786Q	1-GU-TY-9435		Temp. Converter	Reactor	54	No	No	101
M780AQ	1-GU-HS-9435-1		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GU-PDSH-9435-1		Press. Diff. Sw. High	Reactor	54	No	No	92
M780AQ	1-GU-TE-9435-1		Temp. Elemt.	Reactor	54	No	No	93
M780AQ	1-GU-HS-9435-2		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GU-PDSH-9435-2		Press. Diff. Sw. High	Reactor	54	No	No	92
M780AQ	1-GU-TE-9435-2		Temp. Elemt.	Reactor	54	No	No	93
M717Q	1-GU-PD-9435A1		Press. Damper Actuator	Reactor	54	No	No	85
M717Q	1-GU-ZS-9435A1		Position Switch	Reactor	54	No	No	86

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REAC BLDG EXH CONTRL
GU

P&ID
M-84-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M717Q	1-GU-PD-9435A2		Press. Damper Actuator	Reactor	54	No	No	85
M717Q	1-GU-ZS-9435A2		Position Switch	Reactor	54	No	No	86
M717Q	1-GU-PD-9435B1		Press. Damper Actuator	Reactor	77	No	No	85
M717Q	1-GU-ZS-9435B1		Position Switch	Reactor	77	No	No	86
M717Q	1-GU-PD-9435B2		Press. Damper Actuator	Reactor	77	No	No	85
M717Q	1-GU-ZS-9435B2		Position Switch	Reactor	77	No	No	86
M786Q	1-GU-TE-9436		Temp. Elemt.	Reactor	162	No	No	101
M786Q	1-GU-TY-9436		Temp. Converter	Reactor	162	No	No	101
M780AQ	1-GU-HS-9436-1		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GU-PDSH-9436-1		Press. Diff. Sw. High	Reactor	77	No	No	92
M780AQ	1-GU-TE-9436-1		Temp. Elemt.	Reactor	77	No	No	93
M780AQ	1-GU-HS-9436-2		Hand Switch	Reactor	77	No	No	96
M780AQ	1-GU-PDSH-9436-2		Press. Diff. Sw. High	Reactor	77	No	No	92
M780AQ	1-GU-TE-9436-2		Temp. Elemt.	Reactor	77	No	No	93
M717Q	1-GU-PD-9436A1		Press. Damper Actuator	Reactor	77	No	No	85
M717Q	1-GU-ZS-9436A1		Position Switch	Reactor	77	No	No	86
M717Q	1-GU-PD-9436A2		Press. Damper Actuator	Reactor	77	No	No	85
M717Q	1-GU-ZS-9436A2		Position Switch	Reactor	77	No	No	86
M717Q	1-GU-PD-9436B1		Press. Damper Actuator	Reactor	77	No	No	85
M717Q	1-GU-ZS-9436B1		Position Switch	Reactor	77	No	No	86
M717Q	1-GU-PD-9436B2		Press. Damper Actuator	Reactor	77	No	No	85
M717Q	1-GU-ZS-9436B2		Position Switch	Reactor	77	No	No	86
M780AQ	1-GU-HS-9437-1		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GU-PDSH-9437-1		Press. Diff. Sw. High	Reactor	102	No	No	92
M780AQ	1-GU-TE-9437-1		Temp. Elemt.	Reactor	102	No	No	93
M780AQ	1-GU-HS-9437-2		Hand Switch	Reactor	102	No	No	96

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REAC BLDG EXH CONTRL
GU

P&ID
M-84-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M780AQ	1-GU-PDSH-9437-2		Press. Diff. Sw. High	Reactor	102	No	No	92
M780AQ	1-GU-TE-9437-2		Temp. Elemt.	Reactor	102	No	No	93
M717Q	1-GU-PD-9437A1		Press. Damper Actuator	Reactor	102	No	No	85
M717Q	1-GU-ZS-9437A1		Position Switch	Reactor	102	No	No	86
M717Q	1-GU-PD-9437A2		Press. Damper Actuator	Reactor	102	No	No	85
M717Q	1-GU-ZS-9437A2		Position Switch	Reactor	102	No	No	86
M717Q	1-GU-PD-9437B1		Press. Damper Actuator	Reactor	102	No	No	85
M717Q	1-GU-ZS-9437B1		Position Switch	Reactor	102	No	No	86
M717Q	1-GU-PD-9437B2		Press. Damper Actuator	Reactor	102	No	No	85
M717Q	1-GU-ZS-9437B2		Position Switch	Reactor	102	No	No	86
M786Q	1-GU-TE-9438		Temp. Elemt.	Reactor	162	No	No	101
M786Q	1-GU-TY-9438		Temp. Converter	Reactor	162	No	No	101
M780AQ	1-GU-HS-9438-1		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GU-PDSH-9438-1		Press. Diff. Sw. High	Reactor	102	No	No	92
M780AQ	1-GU-TE-9438-1		Temp. Elemt.	Reactor	145	No	No	93
M780AQ	1-GU-HS-9438-2		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GU-PDSH-9438-2		Press. Diff. Sw. High	Reactor	102	No	No	92
M780AQ	1-GU-TE-9438-2		Temp. Elemt.	Reactor	145	No	No	93
M717Q	1-GU-PD-9438A1		Press. Damper Actuator	Reactor	145	No	No	85
M717Q	1-GU-ZS-9438A1		Position Switch	Reactor	145	No	No	86
M717Q	1-GU-PD-9438A2		Press. Damper Actuator	Reactor	145	No	No	85
M717Q	1-GU-ZS-9438A2		Position Switch	Reactor	145	No	No	86
M717Q	1-GU-PD-9438B1		Press. Damper Actuator	Reactor	102	No	No	85
M717Q	1-GU-ZS-9438B1		Position Switch	Reactor	102	No	No	86
M717Q	1-GU-PD-9438B2		Press. Damper Actuator	Reactor	102	No	No	85
M717Q	1-GU-ZS-9438B2		Position Switch	Reactor	102	No	No	86

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: REAC BLDG EXH CONTRL
GU

P&ID
M-84-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M717Q	1-GU-PD-9438C1		Press. Damper Actuator	Reactor	102	No	No	85
M717Q	1-GU-ZS-9438C1		Position Switch	Reactor	102	No	No	86
M717Q	1-GU-PD-9438C2		Press. Damper Actuator	Reactor	102	No	No	85
M717Q	1-GU-ZS-9438C2		Position Switch	Reactor	102	No	No	86
M717Q	1-GU-PD-9438D1		Press. Damper Actuator	Reactor	132	No	No	85
M717Q	1-GU-ZS-9438D1		Position Switch	Reactor	132	No	No	86
M717Q	1-GU-PD-9438D2		Press. Damper Actuator	Reactor	132	No	No	85
M717Q	1-GU-ZS-9438D2		Position Switch	Reactor	132	No	No	86
M717Q	1-GU-PD-9438E1		Press. Damper Actuator	Reactor	132	No	No	85
M717Q	1-GU-ZS-9438E1		Position Switch	Reactor	132	No	No	86
M717Q	1-GU-PD-9438E2		Press. Damper Actuator	Reactor	132	No	No	85
M717Q	1-GU-ZS-9438E2		Position Switch	Reactor	132	No	No	86
M717Q	1-GU-PD-9438F1		Press. Damper Actuator	Reactor	132	No	No	85
M717Q	1-GU-ZS-9438F1		Position Switch	Reactor	132	No	No	86
M717Q	1-GU-PD-9438F2		Press. Damper Actuator	Reactor	132	No	No	85
M717Q	1-GU-ZS-9438F2		Position Switch	Reactor	132	No	No	86
M717Q	1-GT-PD-9438G1		Press. Damper Actuator	Reactor	162	No	No	85
M717Q	1-GU-ZS-9438G1		Position Switch	Reactor	162	No	No	86
M717Q	1-GT-PD-9438G2		Press. Damper Actuator	Reactor	162	No	No	85
M717Q	1-GT-ZS-9438G2		Position Switch	Reactor	162	No	No	86
M717Q	1-GT-PD-9438H1		Press. Damper Actuator	Reactor	162	No	No	85
M717Q	1-GU-ZS-9438H1		Position Switch	Reactor	162	No	No	86
M717Q	1-GT-PD-9438H2		Press. Damper Actuator	Reactor	162	No	No	85
M717Q	1-GU-ZS-9438H2		Position Switch	Reactor	162	No	No	86
M780AQ	1-GU-HS-9439-1		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GU-PDSH-9439-1		Press. Diff. Sw. High	Reactor	102	No	No	92
M780AQ	1-GU-TE-9439-1		Temp. Elemt.	Reactor	102	No	No	93
M780AQ	1-GU-HS-9439-2		Hand Switch	Reactor	102	No	No	96

SYSTEM: REAC BLDG EXH CONTRL
GU

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-84-1

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
M780AQ	1-GU-PDSH-9439-2		Press. Diff. Sw. High	Reactor	102	No	No	92
M780AQ	1-GU-TE-9439-2		Temp. Elemt.	Reactor	102	No	No	93
M717Q	1-GU-PD-9439A1		Press. Damper Actuator	Reactor	102	No	No	85
M717Q	1-GU-ZS-9439A1		Position Switch	Reactor	102	No	No	86
M717Q	1-GU-PD-9439A2		Press. Damper Actuator	Reactor	102	No	No	85
M717Q	1-GU-ZS-9439A2		Position Switch	Reactor	102	No	No	86
M717Q	1-GU-PD-9439B1		Press. Damper Actuator	Reactor	102	No	No	85
M717Q	1-GU-ZS-9439B1		Position Switch	Reactor	102	No	No	86
M717Q	1-GU-PD-9439B2		Press. Damper Actuator	Reactor	102	No	No	85
M717Q	1-GU-ZS-9439B2		Position Switch	Reactor	102	No	No	86
M780AQ	1-GU-HS-9450		Hand Switch	Reactor	102	No	No	96
M728Q	1-GU-SV-9450A		Solenoid Valve	Reactor	102	No	No	88
M728Q	1-GU-ZS-9450A		Position Switch	Reactor	102	No	No	89
M728Q	1-GU-SV-9450B		Solenoid Valve	Reactor	102	No	No	88
M728Q	1-GU-ZS-9450B		Position Switch	Reactor	102	No	No	89
M780AQ	1-GU-HS-9457-1		Hand Switch	Reactor	102	No	No	96
M780AQ	1-GU-PDSH-9457-1		Press. Diff. Sw. High	Reactor	145	No	No	92
M780AQ	1-GU-TE-9457-1		Temp. Elemt.	Reactor	145	No	No	93
M780AQ	1-GU-HS-9457-2		Hand Switch	Reactor	77	No	No	96
M780AQ	1-GU-PDSH-9457-2		Press. Diff. Sw. High	Reactor	145	No	No	92
M780AQ	1-GU-TE-9457-2		Temp. Elemt.	Reactor	145	No	No	93
M717Q	1-GU-PD-9457A1		Press. Damper Actuator	Reactor	145	No	No	85
M717Q	1-GU-ZS-9457A1		Position Switch	Reactor	145	No	No	86
M717Q	1-GU-PD-9457A2		Press. Damper Actuator	Reactor	145	No	No	85
M717Q	1-GU-ZS-9457A2		Position Switch	Reactor	145	No	No	86

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

P&ID
M-87-1

SYSTEM: CHILLED WATER SYSTEM
GB

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
P301Q	1-GB-HV-9531A1		Control Valve	Reactor 102		No	No	127
P301Q	1-GB-ZS-9531A1		Limit Switch	Reactor 102		Yes	No	127
P301Q	1-GB-HV-9531A2		Control Valve	Reactor 102		No	No	127
P301Q	1-GB-ZS-9531A2		Limit Switch	Reactor 102		Yes	No	127
P301Q	1-GB-HV-9531A3		Control Valve	Reactor 102		No	No	127
P301Q	1-GB-ZS-9531A3		Limit Switch	Reactor 102		Yes	No	127
P301Q	1-GB-HV-9531A4		Control Valve	Reactor 102		No	No	127
P301Q	1-GB-ZS-9531A4		Limit Switch	Reactor 102		Yes	No	127
P301Q	1-GB-HV-9531B1		Control Valve	Reactor 102		No	No	127
P301Q	1-GB-ZS-9531B1		Limit Switch	Reactor 102		Yes	No	127
P301Q	1-GB-HV-9531B2		Control Valve	Reactor 102		No	No	127
P301Q	1-GB-ZS-9531B2		Limit Switch	Reactor 102		Yes	No	127
P301Q	1-GB-HV-9531B3		Control Valve	Reactor 102		No	No	127
P301Q	1-GB-ZS-9531B3		Limit Switch	Reactor 102		Yes	No	127
P301Q	1-GB-HV-9531B4		Control Valve	Reactor 102		No	No	127
P301Q	1-GB-ZS-9531B4		Limit Switch	Reactor 102		Yes	No	127
P301Q	1-GB-HV-9532-1		Control Valve	Reactor 162		No	No	127
P301Q	1-GB-ZS-9532-1		Limit Switch	Reactor 162		No	No	127
P301Q	1-GB-HV-9532-2		Control Valve	Reactor 162		No	No	127
P301Q	1-GB-ZS-9532-2		Limit Switch	Reactor 162		No	No	127

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: 250VDC
P3

ELECT. DWG.
E-0011

P.O.	ID NO. NOTE (5)	MPL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
E121Q	10-D-251		250VDC MCC	Reactor	54	No	No	3
E121Q	10-D-261		250VDC MCC	Reactor	54	No	No	3

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

ELECT. DWG.
E0018

SYSTEM: 480VAC
PG

P.O.	ID NO. NOTE (5)	MFL NO.	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
E118Q	10-B-212		480V MCC	Reactor	102	No	No	2
E118Q	10-B-222		480V MCC	Reactor	102	No	No	2
E118Q	10-B-232		480V MCC	Reactor	102	No	No	2
E118Q	10-B-242		480V MCC	Reactor	77	No	No	2

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: GENERIC

P&ID
N/A

P.O.	ID NO. NOTE (5)	VENDOR	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
E129Q	A00	Okonite	5kV Power Cable	Note (3)		N/A	N/A	4
E129Q	A04	Okonite	5kV Power Cable	Note (3)		N/A	N/A	4
E129Q	A35	Okonite	5kV Power Cable	Note (3)		N/A	N/A	4
E129Q	A50	Okonite	5kV Power Cable	Note (3)		N/A	N/A	4
E129Q	A75	Okonite	5kV Power Cable	Note (3)		N/A	N/A	4
E135Q	1AW200	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5
E135Q	1BW200	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5
E135Q	1CW200	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5
E135Q	1DW200	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5
E135Q	1AW201	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	6
E135Q	1BW201	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	6
E135Q	1CW201	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	6
E135Q	1DW201	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	6
E135Q	1EW201	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	6
E135Q	1FW201	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	6
E135Q	1AW202	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: GENERIC

P&ID
N/A

P.O.	ID NO. NOTE (5)	VENDOR	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
E135Q	1BW202	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5
E135Q	1CW202	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5
E135Q	1AW203	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5
E135Q	1BW203	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5
E135Q	1AW204	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5
E135Q	1BW204	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5
E135Q	1CW204	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5
E135Q	1EW204	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5
E135Q	1FW204	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5
E135Q	1GW204	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5
E135Q	1JW204	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5
E135Q	1KW204	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5
E135Q	1AW205	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5
E135Q	1BW205	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5
E135Q	1CW205	Westinghouse	Electric Penetration Assy.	Note (3) & (4)		N/A	N/A	5

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: GENERIC

P&ID
N/A

P.O.	ID NO. NOTE (5)	VENDOR	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
E135Q	IDW205	Westinghouse	Electric Penetration Assy	Note (3) & (4)		N/A	N/A	5
E135Q	IEW205	Westinghouse	Electric Penetration Assy	Note (3) & (4)		N/A	N/A	5
E135Q	IFW205	Westinghouse	Electric Penetration Assy	Note (3) & (4)		N/A	N/A	5
E135Q	IGW205	Westinghouse	Electric Penetration Assy	Note (3) & (4)		N/A	N/A	5
E135Q	IHW205	Westinghouse	Electric Penetration Assy	Note (3) & (4)		N/A	N/A	5
E135Q	IAW206	Westinghouse	Electric Penetration Assy	Note (3) & (4)		N/A	N/A	5
E135Q	IBW206	Westinghouse	Electric Penetration Assy	Note (3) & (4)		N/A	N/A	5
E135Q	ICW206	Westinghouse	Electric Penetration Assy	Note (3) & (4)		N/A	N/A	5
E135Q	IAW207	Westinghouse	Electric Penetration Assy	Note (3) & (4)		N/A	N/A	5
E135Q	IBW207	Westinghouse	Electric Penetration Assy	Note (3) & (4)		N/A	N/A	5
E135Q	ICW207	Westinghouse	Electric Penetration Assy	Note (3) & (4)		N/A	N/A	5
E135Q	IDW207	Westinghouse	Electric Penetration Assy	Note (3) & (4)		N/A	N/A	5
E135Q	IAW208	Westinghouse	Electric Penetration Assy	Note (3) & (4)		N/A	N/A	5
E135Q	IAW209	Westinghouse	Electric Penetration Assy	Note (3) & (4)		N/A	N/A	5
E157Q	CO2	Okonite	600V Control Cable	Note (3)		N/A	N/A	7

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: GENERIC

P&ID
N/A

P.O.	ID NO. NOTE (5)	VENDOR	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
E157Q	C03	Okonite	600V Control Cable	Note (3)		N/A	N/A	7
E157Q	C05	Okonite	600V Control Cable	Note (3)		N/A	N/A	7
E157Q	C07	Okonite	600V Control Cable	Note (3)		N/A	N/A	7
E157Q	C09	Okonite	600V Control Cable	Note (3)		N/A	N/A	7
E157Q	C12	Okonite	600V Control Cable	Note (3)		N/A	N/A	7
E157Q	C19	Okonite	600V Control Cable	Note (3)		N/A	N/A	7
E158Q	1T3	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	1T5	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	102	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	106	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	110	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	112	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	120	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	135	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	140	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	150	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	202	Okonite	600V Power Cable	Note (3)		N/A	N/A	8

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: GENERIC

P&ID
N/A

P.O.	ID NO. NOTE (5)	VENDOR	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
E158Q	209	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	302	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	304	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	306	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	308	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	309	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	312	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	320	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	340	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	402	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	404	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	409	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	412	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	420	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	510	Okonite	600V Power Cable	Note (3)		N/A	N/A	8
E158Q	712	Okonite	600V Power Cable	Note (3)		N/A	N/A	9

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: GENERIC

P&ID
N/A

P.O.	ID NO. NOTE (5)	VENDOR	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
E170Q	RG2	Brand-Rex	Co, Tri, and Twinaxial Cable	Note (3)		N/A	N/A	9
E170Q	RG3	Brand-Rex	Co, Tri, and Twinaxial Cable	Note (3)		N/A	N/A	9
E170Q	R14	Brand-Rex	Co, Tri, and Twinaxial Cable	Note (3)		N/A	N/A	9
E170Q	R16	Brand-Rex	Co, Tri, and Twinaxial Cable	Note (3)		N/A	N/A	9
E170Q	R58	Brand-Rex	Co, Tri, and Twinaxial Cable	Note (3)		N/A	N/A	9
E170Q	R59	Brand-Rex	Co, Tri, and Twinaxial Cable	Note (3)		N/A	N/A	9
E170Q	R62	Brand-Rex	Co, Tri, and Twinaxial Cable	Note (3)		N/A	N/A	9
E170AQ	RM1	Rockbestos	Co, Tri, and Twinaxial Cable	Note (3)		N/A	N/A	9
E170AQ	RM2	Rockbestos	Co, Tri, and Twinaxial Cable	Note (3)		N/A	N/A	12
E170AQ	RO6	Rockbestos	Co, Tri, and Twinaxial Cable	Note (3)		N/A	N/A	12
E170AQ	RP9	Rockbestos	Co, Tri, and Twinaxial Cable	Note (3)		N/A	N/A	10
E170AQ	RG11	Rockbestos	Co, Tri, and Twinaxial Cable	Note (3)		N/A	N/A	10
E170AQ	R22	Rockbestos	Co, Tri, and Twinaxial Cable	Note (3)		N/A	N/A	10
E170AQ	SI3	Rockbestos	Co, Tri, and Twinaxial Cable	Note (3)		N/A	N/A	10
E170AQ	SI4	Rockbestos	Co, Tri, and Twinaxial Cable	Note (3)		N/A	N/A	11
E170AQ	SI6	Rockbestos	Co, Tri, and Twinaxial Cable	Note (3)		N/A	N/A	11
E170AQ	SI8	Rockbestos	Co, Tri, and Twinaxial Cable	Note (3)		N/A	N/A	11
E170AQ	VK4	Rockbestos	Co, Tri, and Twinaxial Cable	Note (3)		N/A	N/A	11
E171Q	IQ4	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	12A
E171Q	DO1	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	DO2	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	DO3	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	DO4	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	DO5	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	DO6	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: GENERIC

P&ID
N/A

P.O.	ID NO. NOTE (5)	VENDOR	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
E171Q	D07	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	D08	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	D09	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	D30	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	D31	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	D32	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	D33	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	I02	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	I03	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	I04	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	I06	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	I10	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	I12	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	I20	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	I24	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	I28	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: GENERIC

P&ID
N/A

P.O.	ID NO. NOTE (5)	VENDOR	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
E171Q	IT2	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	IT3	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	IT4	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	IT6	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	NO8	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	SO3	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	S19	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	S24	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	S28	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	TA1	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	TA2	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	TB1	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	TB2	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	TH1	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	TH2	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	TH3	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: GENERIC

P&ID
N/A

P.O.	ID NO. NOTE (5)	VENDOR	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
E171Q	TP1	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	TP2	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	TP3	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
E171Q	TP4	Eaton	600V Shielded Instru Cable	Note (3)		N/A	N/A	13
F35373Q-1-1F	RAT-853	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RAT-863	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RAT-873	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RAT-713	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RBT-853	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RBT-863	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RBT-873	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RBT-713	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RCT-333	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RCT-863	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RCT-363	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RCT-713	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: GENERIC

P&ID
N/A

P.O.	ID NO. NOTE (5)	VENDOR	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
F35373Q-1-1F	RCT-703	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RCT-733	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RDT-10361	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RDT-10711	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RDT-10721	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RDT-10731	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RET-10261	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RET-10711	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RET-10721	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RET-10731	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RFT-10261	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RFT-10711	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RFT-10721	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RFT-10731	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: GENERIC

P&ID
N/A

P.O.	ID NO. NOTE (5)	VENDOR	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
F35373Q-1-1F	RGT-9261	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RGT-9711	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RGT-9721	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RGT-9731	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-1-1F	RGT-9751	Thomas & Betts	Pressure Terminal Connectors	Note (3)		N/A	N/A	14
F35373Q-2-1F	TYZ-23M	Thomas & Betts	TY-RAP Cable Tie	Note (3)		N/A	N/A	15
F35373Q-2-1F	TYZ-25M	Thomas & Betts	TY-RAP Cable Tie	Note (3)		N/A	N/A	15
F35373Q-2-1F	TYZ-27M	Thomas & Betts	TY-RAP Cable Tie	Note (3)		N/A	N/A	15
F35373Q-2-1F	TYZ-28M	Thomas & Betts	TY-RAP Cable Tie	Note (3)		N/A	N/A	15
F37917Q-1-1F	NQB106	Amerace Corp	Terminal and Fuse Blocks	Note (3)		N/A	N/A	16
F37917Q-1-1F	NQB106S	Amerace Corp	Terminal and Fuse Blocks	Note (3)		N/A	N/A	16
F37917Q-1-1F	NQB112	Amerace Corp	Terminal and Fuse Blocks	Note (3)		N/A	N/A	16
F37917Q-1-1F	NQB112S	Amerace Corp	Terminal and Fuse Blocks	Note (3)		N/A	N/A	16
F37917Q-1-1F	NQO211	Amerace Corp	Terminal and Fuse Blocks	Note (3)		N/A	N/A	16
F37917Q-1-1F	NQO212	Amerace Corp	Terminal and Fuse Blocks	Note (3)		N/A	N/A	16
F37917Q-1-1F	NQO230	Amerace Corp	Terminal and Fuse Blocks	Note (3)		N/A	N/A	16
F37917Q-1-1F	NQO330	Amerace Corp	Terminal and Fuse Blocks	Note (3)		N/A	N/A	16

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: GENERIC

P&ID
N/A

P.O.	ID NO. NOTE (5)	VENDOR	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
F37917Q-1-1F	NQ0361	Amerace Corp	Terminal and Fuse Blocks	Note (3)		N/A	N/A	16
F37917Q-1-1F	NQ0362	Amerace Corp	Terminal and Fuse Blocks	Note (3)		N/A	N/A	16
F37917Q-1-1F	NQ0511	Amerace Corp	Terminal and Fuse Blocks	Note (3)		N/A	N/A	16
F37917Q-1-1F	NQ0514	Amerace Corp	Terminal and Fuse Blocks	Note (3)		N/A	N/A	16
F37917Q-1-1F	NQ0530	Amerace Corp	Terminal and Fuse Blocks	Note (3)		N/A	N/A	16
F37917Q-1-1F	0351	Amerace Corp	Terminal and Fuse Blocks	Note (3)		N/A	N/A	16
F37917Q-1-1F	0352	Amerace Corp	Terminal and Fuse Blocks	Note (3)		N/A	N/A	16
F37917Q-1-1F	60	Amerace Corp	Terminal and Fuse Blocks	Note (3)		N/A	N/A	16
F37917Q-1-1F	68	Amerace Corp	Terminal and Fuse Blocks	Note (3)		N/A	N/A	16
F43511Q-1-1F	433999-0143	Anaconda	Flexible Liquidtight Conduit	Note (3)		N/A	N/A	16
F43511Q-1-1F	434009-0143	Anaconda	Flexible Liquidtight Conduit	Note (3)		N/A	N/A	17
F43511Q-1-1F	434019-0143	Anaconda	Flexible Liquidtight Conduit	Note (3)		N/A	N/A	17
F43511Q-1-1F	434029-0143	Anaconda	Flexible Liquidtight Conduit	Note (3)		N/A	N/A	17

EQUIPMENT SELECTED FOR HARSH ENVIRONMENT QUALIFICATION

SYSTEM: GENERIC

P&ID
N/A

P.O.	ID NO. NOTE (5)	VENDOR	COMPONENT	LOCATION BLDG.	LOCATION ELEV.	PAM EQUIP. NOTE (1)	TMI ACTION PLAN EQUIP. NOTE (2)	EESS REF. NO.
F43511Q-1-1F	434039-0143	Anaconda	Flexible Liquidtight Conduit	Note (3)		N/A	N/A	17
F43511Q-1-1F	434049-0143	Anaconda	Flexible Liquidtight Conduit	Note (3)		N/A	N/A	17
F43511Q-1-1F	434059-0143	Anaconda	Flexible Liquidtight Conduit	Note (3)		N/A	N/A	17
F43511Q-1-1F	434069-0143	Anaconda	Flexible Liquidtight Conduit	Note (3)		N/A	N/A	17
F43511Q-1-1F	434079-0143	Anaconda	Flexible Liquidtight Conduit	Note (3)		N/A	N/A	17
F43511Q-1-1F	434089-0143	Anaconda	Flexible Liquidtight Conduit	Note (3)		N/A	N/A	17
F43511Q-1-1F	436351-0142	Anaconda	Flexible Liquidtight Conduit	Note (3)		N/A	N/A	17
F43511Q-1-1F	436361-0142	Anaconda	Flexible Liquidtight Conduit	Note (3)		N/A	N/A	17
F43511Q-1-2F	FR-EP	Anaconda	1/C Low Voltage & Power Cable	Note (3)		N/A	N/A	18
F43511Q-1-2F	FR-EP/CPE	Anaconda	2/C Control & Instrument Cable	Note (3)		N/A	N/A	18
F43511Q-1-2F	FR-EP/CPE	Anaconda	7/C 600V Flame GRD Cntrl Cable	Note (3)		N/A	N/A	18
F43620Q-1-1F		Raychem Corp.	High Voltage Terminations	Note (3)		N/A	N/A	19
F47888Q-1-1F	N-MCK	Raychem Corp.	Motor Connection Kit	Note (3)		N/A	N/A	20
F48479Q-1-1F	WCSF-N	Raychem Corp.	Cable Breakout Kit	Note (3)		N/A	N/A	21
F48479Q-1-1F		Raychem Corp.	Cable End Sealing Kit	Note (3)		N/A	N/A	21
F48561Q-1-1F	NPKS,NPKX,NPKC	Raychem Corp.	Cable Splice Assy	Note (3)		N/A	N/A	23
F48561Q-1-1F		Raychem Corp.	Thermofit Insulation Sys	Note (3)		N/A	N/A	22
F51216Q-1-1F	N-21009-01	Conax Corp.	Electric Conductor Seal Assy	Note (3)		N/A	N/A	24

(1) This column identifies the equipment located in a harsh environment required for post accident monitoring as defined in R.G.1.97 and FSAR Section 1.8.1.97.1.

(2) This column identifies the equipment located in a harsh environment identified as TMI Action Plan Equipment as defined in NUREG 0737.

(3) Items that are generic are purchased and used throughout the plant and may be used in the DBA Harsh Environment.

(4) Electric Penetration Assemblies for control and instrumentation circuits include inline splice connnector kits.

(5) Limit or position switch tag numbers have been created by using the "ZS" designator in lieu of the valve (HV) designator for purposes of equipment qualification accountability only. These tag numbers may not be found in P&ID's, schematics or the instrument index. Exceptions to this occur when position switches are mounted on manual valves or are under M001 (NSSS) P.O. In that case the tag numbers may be found in the instrument index and applicable P&ID's.

FSAR TABLE 3.11-6

HCGS FSAR

TABLE 3.11-6

SAFETY-RELATED EQUIPMENT LOCATED IN A HARSH ENVIRONMENT EXEMPTED FROM ENVIRONMENTAL QUALIFICATION REQUIREMENTS

EQUIPMENT TAG NO.	MPL NO.	DESCRIPTION	REASON
1 AVE 261		Electric Duct Heater, SLC	Due to reactor building temperature increase during a DBA, the duct heaters will not function due to the temperature control settings, which is below DBA building temperature. The heater circuits are protected by primary and backup 1E breakers.
1 BVE 261		Electric Duct Heater, SLC	
10 VE 259		Electric Duct Heater, RCIC	
10 VE 260		Electric Duct Heater, HPCI	
1 AM 205		4.16 KV Breaker - RRS Pump Motor	The RRS pump motor breakers trip upon receipt of a LOCA signal shutting down the pump. The breakers are no longer required to perform a safety-related function.
1 BN 205		4.16 KV Breaker - RRS Pump Motor	
1 CN 205		4.16 KV Breaker - RRS Pump Motor	
1 DN 205		4.16 KV Breaker - RRS Pump Motor	
10 Y 201		Panel	These panels and transformers are located in the reactor building and feed non-critic class 1E loads. They are protected by primary and backup 1E breakers.
10 Y 202		Panel	
10 Y 203		Panel	
10 Y 204		Panel	
10 K 201		Transformer	
10 K 202		Transformer	
10 K 203		Transformer	
10 K 204		Transformer	
1-SK-TE-N016		Temperature Elements	These temperature elements are not qualified for submergence caused by a feedwater line break in the ~~class 1E bus protective devices located in the hazard free area.~~ steam tunnel. They have been provided with primary and back up 1E bus protective devices located in the hazard free area. **
1-SK-TE-N012A		Temperature Elements	
1-SK-TE-N012C		Temperature Elements	
1-SK-TE-N010A		Temperature Elements	
1-SK-TE-N010B		Temperature Elements	
1-SK-TE-N010C		Temperature Elements	
1-SK-TE-N010D		Temperature Elements	
1-SK-TE-N012B		Temperature Elements	
1-SK-TE-N012D		Temperature Elements	
1-GU-TE-9428-1		Temperature Elements	
1-GU-TE-9428-2		Temperature Elements	

** FSAR Ammendment 14 Change Notice

I Nay
11/5/85

HCGS FSAR

TABLE 3.11-6

SAFETY-RELATED EQUIPMENT LOCATED IN A HARSH ENVIRONMENT EXEMPTED FROM ENVIRONMENTAL QUALIFICATION REQUIREMENTS

EQUIPMENT TAG NO.	MPL NO.	DESCRIPTION	REASON
1-AE-HV-F039		Motor Operated Valves	These motor operated valves are not qualified for submergence caused by a feedwater line break in the steam tunnel. They have been provided with primary and backup 1E bus protective devices located in the hazard free area.
1-AB-HV-F071		Motor Operated Valves	
1-KP-HV-5829A,B		Motor Operated Valves	
1-KP-HV-4834A,B		Motor Operated Valves	
1-KP-HV-5835A,B		Motor Operated Valves	
1-KP-HV-5836A,B		Motor Operated Valves	
1-KP-HV-5837A,B		Motor Operated Valves	
1-BJ-HV-8278		Motor Operated Valves	
1-AB-HV-F067A		Motor Operated Valves	
1-AB-HV-F067B		Motor Operated Valves	
1-AB-HV-F067C		Motor Operated Valves	
1-AB-HV-F067D		Motor Operated Valves	
No Tag No.	C11-F010	Position Switch	These NAMCO limit switches perform no safety functions. Failure modes and effect analysis has shown that there are no possible failure modes which can adversely effect the 1E power supply.
No Tag No.	C11-F011	Position Switch	
No Tag No.	C11-F180	Position Switch	
No Tag No.	C11-F181	Position Switch	
1-BE-SV-F006A	E21	Solenoid Valve	These solenoid valves and position switches perform no safety functions. However, because of their association with a 1E power supply, they have been provided with primary and backup protective devices.
No Tag No.	E21-F006A	Position Switch	
1-BE-SV-F006B	E21	Solenoid Valve	
No Tag No.	E21-F006B	Position Switch	
1-BC-SV-F041A	E11	Solenoid Valve	
No Tag No.	E11-F041A	Position Switch	
1-BC-SV-F041B	E11	Solenoid Valve	
No Tag No.	E11-F041B	Position switch	
1-BC-SV-F041C	E11	Solenoid Valve	
No Tag No.	E11-F041C	Position Switch	

HCGS FSAR

TABLE 3.11-6

SAFETY-RELATED EQUIPMENT LOCATED .N A HARSH ENVIRONMENT EXEMPTED FROM ENVIRONMENTAL QUALIFICATION REQUIREMENTS

EQUIPMENT TAG NO.	MPL NO.	DESCRIPTION	REASON
1-BC-SV-F041D	E11	Solenoid Valve	These solenoid valves and position switches perform no safety functions. However, because of their association with a 1E power supply, they have been provided with primary and backup protective devices.
No Tag No.	E11-F041D	Position Switch	
1-BC-SV-F050A	E11	Solenoid Valve	
No Tag No.	E11-F050A	Position Switch	
1-BC-SV-F050B	E11	Solenoid Valve	Note: All of the equipment in this table is qualified for its function in in accordance with 10CFR50.49 requirements.
No Tag No.	E11-F050B	Position Switch	

FSAR TABLE 3.11-8

SYSTEMS FROM HCGS FSAR TABLE 3.2-1 NOT INCLUDED IN TABLE 3.11-5 OR 3.11-6

DESCRIPTION	REF. TO TABLE 3.2-1	REASON
1. Reactor System	I	Mechanical
2. Fuel Handling and Storage System	VIII	Mechanical
3. Fuel Servicing Equipment	VIII (a)	Mechanical
3.1 Fuel Preparation Machines	VIII (a) 3.	Non-1E
4. Reactor Vessel Servicing Equipment	VIII (b)	Mechanical
4.1 Reactor Bldg. Polar Crane	VIII (b) 4.	Non-1E
5. In-Vessel Service Equipment	VIII (c)	Mechanical
6. Refueling Equipment	VIII (d)	Mechanical
7. Storage Equipment	VIII (e)	Mechanical
8. Undervessel Service Equipment	VIII (f)	Mechanical
9. Fuel Oil Storage and Transfer Sytem	XII (a)	Mechanical
10. Lubricant System	XII (e)	Mechanical
10.1 Heater	XII (e) 5.	Non-1E
10.2 Pump, Motor Driven Prelube Keepwarm	XII (e) 7.	Non-1E
10.3 Motors, Prelube/Keepwarm and Prelube Pumps	XII (e) 11.	Non-1E
11. Starting and Control Air System	XII (f)	Mechanical
12. Cooling Water System	XII (g)	Mechanical
13. Combustion Air Intake and Exhaust System	XII (h)	Mechanical
14. Main Steam and Power Conversion System	XIV	Mechanical
15. Main Steam Supply System	XIV (a)	Mechanical
16. Main Condenser Evacuation System	XIV (b)	Mechanical
17. Feedwater and Condensate Sytem	XIV (c)	Mechanical
18. Condensate Cleanup System	XIV (d)	Mechanical
19. Circulating Water System	XIV (e)	Mechanical
20. Steam Seal System	XIV (f)	Mechanical
21. Lube Oil System	XIV (g)	Mechanical
21.1 Motors	XIV (g) 3.	Non-1E
22. Gen. H_2 and CO_2 Purge System	XIV (h)	Mechanical
23. Buildings	XVIII	Mechanical
24. Primary Containment	XVIII (a)	Mechanical
25. Auxiliary Building (Diesel Area)	XVIII (b)	Mechanical
25. Auxiliary Building (Diesel Area)	XVIII (b)	Mechanical
26. Auxiliary Building (Containment Area)	XVIII (c)	Mechanical
27. Auxiliary Building (Radwaste Area)	XVIII (d)	Mechanical
28. Turbine Building	XVIII (e)	Mechanical
29. Administration Facility	XVIII (f)	Mechanical
30. Circ. Water Pump House	XVIII (g)	Mechanical
31. Reactor Building, Including Pressure-Retaining Door	XVIII (h)	Mechanical
32. Plant Cancelled Area	XVIII (i)	Mechanical
33. Structures	XIX	Mechanical
34. Station Service Water Intake Structure	XIX (a)	Mechanical
35. Condensate Storage Tank	XIX (b)	Mechanical

SYSTEMS FROM HCGS FSAR TABLE 3.2-1 NOT INCLUDED IN TABLE 3.11-5 OR 3.11-6

DESCRIPTION	REF. TO TABLE 3.2-1	REASON
36. Diesel Gen. Fuel Tank Room	XIX (c)	Mechanical
37. Station Battery Rooms	XIX (d)	Mechanical
38. Spent Fuel Pool, Reactor Well, New Fuel Vault, Dryer, Separator Pool, and Tank Cask Pit	XIX (e)	Mechanical
39. Circulating Water Structures	XIX (f)	Mechanical
40. Unit Vent, North and South	XIX (g)	Mechanical
41. Condensate Storage Tank Dike	XIX (h)	Mechanical
42. Spent Fuel Pool Liner	XIX (i)	Mechanical
43. Skimmer Surge Tank	XIX (j)	Mechanical
44. Missile/Jet Barriers	XIX (k)	Mechanical
45. Structural Backfill	XIX (l)	Mechanical
46. Post-Accident Shielding	XIX (m)	Mechanical
47. Siesmic Category I, Electrical Duct Bank; Manholes	XIX (n)	Mechanical
48. Nitrogen System	V (d3)	Non-1E
49. Primary Containment Leakage Rate Testing System	V (e)	Non-1E
50. Gaseous Radwaste System	X (b)	Non-1E
51. Turbine Auxiliary Cooling System	XI (d)	Non-1E
52. Portable and Sanitary Water System	XI (h)	Non-1E
53. Primary Containment Ventilating System	XIII (b)	Non-1E
54. Auxiliary Building Serv. and Radwaste Area Ventilating System	XIII (d)	Non-1E
55. Turbine Building Ventilation System	XIII (f)	Non-1E
56. Miscellaneous Structures Ventilating System	XIII (h)	Non-1E
57. Turbine Bypass System	XIV (i)	Non-1E
58. Safety-Related Display Instrumentation	XV (d)	Non-1E/Mild
59. Control and Instrumentation for Systems Not Required for Safety	XV (f)	Non-1E
60. Process Sampling System	XVII (c)	Non-1E
61. Fire Protection System	XVII (e)	Non-1E
62. Auxiliary Boiler System	XVII (f)	Non-1E
63. Equipment and Floor Drain System	XVII (g)	Non-1E
64. Breathing Air	XVII (i)	Non-1E
65. Lighting System	XVII (j)	Non-1E
66. Auxiliary Buiding Control Area Chilled Water System	XI (g)	Mild
67. Standby Diesel Generator and Auxiliary System	XII	Mild
68. Diesel Generator	XII (b)	Mild
69. Electrical Modules with Safety Functions	XII (c)	Mild
70. Cable with Safety Function	XII (d)	Mild
71. Main Control Room and Control Building HVAC System	XIII (a)	Mild
72. Standby Diesel Gen. Area Ventilation System	XIII (e)	Mild

SYSTEMS FROM HCGS FSAR TABLE 3.2-1 NOT INCLUDED IN TABLE 3.11-5 OR 3.11-6

DESCRIPTION	REF. TO TABLE 3.2-1	REASON
73. Serv. Water Intake Structure Ventilating System	XIII (g)	Mild
74. Reactor Trip System (Reactor Protection System)	XIV (a)	Mild
75. Control Complex Panels	XV (g)	Mild
76. Local Panels and Racks	XV (h)	Mild
77. 120-V Vital AC System Equipment	XVI (c)	Mild
78. 125V, and 250V Station Batteries and Racks	XVI (b)	Mild

VIII QUALIFICATION TESTING/ANALYSIS

As is noted in HCGS FSAR Section 3.11, NSSS and non-NSSS electrical components are qualified in accordance with the EQ criteria and guidelines delineated in IEEE-323-1971 and noted as Category II in NUREG 0588. Upgrading to IEEE-323-1974 and to Category I as defined in NUREG 0588 is being attempted wherever scheduling constraints and technical feasibility allow. The safety related components located in a harsh environment are being qualified by test, or a combination of testing and analysis for the worst case anticipated environmental transients under which they are required to function.

For safety related mechanical equipment located in a harsh environment, the EQ program establishes, via analysis, the qualified life of the component. This analysis is performed by identifying significant aging mechanisms as defined in IEEE-627-1980, Section 4.4.1.

The environmental qualification evaluation is performed by comparing the non-metallic part material capabilities, including aging analysis results, to the environmental conditions to which it is exposed. The material capabilities include the ability to withstand temperature, radiation, and aging effects imposed by the environmental conditions. The environmental conditions include both ambient and process conditions. For the process condition, the internal radiation and process temperature have been considered. The applicable internal radiation was determined for the total integrated dose at the pipe center-line and the process temperature was obtained from the design temperature specified in the equipment data sheets. The required radiation level was obtained by adding the internal radiation to the normal and accident radiation. The thermal capability of the non-metallic materials was evaluated to verify that the equipment meets process temperature design requirements. The equipment manufacturers have provided replacement schedules for non-metallic parts based on the specified process conditions, both radiation and temperature. For the operating life of a part, the evaluation includes exposure to the normal environment followed by an accident and/or HELB environmental condition.

Summaries of material capabilities for temperature and radiation are obtained from various handbooks and manufacturers. The material degradation as a result of thermal aging is calculated using the Arrhenius model.

A qualification analysis is performed for each non-metallic material within the scope of the program. The acceptability of non-metallic parts is determined by comparing the material capabilities to the process conditions and the enveloping ambient environmental condition of all the

associated material requisitions. If the part can sustain the postulated process and ambient environmental effects, it is considered acceptable. Otherwise a replacement schedule or substitute material is recommended.

The EQ program conforms with 10CFR50.49 in that testing or a combination of testing and analysis was the preferred method of proving component operability under the worst case environmental scenarios. IEEE-323 methods were used for the analysis. These analyses, when performed for EQ to supplement testing, were justified and documented in the appropriate EQ packages. Additionally, analyses were used only when their results could be shown to be conservative. Analytical techniques included similarity, extrapolation and mathematical modeling.

The actual implementation of the HCGS EQ program is subdivided into the following two sections:

(1) **NSSS Safety Related Components**

(a) Electrical Components

The HCGS EQ program efforts for NSSS safety related electrical components are based upon the guidelines and methodologies outlined in General Electric's Licensing Topical Report #NEDE-24326-1-P. This generic approach, when coupled with HCGS plant specific environmental parameters has been reviewed and found to be acceptable by the USNRC Division of Equipment Safety. HCGS has submitted plant specific environments consistent with those provided in FSAR Section 3.11 including seismic and dynamic input into GE's EQ program. These parameters were enveloped in GE's qualification program for devices in the HCGS scope.

GE's method of approach for environmental qualification is designed to meet the intent of the requirements stated in Category I of NUREG-0588. For each component supplied by GE, a determination of the need for and scope of qualification testing is based on that component's relationship to the following criteria:

- Components that will experience the environmental conditions of design basis events for which they must function to mitigate said accidents will be qualified to demonstrate operability in the accident environment for the time required for accident mitigation with safety margin to failure.

- Components that will experience environmental conditions of design basis events through which they need not function for mitigation of said accidents, but through which they must not fail in a manner detrimental to plant safety or accident mitigation will be qualified to demonstrate the capability to withstand any accident environment for the time during which they must not fail with safety margin to failure.

- Components that will experience environmental conditions of design basis events through which they need not function for mitigation of said accidents, and whose failure (in any mode) is deemed not detrimental to plant safety or accident mitigation need not be qualified for any accident environment, but will be designed for their non-accident service environment.

The components which are included in these categories are subjected to the approach methods and tests contained in the GE Topical Report. These methods include, but are not limited to, the type of testing (type testing, analysis, partial type testing with justified analysis, operating experience, ongoing qualification or any combination of these methods) component aging (thermal, radiation, operational, vibration) and design basis event (DBE) exposure. Inclusive of each of these methods are the associated performance requirements including appropriate margins as delineated in the GE defined "Product Performance Qualification Specification" (PPQS).

In addition to delineating the operational requirements during the DBE and performance extreme testing, the PPQS's will address, as applicable, such items as submergence, fluid sprays, monitoring requirements (including frequency) for the components as well as component mounting and connecting configuration requirements.

The GE Topical Report also delineates the documentation and review requirements necessary to complete each component's EQ package. As a minimum, the qualification documentation consists of the following:

- PPQS
- Product Analysis Report
- Functional Requirements
- Environmental/ Application Data
- Pretest Evaluation
- Test Plan and Procedures
- Test Report
- Qualification

The specific seismic and dynamic qualification documentation will include a determination of natural frequencies to assure that none are below 4 Hertz. Appropriately justified analysis and testing will be done to verify this depending on the equipment type being qualified. Additionally, the four following generic USNRC "Open Items" concerning GE EQ Program #NEDE-24326-1-P will be responded to in the following manner:

USNRC OPEN ITEM #1

> "1. Application of time margins less than one hour will be justified for each piece of equipment, including any judgments regarding survivability limits of the equipment."

GE/HCGS RESPONSE TO OPEN ITEM #1

The Functional Performance Requirements shall document the function times for all Class 1E equipment and the supporting Design Record Files shall contain the justification for the margin for each function time less than ten hours if a time margin less than one hour is used. The qualification reports for Class 1E equipment with time margins less than one hour shall document judgments regarding the survivability limits of the equipment beyond the tested time to the one hour margin limit.

USNRC OPEN ITEM #2

> "2. The required operability time will be justified with consideration for a spectrum of breaks and the potential need for the equipment later in an event or during recovery operations."

GE/HCGS RESPONSE TO ITEM #2

The Functional Performance Requirements shall document the function times for all Class 1E equipment and the supporting Design Record Files shall contain the justification for the margin for each function time less than ten hours if a time margin less than one hour is used. The applicable function times for all such accidents and qualification shall be addressed in the qualification report.

USNRC OPEN ITEM #3

"3. It will be demonstrated that failure of the equipment after the required operability time will neither mislead the operator to take an improper action nor further degrade the event by causing a failure in systems necessary for mitigation of the event."

GE/HCGS RESPONSE TO ITEM #3

The Functional Performance Requirements shall contain failure analyses which address failure effects on other, needed equipment for those cases where qualification is based on a time less than the accident duration.

USNRC OPEN ITEM #4

"4. The margin applied to the required operability time when combined with other test margins will account for the uncertainties associated with the design, production tolerances, testing techniques, and the number of units tested."

GE/HCGS RESPONSE TO ITEM #4

For function times less than ten hours with time margins less than one hour, tests shall be performed on more than one sample (size, cost and availability permitting) or margins increased, and the qualification report shall clearly state that the equipment is only qualified for the time tested which shall include appropriate time margin. All other margins shall also be applied as required by NEDE-24326-1-P.

(b) Mechanical Components

The NSSS program for mechanical equipment qualification consisted of the GE recommended listing of all the Class 1 mechanical components which met the following criteria:

(1) Safety related as defined by safety function/time.

(2) Located in a harsh environment.

(3) Used to mitigate an accident including post accident operation.

(4) Contained non-metallic parts which were known to be age sensitive.

This listing, included in this EQ Summary Report and in FSAR Section 3-11 as Table 3.11-4, is independent of other ongoing EQ efforts such as ATWS/SDS Phase 2 efforts, Class 1E efforts included in this report, HPCI EQ and mechanical components located in the main control room.

(2) **Non-NSSS (BOP) Safety Related Components**

(a) Electrical Components

The Balance of Plant (BOP) EQ program is limited to the safety related electrical components supplied to HCGS by the A/E (Bechtel) and are identified and ordered by "Q" purchase orders. Each purchase order includes a material specification which identifies to the component vendors the envelopes to which the components were to be qualified. If it was determined that the component being supplied by the vendor had been previously qualified for safety related use, the existing test documentation was compared to HCGS requirements. Upon verification that the component met these requirements, the components were designated as qualified. If either the components test data did not conform to the HCGS criteria or if the components had not been previously qualified for safety related use, the vendors were required to submit their test plan to PSE&G/Bechtel for review and approval prior to the actual performance of the EQ test. Testing approaches were justified and documented for inclusion in the EQ central file.

(b) Mechanical Components

The BOP mechanical components, like the electrical components, were identified and ordered by "Q" purchase orders. If the identified non-metallic part was found to be the same material as that identified in the NSSS/GE qualification program or other vendor/industry related approved qualification programs, the results of these programs were used and no further qualification was performed. For other identified age sensitive non-metallic parts, (gaskets, diaphragms, seals, lubricating oil or grease, packing, fluids for hydraulic system, etc.)

Bechtel determined if further testing would be required to ensure that parts failure would not jeopardize the components' ability to perform its required safety function. If so, analysis was performed by either the vendor or an independent testing laboratory to determine the parts replacement interval.

The types of components included in this mechanical equipment qualification program include the following items located in a harsh environment.

- Pumps
- Fans
- Hydraulic Snubbers
- Turbine Drives
- Motor Operated Valves (Valves Only)
- Safety & Relief Valves
- Check Valves

The listing of these BOP safety related, mechanical parts located in a harsh environment and requiring EQ are listed in the attached Table 3.11-4.

Review of Vendor Reports

The purpose of the review of vendor environmental qualification reports is to assure that the applicable environmental operating conditions (normal/abnormal/accident) for each component required to operate have been considered, evaluated and achieved, or that deficiencies have been identified and resolved.

Each qualification report received by Bechtel and transmitted to PSE&G for review is assigned a unique documentation identification number. For components supplied by the NSSS vendor (GE), this number references a "GE Book Number". For the remaining components, this number is correlated to the purchase order identification number. In either case, when an EQ report is received by PSE&G and/or Bechtel, it is reviewed in detail in the manner described below.

Items included in the review of EQ reports include the following:

a) Verification of the test method used (i.e.,type test, analysis, operating experience or combination).

b) Review of the equipment type, model or product identification number, serial number, batch number and other salient component descriptions to ensure that the component being tested is indicative of the actual component being procured for system installation.

c) Verification that EQ documentation is traceable to the component being tested.

d) Correct categorization of the component testing to applicable standards (NUREG 0588 Cat. I or Cat. II, IEEE-323-1971 or 1974, etc.).

e) Verification of the adequacy of the test procedures to address the following areas of concern:

(1) Performance of testing sequence per IEEE-323-1974 or justification of method used to ensure most severe sequencing. This includes pretest preparation, component mounting configurations, inspection and proper function measurements as well as verification that the same test specimen(s) is used throughout any testing.

(2) Addition of margins to test parameters-time durations and the justifications for these margin selections to meet the intent of IEEE-323-1974 and IEEE-627-1980.

(3) Verification that the aging (thermal, radiation, mechanical cycling, electrical cycling, synergistic effects) techniques are properly analyzed, applied and justified to provide the most conservative end-of-life component test condition.

Acceptable thermal aging techniques for electrical and mechanical components included the Arrhenius method or other justified methodology in accordance with IEEE-323 or IEEE-627. Thermal and radiation aging was considered on an individual component basis in that the component must contain an age sensitive (organic) part to be applicable.

Each aging method (thermal, radiation, mechanical, etc.) was reviewed to ensure that it placed the equipment in its end of qualified life condition before subjecting it to its worst case DBA. The age related degradation verification included concerns about normal/abnormal operating temperatures, radiation exposure and cyclical mechanical operation

and electrical (feeder voltage variations, etc.) stresses which are anticipated to occur during the normal (pre-DBA) qualified life operation of the equipment.

(4) Verification that synergistic effects were accounted for, justified, and documented, where applicable, in accordance with NUREG 0588.

(5) Review to ensure that variations in ambient environmental conditions, such as non-seismic vibration, dust, humidity, moisture ingress, submergence, etc., have been considered, evaluated and addressed.

(6) Verification that the most conservative DBA environmental conditions for the component being tested have been enveloped or that deviations have been adequately justified.

(7) Review of the test results to ensure that the component was correctly energized and/or operated to simulate required normal/abnormal/DBA operating conditions during all phases of the EQ testing. This includes review of the test parameters monitored to verify required extremes in test conditions (voltages, currents, input/output signal ramping, loading, etc.), are achieved.

Also, verification that the instrumentation used to monitor, control and record test parameters has been properly calibrated and documented.

(8) Verification that the determination of equipment failure has been defined and that resolution of any failure has been clearly identified and justified. If modifications to either the component or test setup have been made, verify that they are justified.

f) Verification that the documentation packages are complete and accurate and that they address:

(1) Applicability of component testing to HCGS.

(2) Equipment performance per vendor technical specification requirements.

(3) Synopsis of test plan including test objective; equipment tested; test facility description; listing of calibrated instrumentation used; test procedures; test data and accuracy; summary, conclusions and recommendations; support data; and proper signoff and dating of EQ report.

g) If operating experience is used, verify that the components monitored and the environmental conditions listed are applicable to HCGS. Documentation and justification of applicable performance, environmental, failure and maintenance conditions must be verified.

h) If analysis methods are used, justification for analysis and the analysis methodology must be verified. All assumptions, empirical values, mathematical models, failure analysis, computer programs, extrapolations, etc., must be documented, justified, and properly signed off/dated.

Upon completion of this detailed review, areas of concern by PSE&G/Bechtel are documented, numbered and returned to the component supplier for resolution. Resubmittals are in turn reviewed in detail and this "review/comment to vendor-/resolution/resubmittal" process is repeated until the EQ report satisfies the concerns of PSE&G/Bechtel of the components ability to perform its function under any postulated plant condition.

Component Test Witnessing

Stipulations within purchase orders placed with vendors supplying safety related electrical and mechanical equipment requiring environmental qualification testing specify that Bechtel and/or PSE&G be advised of the schedule of particularly important stages and events of the EQ test program. This timely notification has allowed the opportunity for Bechtel/PSE&G to inspect both the components being tested and the test facilities as well as to witness key events.

The activities, stages, and events that have been witnessed include, but are not limited to, the following:

a) Component physical mounting/set up for DBA testing.

b) Start-up of DBA chamber testing.

c) Configuration of test monitoring/data collection instrumentation.

d) Set up and performance of seismic testing.

e) Verification of proper test sequencing.

f) Thermal aging facilities and test setups.

g) Mechanical (repeated operation) and electrical-(voltage/current/frequency variations) cycling methodologies and test setups.

h) Radiation exposure rates, durations and source strengths.

i) Component failure recognition and determination of problem resolutions.

The above noted tasks are separate from, and in addition to, those functions performed by the Quality Assurance organization noted in Section V of this EQ Summary Report.

IX FOLLOW-ON PROGRAM

HCGS is developing a maintenance and surveillance program to ensure compliance with 10CFR50.49 and Regulatory Guide 1.33. The components for this program were selected as a result of detailed review of existing documentation, (FSAR, Tech Specs, System Descriptions, etc.), drawings (P&ID's, loops, one lines, etc.) and review of the Master Equipment List (MEL) and, as such, includes all safety related electrical and mechanical equipment located in both harsh and mild environments. The purpose of the program is to provide a documented method to verify that the required maintenance and surveillance are performed. This ensures proper equipment operation over the equipments'identified qualified life.

Maintenance of the items ranges from periodic visual inspection of the equipment to detect excess wear and/or verify proper working order to scheduled replacement of identified parts or even total equipment replacement when necessary.

The maintenance and surveillance program addresses the two following categories:

(1) Components in a Harsh Environment

The safety related electrical and mechanical components located in a harsh environment have been identified in Section VII of this EQ Summary Report. These components are subdivided into the following categories:

(A) Components with a qualified forty year life which require no replacement parts or planned maintenance for their stated life. These components are listed in the maintenance and surveillance program and the operating procedure or normal operating mode used to verify the devices operability is also listed. This listing is "passive" in that normal operation provides for this operability verification. However, the components inclusion on the program's list provides a mechanism to identify unanticipated failures or abnormal operation should they occur. In this way, failure trending allows identification of any compromise in the components qualified life and will allow re-analysis on a real time, case by case basis.

(B) Components with a qualified life of forty years if identified parts are replaced or if the components are replaced in total are identified. This provides plant maintenance/performance department notification, of both the maintenance required and the date by which the action must be completed to ensure the components operability requirements over the plants forty year life. The notification provides for adequate lead time needed to procure replacement parts/components, if applicable.

(2) Components in a Mild Environment

Using the MEL for reference, the safety related components located in a mild environment are identified and subdivided into the following categories:

(A) Components whose operability is proven via either Tech Spec requirements (Diesel Generators, SW Pumps, ESFAS, etc.) or via normal plant operation (breakers, relays, valves, pumps, etc.). Maintenance and/or replacement of component parts or total component replacement is based on a combination of manufacturers' recommendations, good engineering judgement and/or actual plant experience with the components.

(B) Components whose operability is verified via scheduled maintenance and surveillance procedures. Frequency of procedure performance and corresponding replacement of identified parts or total component replacement is based on a combination of manufacturers' maintenance recommendations, good engineering judgement and/or actual plant experience on a component by component basis.

Engineering Interface With Plant EQ Program

The following engineering information exchange is provided to the station for the Maintenance and Surveillance Program:

(1) Maintenance/Surveillance documents which summarize the safety related electrical and mechanical components located in a harsh environment with a forty year qualified life.

(2) Documents summarizing the safety related electrical and mechanical components located in a harsh environment which require maintenance, replacement of parts and/or total component replacement to meet the forty year qualified life commitment. The documents delineate maintenance requirements and maintenance/replacement intervals.

(3) For safety related electrical components located in a mild environment, engineering provides, where available, documents delineating maintenance requirement and maintenance/replacement intervals. Where the information is not available, maintenance requirements and maintenance/replacement intervals will be established by review of Technical Specification requirements, vendor documents and industry practice.

Additionally, as HCGS achieves commercial operation and associated work history experience, these time intervals may be updated to reflect actual operating experience. Feedback from the industry via vendor technical bulletins, USNRC IE Bulletins/Notices, NPRDS, INPO reports, etc., will also be used to further refine maintenance/replacement intervals.

X. EQUIPMENT ENVIRONMENTAL SUMMARY SHEETS

The Equipment Environmental Summary Sheets (EESS) provide a tabulated synopsis of the EQ related data on a component-by-component basis. This data is taken from the EQ file which includes the actual EQ test data for each component. A sample EESS and the instructions for completing the EESS are included as an attachment to this section.

The EESS are included in this section for all plant equipment which is currently qualified. These EESS will be supplemented and updated as this report is revised.

An index of these sheets is also provided for ease of reference.

HOPE CREEK GENERATING STATION
EQUIPMENT EVALUATION SUMMARY SHEET (EESS)
PROCEDURE

A sample Equipment Evaluation Summary Sheet with attachments and a description of sequential steps to identify and complete each item, as marked up on the subject sheet, is attached.

1. System of which the equipment is a part (i.e., RCIC, HPCI, etc.). If more than one system is involved, indicate "Various" and demonstrate further details in attached sheets. (Refer to Note #2)

2. Bechtel tag number(s). [include system designation.] For multiple components refer to Note #2.

3. Generic descriptions of equipment (i.e., pressure transmitter, temperature element, etc.). [Use same description that is in Table 3.11-5 data base.]

4. Name of actual equipment manufacturer, (not the principal vendor, i.e., GE, Westinghouse, etc.).

5. Equipment manufacturer model number (preferred) or drawing number of the equipment being used at HCGS. (Not of the equipment being tested, if it is different)

6. For equipment in harsh environment, give a brief description of:

   Safety Function and/or Post Monitoring Function performed by the equipment. If the equipment is not performing any of the above function, but is qualified for harsh environment since it is fed from Class IE Power Supply, state the normal function and also state that the equipment is fed from Class IE Power Supply.

   Categorize the equipment as per Appendix E, NUREG-0588 and incorporate as a "Note". For multiple components refer to Note #2.

7a. Accuracy of the equipment/instrument as specified in the Bechtel Specification. (Not applicable if the equipment is passive).

7b. Accuracy of the equipment/instrument as demonstrated in the report. If 7b is not as accurate as 7a, then a

note should be added directing the reader/reviewer to an explanation if this is acceptable. (Not applicable if equipment is passive.)

8. Location in the plant in which the equipment can be found (insert Building and Elevation and/or Room No.). For multiple components, refer to Note #2.

9. Determine from the related specification if the equipment is subjected to Flooding condition. Identify "Yes" or "No".

10. If seismically tested, identify the test report as a reference document (See SQRT File) and the status of Bechtel seismic evaluation.

11. If maintenance and surveillance is required, state the reference document. (Use vendor Report No. and list page no. of report).

12. The specified length of time, starting with DBE initiation, during which the equipment is required to perform its safety function or not fail detrimentally. (Refer to Note-4)

13. Document the specification for Item 12 and page number(s).

14. The specified time-dependent temperature profile during the period of Item 12, for the time the equipment is required to perform its safety function or not fail detrimentally. If space is not sufficient, include related "DATA" in a "Note". (Refer to Note-4)

15. Document the specification for Item 14 and related page number(s).

16. The specified time-dependent pressure profile during DBE under which the equipment is required to perform its safety function or not fail detrimentally. If space is not sufficient, include related "DATA" in a "Note". (Refer to Note-4)

17. Document the specification for Item 16, and related page number(s).

18. The specified time-dependent profile of relative humidity during DBE in which the equipment is required to perform its safety function or not fail detrimentally. (Refer to Note-4)

19. Document the specification for Item 18, and related page number(s).

20. Incorporate specification requirement if the equipment is below flood/froth level elevation. "None Required" if it is above highest flood/froth level elevation. The entry should be consistent with Item 9 for flood.

21. Document the requirement for Item 20 and related page number(s).

22. Radiation exposure expressed in RAD's. This shall be the total integrated dose (TID), including the periods of normal service and DBE. Gamma,Beta and Neutron sources shall be addressed. Include brief calculation as "Note", if required. (Refer to Note-4)

23. Document the specification for Item 22 and related page number(s).

24. Enter environmental and operating stress [temperature, cycling (e.g. valve actuator), etc.] for 40-year period, excluding DBE; for pipe-mounted equipment, include any specified long term vibration. In addition, hydrodynamic loads of a long duration shall be specified and applied therein.

25. Document the specification for Item 24 and related page number(s).

26. If applicable, state containment spray rate. If not applicable state "N/A".

27. Document the requirement for Item 26 and related page number(s).

28. The length of time, starting with DBE initiation, during which the equipment has been demonstrated to perform its safety function. [Include DBE test duration and equivalent time. Arrhenius Methodology shall be included as applicable].

29. The auditable exhibit* that documents the demonstration for Item 28. Also include calculation sheet reference, if applicable. (Note #1)

30. The time-dependent temperature profile to which the equipment has been exposed and demonstrated to function properly. If space is not sufficient, include "DATA" in a "Note".

31. The auditable exhibit* that documents the demonstration of Item 30. (Note #1)

32. The time-dependent pressure profile to which the equipment has been exposed and demonstrated to function properly. If space is not sufficient, include "DATA" in a "Note".

33. The auditable exhibit* that documents the demonstration of Item 32. (Note #1)

34. The time-dependent profile of relative humidity to which the equipment has been exposed and demonstrated to function properly.

35. The auditable exhibit* that documents the demonstration of Item 34. (Note #1)

36. A statement of capability during and after submersion and/or exposure to flooding/froth.

37. The auditable exhibit* that documents the demonstration of Item 36. (Note #1)

38. The total integrated radiation dose to which the equipment has been exposed and demonstrated to function properly. (Identify type of radiation used).

39. The auditable exhibit* that documents the demonstration of Item 38. (Note #1)

40. Qualified life or calculated life based on aging (Arrhenius Methodology) for conditions in Item 24. For multiple subcomponents refer to attached sheets which include the subject information as shown in Example #2. Also refer to Note #3.

41. Reference the Equipment Qualification Report and the auditable document* that documents the demonstration of Item 40 (especially aging exposure).

42. A statement of capability during and after exposure to spray, if required.

43. The auditable exhibit* that documents the demonstration of Item 42.

44-51. Entries will consist of "TEST," "ANALYSIS" "TEST & ANALYSIS," or "NONE REQUIRED" as applicable.

52. Excess of demonstrated or calculated time of operability over that specified. (Magnitude, duration, etc.)

53. Temperature differential between peak exposure and maximum specified. (Magnitude, duration, etc.)

54. Pressure differential between peak exposure and maximum specified. (Magnitude, duration, etc.)

55. State "Not Required."

56. State "Not Required."

57. Difference between the TID of the radiation exposure and the TID specified.

58. State "Not Required." Include any special requirement in Item 66 and "Remark" column.

59. State "Not Required."

KEYS 60-67

Entries shall state "YES" or "NO,", and, if "YES" provide reference to that part of the report containing discussion of action plan. An open item is any item that is not resolved and has the potential of negatively affecting the qualification of the component.

68. Assign Sheet No. to each EESS as listed below:

Purchase Order No. - Component Code - Sheet No.

69. Sign Off by the Preparer with date. (Refer to Note 5)

70. Sign Off by the Reviewer with date. (Refer to Note 5)

NOTE:

1. *Auditable exhibit shall be the actual vendor or test lab report and number. The Bechtel "Vendor Report No." by which PSE&G identifies documents shall be put in parenthesis after the actual vendor or test lab report. Example: Franklin Test Lab. Report C-19720 (E-170Q-49(1)-5). This report identification may be coded to the "Documentation Reference:" lower left section of the form.

2. Multiple components may be placed on the same EESS sheet if all conditions are exactly the same except for Items 1, 2, 6, and 8. If required for multiple components, information regarding the subject items shall be provided in the table as shown in the attached sheet.

3. For Switchgear, Panel or MCC, the following approach shall be taken to prepare the EESS sheet.

   a) If the equipment is qualified by testing as a whole with all the components mounted on it, and qualified life of components are analyzed separately, prepare one EESS sheet for the whole equipment and separate EQMSIS sheets for components. Describe any limitation in Remarks column or include in Note if sufficient space is not available.
   b) If the different components of the equipment are qualified by testing or analysis and the equipment is not qualified by testing as a whole.

      Prepare EESS sheet for common information and list the balance of information on separate attached sheets.

4. Review latest revisions of Dits 7.5 and respective specification. Address most conservative value. In case the component is not qualified by Dits value, address specified value, and mention the Dits value in "Remarks". Indicate "Open Item".

5. Either Preparer or Reviewer shall be the PSE&G Environmental Qualification Engineer.

EQUIPMENT EVALUATION SUMMARY SHEET

HOPE CREEK GENERATING STATION

SHT. NO: 68
REV. NO: ____
DATE: ____

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT		DOCUMENTATION REFERENCE		QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
		SPECIFIED	QUALIFIED	SPECIFIED	QUALIFIED				
(1) SYSTEM	OPERATING TIME	12	28	13	29	44	60	52	
(2) TAG NO.	TEMP. (°F)	14	30	15	31	45	61	53	
(3) COMPONENT	PRESSURE (PSIA)	16	32	17	33	46	62	54	
(4) MANUFACTURER	RELATIVE HUMIDITY (%)	18	34	19	35	47	63	55	
(5) MODEL NO.	FLOODING/ SPOTH	20	36	21	37	48	64	56	
(6) FUNCTION	RADIATION (RADS)	22	38	23	39	49	65	57	
(7) ACCURACY a) SPECIFIED ____ b) ACTUAL ____	AGING	24	40	25	41	50	66	58	
(8) LOCATION	SPRAY	26	42	27	43	51	67	59	

(9) ABOVE FLOOD LEVEL YES ___ NO ___

(10) SEISMICALLY TESTED YES ___ REF. ___ NO ___

(11) SURVEILLANCE REQD. YES ___ REF. ___ NO ___

DOCUMENTATION REFERENCE:

NOTES

Prepared by 69 Date 69

Reviewed by 70 Date 70

ATTACHMENT TO ELSS NO. _____

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS

EQUIPMENT EVALUATION

SUMMARY SHEETS

(EESS)

HOPE CREEK GENERATING STATION
EESS INDEX
(Note: *Sheets not completed)

REF. NO.	EESS NO.	DESCRIPTION	NO. OF COM-PONENTS	STATUS
1	E112-MOT-001	Westinghouse SACS Pump Motor	4	Complete
2	E118-MCC-001	Eaton/Cutler Hammer 480 Vac MCC	4	Complete
2A	E118-MCC-002	Okonite Wire	G(4)	Complete
3	E121-SWGR-001	General Electric DC MCC	2	Complete
4	E129-CABL-001	Okonite 5KV Power Cable	5	Complete
5	E135-PEN-001	Westinghouse Low Voltage Power and Control Electrical Penetration	34	Complete
6	E135-PEN-002	Westinghouse Medium Voltage Electrical Penetration	6	Complete
6A	E135-ST-003	Raychem Shrink Tubing	G(6)	Complete
[illegible]	E135-CABL-004	Anaconda 600v Cable	G	Complete
6C	E135-CONN-005	Westinghouse Co-axial Connection	G	Complete
7	E157-CABL-001	Okonite 600V C[illegible]per Control Cable	7	Complete
8	E158-CABL-001	Okonite 600V Copper Power Cable	27	Complete
9	E170-CABL-001	Brand-Rex Co-Axial, Twin Axial, Tri-Axial Cables	7	Compl
10	E170A-CABL-001	Rockbestos Co-Axial and Twin Axial Cable	4	Complete
11	E170A-CABL-002	Rockbestos Type SIS Switchboard Wire	4	Complete
12	E170A-CABL-003	Rockbestos Multiconductor Cable	2	Complete
12A	E170A-CABL-004	Rockbestos Single Conductor Wire	1	Complete
13	E171-CABL-001	Eaton 600V Shielded Instrument Cable	43	Complete
14	F35373-WIRE TER-001	Thomas and Betts Wire Terminal	31	Complete
15	F35373-TWRAP-002	Thomas and Betts Tie Wraps	4	Complete

HOPE CREEK GENERATING STATION
EESS INDEX
(Note: *Sheets not completed)

REF. NO.	EESS NO.	DESCRIPTION	NO. OF COM-PONENTS	STATUS
16	F37917-TFB-001	Buchannan Terminal and Fuse Block	17	Complete
17	F43511-COND-001	Annaconda Flexible Conduit (NWC)	12	Complete
18	F43511-COND-002	Annaconda Flexible Conduit (NPW)	3	Complete
19	F43620-HVT-001	RayChem High Voltage Terminal Kit	1	Complete
20	F47888-MCON-001	RayChem N-MCK Motor Connection Kit	1	Complete
21	F48479-SEAL-001	RayChem Cable End Sealing Kit	2	Complete
22	F48561-TINS-001	RayChem Thermofit Insulation	1	Complete
23	F48561-SPL-002	RayChem WCSF-N Splice	1	Complete
24	F51216-SEAL-001	Conax Electrical Conductor Seal Assembly	1	Complete
	F59119	PG Gland Fitting		*
25	J201-HS-001	Micro Switch Selector Switch	14	Complete
26	J201-AMP-002	AMP Wire WG	G	
27	J201-TFB-003	Buchannan Terminal and Fuse Block	4	Complete
28	J301-T-001	Tobar Instrument Transmitter	18	Complete
29	J301-T-002	Tobar Instrument Transmitter	55	Complete
30	J359-VAR-001	Comsip Hydrogen & Oxygen Analyzer	50	Complete
31	J359-VAR-002	H_2/O_2 Heat Tracing Panel	12	*
32	RESERVED			
33	RESERVED			
34	RESERVED			
35	J373	Radiation Monitoring System		*
36	RESERVED			

HOPE CREEK GENERATING STATION
EESS INDEX
(Note: *Sheets not completed)

REF. NO.	EESS NO.	DESCRIPTION	NO. OF COM-PONENTS	STATUS
37	RESERVED			
38	RESERVED			
39	RESERVED			
40	RESERVED			
41	RESERVED			
42	J483-LS-001	FCI Liquid Level Sensor	39	Complete
43	J556-TE-001	Weed Thermocouple	32	Complete
44	J601-SV-001	ASCO Solenoid Valve	5	Complete
45	J601-ZS-002	NAMCO Limit Switch	4	Complete
	J603-SV-001 (+ZS)	Valcor Solenoid Valve	47	Complete
47	J603-SV-002	Valcor Solenoid Valve	3	Complete
48	J605-SV-001	ASCO Solenoid Valve	2	Complete
48A	J605-ZS-002	NAMCO Limit Switch	2	Complete
49	J605-HV-003 (+ZS)	Rotork Valve Actuator	4	Complete
50	J800-XT-001	NDT Pre-amplifier	14	Complete
51	J800-XE-002	NDT Accelerometer	14	Complete
52	M047A-MOT-001	Reliance 460V Motor	2	Complete
53	M047A-SEAL-002	Conax Seal Assembly	G	*
54	M047A-PNL-003	Power Panel	2	*
55	M047A-HR-004	Hydrogen Recombiner	2	*
56	M047A-HTR-005	Heater	2	*
57	M047A-FT-006	Flow Transmitter	4	*

HOPE CREEK GENERATING STATION
EESS INDEX
(Note: *Sheets not completed)

REF. NO.	EESS NO.	DESCRIPTION	NO. OF COM-PONENTS	STATUS
58	M047A-TE-007	Temperature Element	18	*
59	M047A-HV-008	Control Valve	12	*
60	M047A-FT-009	Pressure Transmitter	2	*
61	RESERVED			
62	RESERVED			
63	RESERVED			
64	RESERVED			
65	RESERVED			
66	RESERVED			
[illegible]	RESERVED			
68	RESERVED			
69	RESERVED			
70	RESERVED			
71	M048-ME-009	Moisture Element	2	*
72	M048-MOT-001	Westinghouse	2	Complete
73	M048-COMP-002	CVI Gas Compressor and Control	6	Complete
74	M048-PS-003	ASCO Pressure Switch	14	Complete
75	M048-TS-004	ASCO Temperature Switch	12	Complete
76	M048-SV-005	Valcor Solenoid Valve	4	Complete
77	M048-CABL-006	Annaconda Panel Wire	G	Complete
78	M048-TFB-007	Buchannan Terminal and Fuse Block	G	Complete
79	M048-REL-008	Amerace (Agastat) ETR Time Delay Relay	2	Complete

HOPE CREEK GENERATING STATION
EESS INDEX
(Note: *Sheets not completed)

REF. NO.	EESS NO.	DESCRIPTION	NO. OF COM-PONENTS	STATUS
80	M082-MOT-001	Westinghouse Motor	6	Complete
81	M711-MOT-001	Reliance Motor	24	Complete
82	RESERVED			
83	M713-MOT-001	Westinghouse Motor	8	Complete
84	M713-ACT-002	ITT Electro-Hydraulic Actuator	8	Complete
85	M717-ACT-001	ASCO Electromagnetic Actuator	52	Complete
86	M717-ZS-002	NAMCO Limit Switch	56	Complete
87	M717-ACT-003	ITT Electro-Hydraulic Actuators	20	Complete
88	M728-SV-001	ASCO Solenoid Valve	5	Complete
89	M728-ZS-002	NAMCO Limit Switch	5	Complete
90	M780-SV-001	ASCO Solenoid Valve	4	Complete
90A	M780-AMP-002	AMP Wire Lug	6	Complete
91	M780-TFB-003	Buchannan Terminal and Fuse Block	4	Complete
92	M780-PSL-004	DWYER Differential Pressure Switch	88	Complete
93	M780-TE-005	Weed RTD (Temperature Element)	60	Complete
94	M780-TS-006	PENN Temperature Switch	4	Complete
95	M780-TS-007	United Electric Temperature Controller	20	Complete
96	M780-HS-008	Micro Switch Selector Switch	47	Complete
97	M780-TRNS-009	Hevi-Duty Transformer	4	Complete
98	M780-REL-010	Struthers Dunn Relay	4	*
99	M780-PT-011	Tavis Differential Pressure Transmitter	20	*
100	M786-PNL-001	Air Filter System (Rem Con Pnl-Nutherm)	16	Complete

HOPE CREEK GENERATING STATION
EESS INDEX
(Note: *Sheets not completed)

REF. NO.	EESS NO.	DESCRIPTION	NO. OF COM-PONENTS	STATUS
101	M786-HTR-002	Air Filter System (Nutherm Htr.)	8	Complete
102	M001-XV-001	Conax SLC Explosive Valve - S11	2	Complete
103	M001-RE-002	General Electric Intermediate Range Monitor (IRM) Detector - C24	8	Complete
104	M001-MOT-003	G.E. SLC Motor - S10	2	Complete
105	M001-TE-004	PYCO Temperature Element - C03	91	Complete
106	M001-PT-005	Rosemount Pressure Transmitters - C13	12	Complete
107	M001-RE-006	G.E. Power Range Detectors (PRD's) - C50	43	Complete
108	M001-SV-007	Valcor Solenoid Valve, ATWS-A-1	2	Complete
109	M001-SV-008	Valcor Solenoid Valve, ATWS-A-1	8	Complete
110	M001-PT-009	Rosemount Pressure Transmitters, ATWS-C	4	Complete
111	M001-LS-010	Magnetrol Indicating Switch, ATWS-A-2	2	Complete
112	M001-LT-011	Gould Differential Pressure Transmitters ATWS-A-2	4	Complete
113	M001-LT-012	Gould Differential Pressure Transmitters ATWS-B	4	Complete
114	M001-LT-013	Rosemount Differential Pressure Transmitters ATWS-C	4	Complete
115	M001-PT-014	Rosemount Pressure Transmitter, ATWS-B	2	Complete
116	M001-MTR-015	G.E. ECCS Pump Motor - S01	8	Complete
117	M001-SV-016	Valcor Solenoid Valve (SDV) - S16A	2	Complete
118	M001-SV-017	Valcor Solenoid Valve - S16B	2	Complete
119	M001-ZS-018	NAMCO Limit Switch - C26	8	Complete
120	M001-LT-019	Gould Level Transmitter - C02	2	Complete

HOPE CREEK GENERATING STATION
EESS INDEX
(Note: *Sheets not completed)

REF. NO.	EESS NO.	DESCRIPTION	NO. OF COM-PONENTS	STATUS
121	M001-RE-020	Insulated Detector - C05	4	Complete
122	M001-SV-021	Scram Solenoid Pilot Valve - S12	1(185)	Complete
123	M001-HPCI-022	HPCI Turbine Assembly	17	Complete
124	P301-SV-001	ASCO Solenoid Valve	31	Complete
125	P301-ZS-002	NAMCO Limit Switch	31	Complete
126	P301-HV-004 (+ZS)	Limitorque D.C. Valve Actuator	12	Complete
127	P301-HV-005 (+ZS)	Limitorque A.C. Motor Operator	178	Complete
128	P301-SEAL-003	Conax Conductor Seal	G(3)	Complete
129	RESERVED			
	RESERVED			
131	P302-HV-002 (+ZS)	Rotork Valve Actuator	2	Complete
132	P302-HV-003 (+ZS)	Limitorque A.C. Motor Operator	68	Complete
133	P302-HV-004 (+ZS)	Limitorque D.C. Valve Actuator	22	Complete
134	P302-ZS-005	NAMCO Limit Switch	11	Complete
135	RESERVED			
136	RESERVED			
137	P303A-HV-001 (+ZS)	Rotork Valve Actuator	8	Complete
138	P303A-HV-002 (+ZS)	Limitorque D.C. Valve Actuator	6	Complete
139	P303A-HV-003 (+ZS)	Limitorque A.C. Motor Operator	154	Complete
140	P303A-SV-004	ASCO Solenoid Valve	28	Complete
141	P303A-ZS-005	NAMCO Limit Switch	28	Complete
142	RESERVED			

HOPE CREEK GENERATING STATION
EESS INDEX
(Note: *Sheets not completed)

REF. NO.	EESS NO.	DESCRIPTION	NO. OF COM-PONENTS	STATUS
143	P305-SEAL-001	Conax Conductor Seal	G(8)	Complete
144	P305-HV-002 (+ZS)	Limitorque A.C. Motor Operator	74	Complete
145	P305-SV-003	ASCO Solenoid Valves	13	Complete
146	P305-ZS-005	NAMCO Limit Switch	17	Complete
147	P305-HV-004 (+ZS)	BIF/Paul Monroe Hydraulic Actuator Assembly	8	Complete
148	RESERVED			
149	RESERVED			
150	M001-LS-023	Magnetrol Level Switches - C11	2	Complete
151	M001-LS-024	Magnetrol Level Switches - C11	6	Complete
	M001-SW-025	G.E. Selector Switch, CR2940 - C12	2	*
153	M001-CONN-026	PRM Connectors - C23A/24A	1	Complete
153A	M001-CONN-026	IRM Connectors - C23A/24A	1	Complete
154	M001-EAM-027	G.E. Voltage Pre-amplifier - C25	8	Complete
155	M001-XMIT-028	Rosemount Pressure Transmitter 1153B-C59	142	Complete
155A	M001-XMIT-028	Balance of Plant - C59A	20	*
156	RESERVED			
157	M001-ST-030	Terry RCIC Steam Turbine Assembly-S08/S09	14	*
158	M001-LS-031	NAMCO MSIV Limit Switch - S05B	8	Complete
159	M001-SRV-032	Safety Relief Valve - S20	19	*
160	M001-HV-033	MSIV Actuator - S21	24	*
161	M001-PS-034	Barksdale Pressure Switch - C09	4	*

HOPE CREEK GENERATING STATION
EESS INDEX
(Note: *Sheets not completed)

REF. NO.	EESS NO.	DESCRIPTION	NO. OF COM-PONENTS	STATUS
162	M001-RE-035	SRM Detectors - C41	4	*
163	RESERVED			
164	RESERVED			
165	M780-HT-012	Nutherm Humidity Transmitter	16	Complete
166	M780-REL-013	Agastat Relay	4	*

Prepared by [illegible] / I. Nag Date [illegible]

Reviewed by C.W. [illegible] Date 10/18/85

001

SHT. NO: E112A-MOT-001
REV. NO: 1
DATE: 7/18/85

EQUIPMENT EVALUATION SUMMARY SHEET
SACS PUMP MOTOR

HOPE CREEK GENERATING STATION

(1) SYSTEM SACS

(2) TAG NO.
SEE ATTACHED SHEET

(3) COMPONENT
SACS PUMP MOTOR

(4) MANUFACTURER
WESTINGHOUSE

(5) MODEL NO.
WESTINGHOUSE
S.O. 77F14954

(6) FUNCTION
SEE ATTACHED SHEET

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
SEE ATTACHED SHEET

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. F
NO ___ (Pg.8)

(11) SURVEILLANCE REQD.
YES X REF. D
NO ___

M-11-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	>110 days	Ref.B Pg.7	Ref.F, Pg.7 and Fig.34	Test and Analysis	None	>10%	Arrhenius calculation used to extend thermal aging data (Ref.F, Fig.34)
TEMP. (°F)	148°F	>148°F	"	"	Test and Analysis	None	>>15°F	
PRESSURE (PSIA)	Atmos.	Atmos.	"	Ref.E Pg.11	Test	None	Adequate	Excess temp. and time margins justify adequacy
RELATIVE HUMIDITY (%)	100%	100%	"	Ref.F Pg.9 and Fig.12	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	1.7E5 RG	5E7 RG	Ref.B,Pg.7 Ref.C, Table 6	Ref.F, Pg.8	Test	None	4.98E7 RG	Beta enveloped by qualified gamma dose
AGING	40 yrs @ 94°F	40 yrs @ 94°F (Cont.)	Ref.A, Pg.5 Ref.C Table #6	Ref.H	Test and Analysis	None	Not req'd	Note #2
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Tech. Spec. 10855-E-112(Q), Rev.6, Dtd. 11/79

B. Material Requisition, 10855-E-112(Q), Rev.4, Dtd.9/78

C. Environmental Design Criteria, 10855-D7.5, Rev.2,Dtd.10/84

D. Westinghouse Qualif. Report for HCGS Dtd.5/29/85, Rev.D including C of C.(10855-E112A(Q)-18-1)

E. Westinghouse docu. EQDP-AE-2, Rev.5,Dtd.3/83 (10855-E112A(Q)-18-1)

F. Westinghouse Qualif. Report WCAP-8687,Supp.2-A02A Rev.2, Dtd.3/83 (10855-E112A(Q)-18-1)

G. Westinghouse Methodology WCAP-8587 Rev.6A(NP) Dtd.3/83 (10855-E112A(Q)-18-1)

H. Westinghouse letter of 8/12/85

NOTES

1. Qualification based on "similarity" of the tested motor stator to the HCGS motor with qualification based on a combination of test and analysis.
2. The four (4) SACS pumps are operated in pairs (2) on a shared time basis.

001

ATTACHMENT TO EESS NO. E112A-MOT-001

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1AP210	RB 102' Rm#4309	Motor drives SACS pump	2a	M-11-1, M/R Item #1
1BP210	RB 102' Rm#4307	"	"	"
1CP210	RB 102' Rm#4309	"	"	"
1DP210	RB 102' Rm#4307	"	"	"

Prepared by I. Narang / L. Nag Date 10/10/85

Reviewed by [illegible] Date 10/18/85

002

EQUIPMENT EVALUATION SUMMARY SHEET
480VAC MCC

HOPE CREEK GENERATING STATION

SHT. NO: E118-MCC-001
REV. NO: 3
DATE: 7/31/85

(1) SYSTEM (PG)
480V (1E) SUBSTATION PWR

(2) TAG NO.
SEE SHEET ATTACHED

COMPONENT
AC MCC - 480 V

(4) MANUFACTURER
EATON/CUTLER HAMMER

(5) MODEL NO.
F245

(6) FUNCTION
SEE SHEET ATTACHED

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
SEE SHEET ATTACHED

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. F
NO ___

(11) SURVEILLANCE REQD.
YES X REF. D
NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	100 days	Ref.A Appendix A	Ref.C ¶6.2 Ref.B ¶ .4.0	Analysis and Test	None	Adequate	See Note #2. Adequate margin provided in temp. & pres.
TEMP. (°F)	128°F Note #3	148°F	Ref.E Pg.43,44	↓	↓	None	20°F	
PRESSURE (PSIG)	0.25 in.wg.	3 in.wg.	Ref.A Appendix A	Ref.B ¶3&4 & Fig.1	Test	None	2.75 in.wg.	
RELATIVE HUMIDITY (%)	100%-1hr 95%-100days	100%- 1hr 95%-3½ hrs	↓	↓	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	1.7E5R G	3E5R G	Ref.A Appendix A Note #1	Ref.C ¶8.1 and App. 3,Note #1	Test and Analysis	None	1.3E5R G	Lowest radiation threshold of 3E5R G used is for celluluse-Filled Phenolic.
AGING	40 yrs @ 94°F	40 yrs @91°F	Ref.E Pg.44	Ref.C ¶6.2 Ref.D	Analysis and Test	None	Not req'd	Periodic main. and individual componant replacemts req'd. per Ref.D Sch. based on % operating time.
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-E118(Q), Rev.6 (4/83)

B. Patel Qualification Report PEI-TR-833506-2 (9/84)-DBE Test. (10855-E118(Q)-207-2)

C. Patel Technical Report PEI-TR-82-11-1, Rev.C (8/84)-Aging. (10855-E118(Q)-136-4)

D. Cutler-Hammer Maintenance Schedule A50/11115

E. DITS 10855-D7.5, Rev.2 (10/84)

F. Patel Report PEI-TR-833502-1 Vol.I & II, Rev.D (6/84) [10855-E118(Q)-185(1)-4 and -185(2)-1]

NOTES

1. Refer to Beta Radiation Qualification Document CCN#0272598, dt.10/16/84.
2. Thermal/Radiation Analyses, of Ref.C (using aging, test data) encompases both normal 40 year life and the post-DBE operating periods. Operability under DBE conditions is demonstrated by the Ref.B 2-hr. test.
3. Worst Temperature during DBE (Rm#4201 and 4310) considered.
4. Humidity considered relatively insignificant since the enclosure internal air temp. exceed the surrounding ambient air temp. This will occur when equip. is energized or de-energized and space heaters are operating. A definite trend verifying R.H. reduction inside.

002

ATTACHMENT TO EESS NO. E118-MCC-001

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
10-B-212	RB.102' Rm.#4309	MCC Distributes Power to Safety-Related Loads	2a	M/R Item #1
10-B-222	RB.102' Rm.#4303	"	2a	M/R Item #2
10-B-232	RB.102' Rm.#4310	"	2a	M/R Item #3
10-B-242	RB. 77' Rm.#4201	"	2a	M/R Item #4

Note#
The M.C.C. wire is covered under EESS No. E118-MCC-002

Prepared by I. Nag / T Narang Date 6/29/85

Reviewed by J. Wojblowski Date 7/2/85

002A

SHT. NO: E118-MCC-002
REV. NO: 2
DATE: 6/12/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
OKONITE WIRE

(1) SYSTEM (PG)
480V (1E) SUBSTATION PWR
(2) TAG NO.
N/A
(3) COMPONENT
NOTE #5
(4) MANUFACTURER
OKONITE
(5) MODEL NO. TYPE
OKONITE-OKOLON (EPR)
(6) FUNCTION
NOTE #4
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION
NOTE #6
(9) ABOVE FLOOD LEVEL
YES X NO ___
(10) SEISMICALLY TESTED
YES ___ REF. ___
NO X N/A
(11) SURVEILLANCE REQD.
YES ___ REF. 8
NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	130 day	Ref.A Appendix A	Ref.B/App.C Pgs.3 & 4	Test	None	30 days	
TEMP. (°F)	128°F Note #3	265°F-4days 212°F-126days	Ref.E Pg.43,44		Test	None	84°F	
PRESSURE (PSIG)	0.25 in.wg	24psig-4days 0psig-126days	Ref.A Appendix A		Test	None	24 psig-4 days	See Note #2
RELATIVE HUMIDITY (%)	100%-1 hr 95%-100days	100% (Sat.Steam)			Test	None	Not req'd	
FLOODING/ FROTH	N/A	Water immersion	N/A	Ref.B/App.C Appendix 7	Test	None	Not req'd	
RADIATION (RADS)	1.7E5R G	2E8R G	Ref.A Appendix A Note #1	Ref.B/App.C Appendix 3 Note #1	Test	None	1.91E8R G	Qualified Radiation Dose encompasses specified G&B doses.
AGING	40 yrs @ 104°F Max	40 yrs @ 194°F	Ref.A Appendix A	Ref.B/App.C Appendix 2 Pgs. 7 & 8	Test and Analysis	None	Not req'd	Periodic maintenance not required
SPRAY	N/A	Boric Acid and Water Spray	N/A	Ref.B/App.C Appendix 4	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-E118(Q), Rev.6 (4/83)

B. Westinghouse Qualification Report BQR104 and Okonite Okolon wire, Rev.2 (6/84) including Addendum #1 (10855-E118(Q)-179-5)

NOTES

1. Refer to Beta Radiation Qualification Document CCN#0272598 dt.10/1
2. Extended DBE profile at Elevated pressures provided acceptable margin. See Ref.B/App.C, Appendix 4
3. Worst temperature during DBE considered. (Rm#4201 & 4310)
4. Supplies power to safety related equipment within MCC's. NUREG-0588, Category 2a.
5. Wire used in MCC's: 10B212,10B222,10B232,10B242
6. Rm#4309,4303,4310,4201.

..epared by T. Nazemi / I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/18/85

003

EQUIPMENT EVALUATION SUMMARY SHEET

HOPE CREEK GENERATING STATION

G.E. D.C. MOTOR CONTROL CENTER

SHT. NO: E121-SWGR-001
REV. NO: 4
DATE: 7/31/85

(1) SYSTEM 250 VOLT DC

(2) TAG NO. 10D251, 10D261

(3) COMPONENT DC MTR CONTROL CENTER

(4) MANUFACTURER GENERAL ELECTRIC

(5) MODEL NO. 1C7700

(6) FUNCTION PROVIDE DC PWR TO SAFETY RELATED LOADS (NOTE 1)

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION REACTOR Note #3

(9) ABOVE FLOOD LEVEL YES X NO ___

(10) SEISMICALLY TESTED YES X REF. D NO ___

(11) SURVEILLANCE REQD. YES X REF. C NO ___ Sect. 7.16 & REF.D, ¶7.0

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	6 hr	96 hr	Ref.A Appendix A Pg.A-1	Ref.D ¶4.1.6 Pg.27	Type Test	None	90 hr	
TEMP. (°F)	148°F	163°F	Ref.A App.A Pg.A-1	Ref.D ¶4.1.6 Pg.27	Type Test	None	15°F	
PRESSURE (PSIG)	0 (Peak)	0	Ref. F Pg. 42	Ref.D ¶4.1.6 Pg.27	Type Test	None	0	
RELATIVE HUMIDITY (%)	100%	100%	Ref.A Appendix A Pg.A-1	REf.D ¶4.1.6 Pg.27	Type Test	None	not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	1.7×10^5 RG Note 3	1×10^6 RG Note 3	Ref.A Appendix A Pg.A-1	Ref.D ¶4.1.3 Pg.23	Type Test	None	9.7×10^1 RADS G	
AGING	40 yrs @72°F	40 yrs @ 104°F	Ref.B ¶5.4-Pg.9 Ref.F Pg.42	Ref.D ¶4.09 & ¶5.3-Pg.30 ¶4.09 Pg.16	Type Test	None	Not Req'd	Note 2
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not Req'd	

DOCUMENTATION REFERENCE:

A. Tech. Spec. 10855-E-121(Q), Rev.7

B. Tech. Spec. 10855-G-013, Rev.2

C. GE Document 221135928 (non metalic mat'l 1C7700(E121Q-85(3)-1)

D. GE Report 83GPC001 (E121Q-85(1)-1)

E. Bechtel Beta Qualification Report CCN #026094, dated 3/16/84

F. DITS 10855-D7.5, Rev. 2

NOTES

1. These items are classified as NUREG 0588 Category 2a
2. Although the MCC has been thermally aged as an assembly, several components have been aged separately as shown in Para. 7.0 of Reference D.
3. 10D251 - Rm #4112, 10D261 - #4108

Prepared by [illegible] Date 6/29/85

Reviewed by [illegible] Date 7/2/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
OKONITE 5 KV POWER CABLE

004

SHT. NO: E129-CABL-001
REV. NO: 2
DATE: 6/11/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM VARIOUS	OPERATING TIME	100 days	127 days	Ref.A, App.A, Pg.A-1	Ref.B, App.4 Pg.1	Test	None	27 days	
(2) TAG NO. NOTE #7	TEMP. (°F)	See Note #1	See Note #3		Ref.B, App.4 Pg.2&Test Pr	Test	None	See Notes 1 & 3	Second DBE transient provides acceptable margin
(3) COMPONENT 5 KV POWER CABLE	PRESSURE (PSIA)	See Note #2	See Note #4		Ref.B,App.4 Pg.3 & Test Profile	Test and Analysis	None	See Notes 2 & 4	Justification for lack of 10 psig from day 4 thru 100 is provided in Ref.B,App.4, Pg.1&2
(4) MANUFACTURER OKONITE	RELATIVE HUMIDITY (%)	100%	100%		Ref.B,App.7 Pg.1	Test	None	Not req'd	
(5) MODEL NO. NOTE #8	FLOODING/ FROTH	Yes	Yes	Ref.A, Pg.5	Ref.B, App.7	Test	None	Not req'd	
(6) FUNCTION NOTE #6	RADIATION (RADS)	1.3×10^8R Note #5	2.0×10^8R	Ref.A, App.A Pg. A-2	Ref.B,App.4 Pg.3	Test	None	0.7×10^8R	
(7) ACCURACY a) SPECIFIED N/A b) ACTUAL	AGING	40 yrs @66°C	40 yrs @90°C	Ref.A, App.A Pg.A-1	Ref.B,App.2 & App.9	Test and Analysis	None	Not req'd	
(8) LOCATION VARIOUS	SPRAY	N/A	Yes	N/A	Ref.B, App.4 Pg.3	Test	None	Not req'd	

(9) ABOVE FLOOD LEVEL YES ___ NO X

(10) SEISMICALLY TESTED YES ___ REF. ___ NO N/A

(11) SURVEILLANCE REQD. YES ___ REF. ___ NO X

DOCUMENTATION REFERENCE:

A. Tech. Spec. E129(Q), Rev.5

B. Okonite Report No. HC-0579-3A, Rev.1 (E129(Q)5-4)

NOTES

1. 0-3hrs - 340°F
   3-6hrs - 320°F
   6-24hrs - 250°F
   24hrs-100 days-200°F

2. 0-20sec - 0-62psig
   20s-5min - 62psig
   5m-6hr - 40psig
   6hr-4da - 25psig
   4da-100da - 10psig

3. 0-6hrs - 346°F
   6-9hrs - 335°F
   9-13hrs- 315°F
   13-94hrs- 265°F
   127days - 212°F

4. 0-6hrs - 113psig
   6-9hrs - 95psig
   9-13hrs- 69psig
   13-94hrs- 28psig

5. Beta Radiation Included. For further info refer to CCN #0254444 dt. 11/22/84.

6. Supplies power to safety related equipment. Category 2a.

7. Tag Nos. A00,A04,A35, A50,A75

8. Type OKOGUARD-OKOLON, Similar to MV-90-CT.

Prepared by T. Narayan I. Nag Date 10/9/85

Reviewed by C.D. [illegible] Date 10/18/85

005

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
WESTINGHOUSE LOW VOLTAGE POWER AND CONTROL ELEC. PENETRATION

SHT. NO: E-135-PEN-001
REV. NO: 2
DATE: 10/9/85

(1) SYSTEM CONTAINMENT ARMOS CONTROL
(2) TAG NO. NOTE #6
COMPONENT LOW VOLT. PWR & CONTROL ELEC PENET
(4) MANUFACTURER WESTINGHOUSE
(5) MODEL NO.
(6) FUNCTION NOTE #5
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION See Attached Sheet
(9) ABOVE FLOOD LEVEL YES ___ NO X
(10) SEISMICALLY TESTED YES X REF. B NO ___
(11) SURVEILLANCE REQD. YES ___ REF. B NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	237.7 days	A Pg.A-2	B, Pgs.174-176 & 186	Test	None	137.7	
TEMP. (°F)	See Note #1	340 (Max) See Note #2	"	B, Pg.54	"	None	Adequate for margin. See Pgs.174 & 177 thru 181 of Ref. B.	
PRESSURE (PSIG)	"	>100 (Max) See Note #3	"	B, Pg.55	"	None	>38	
RELATIVE HUMIDITY (%)	"	Steam	"	B, Pg.31 ¶4.4.8.1	"	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	Note #7
RADIATION (RADS)	1.3×10^8 R G TID Note #4	2.2×10^8 R G	A, Pg.A-8 ¶5.0	B, Pg.203 Ref.C	Test	None	0.9×10^8 R G	
AGING	40 yrs @ 150°F	40 yrs @ 158°F	A, Pg.A-1 ¶1.1.1	B, Pg.30 ¶4.4.4.5	Test and Analysis	None	Not req'd	
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	Note #7

DOCUMENTATION REFERENCE:
A. Tech Spec. 10855E135(Q), Rev.5
B. 10855-E135(Q) 4-6 PEN-TR-79-07A, REv.2
C. Beta Radiation Qualification Report CCN #0269335 dt. 8/10/84
D. WECO Letter dated 9/19/85

NOTES

	°F	PSIG	%RH
1. 0-20s	340	0-62	100
20s-5min	340	62	100
5min-3hr	340	40	100
3hr-6hr	320	40	100
6hr-24hr	250	25	100
1da-4days	200	25	100
4da-100da	200	10	100

2. For Temp. Profile see Ref.B, Pg.54
3. For Pressure Profile See Ref.B, Pg.55
4. B Radiation Included.
5. Provides seals for cables penetrating containment structure, Category 2b.

005

ATTACHMENT TO ESSS NO. E-135-PEN-001

6. Tag Nos.: 1AW200, 1BW200, 1CW200, 1DW200.
1AW203, 1BW203, 1AW202, 1BW202, 1CW202
1AW204, 1BW204, 1CW204, 1EW204,
1FW204, 1GW204, 1JW204, 1KW204.

1AW205, 1BW205, 1CW205, 1DW205,
1EW205, 1FW205, 1GW205, 1HW205.

1AW206, 1BW206, 1CW206.
1AW207, 1BW207, 1CW207, 1DW207
1AW208
1AW209.

7. Not required to be operatable during post accident flooding condition. Waterproof enclosure will be sufficient to protect the penetration from water, spray, etc. (BPC ref. document PS-184 dated 1/18/85 and Ref. D)

BECHTEL

CALCULATION SHEET

Attachment to EESS NO. E135-PEN-001.

ORIGINATOR _____ DATE _____ CALC. NO. _____ REV. NO. _____

PROJECT _____ CHECKED _____ DATE _____

SUBJECT _____ JOB NO. _____

SHEET NO. 005

DRYWELL PENETRATIONS

		Rm No.	
1AW	200		4326
1AW	203		4 8
1AW	204		4 18
1EW	204		4 27
1BW	200		4 22
1BW	203		4 30
[illegible]	204		4 18
[illegible]	[illegible]		4 27
[illegible]	[illegible]		4 30
[illegible]	202		26
[illegible]	204		4318
[illegible]	204		4 27
[illegible]	[illegible]		4 8
[illegible]	[illegible]		4 2
[illegible]	[illegible]		4 5
[illegible]	[illegible]		4326
[illegible]	[illegible]		4330
[illegible]	[illegible]		4326
[illegible]	[illegible]		4326
[illegible]	[illegible]		4322
[illegible]	[illegible]		4326
[illegible]	205		4330
[illegible]	205		4322
[illegible]	205		4318
[illegible]	205		4322
[illegible]	206		4326
[illegible]	206		4318
[illegible]	206	V	4330

[illegible] LOCATED ON
[illegible]-1553-1 SH. REV 16

TORUS PENETRATIONS

	Rm No.	REF. DWG.
1AW 207	A102	E-1571-1 SH. 2 REV 24
1AW 208		E-1571-1 SH. 2 REV 22
1AW 209		E 1561-1 SH. 2 REV 14
1BW 207		E-1571-1 SH. 2 REV 25
1CW 207		E-1571-1 SH. 2 REV 26
1DW 207	V	E-1571-1 SH. 2 REV. 14

.epared by T. Narayan / I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/18/85

006

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
WESTINGHOUSE MEDIUM VOLTAGE ELEC. PENETRATION

SHT. NO: E-135-PEN-002
REV. NO: 3
DATE: 7/24/85

(1) SYSTEM RECIRC PUMP

(2) TAG NO. 1AW201 1BW201 1CW201 1DW201 1EW201 1FW201

(3) COMPONENT MED VOLTAGE ELEC. PENETRATION

(4) MANUFACTURER WESTINGHOUSE

(5) MODEL NO. --

(6) FUNCTION SEE NOTE #4

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION DRYWELL WALL EL.114'

(9) ABOVE FLOOD LEVEL YES ___ NO X

(10) SEISMICALLY TESTED YES X REF. B NO ___

(11) SURVEILLANCE REQD. YES ___ REF. B NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	513 days	A, Pg.A-2	B, Pgs.124 & 124A	Test	None	413 days	
TEMP. (°F)	See Note #1	340 (Max) See note #2	"	B, Pg.29	"	"	Adequate	See Pg. 123 & 125 thru 128 of Ref.B for justification
PRESSURE (PSIG)	See Note #1	111 (Max) See note #2	"	B, Pg.29	"	"	49	
RELATIVE HUMIDITY (%)	See Note #1	Saturated Steam	"	B, Pg.124	"	"	Not req'd	
FLOODING/ FROTH	N/A Note #5	N/A	N/A	N/A	N/A	"	Not req'd	Note #6
RADIATION (RADS)	1.3×10^8 R G TID Note #3	2.1×10^8 R G	A,Pg.A-8 ¶5.0	B,Pg.25 Ref.C	Test	"	0.8×10^8 R G	
AGING	40 yrs @ 150°F	40 yrs @ 158°F	A,Pg.A-1 ¶1.1.1	B,Pg.24	Test and Analysis	"	Not req'd	
SPRAY	N/A Note #5	N/A	N/A	N/A	N/A	"	Not req'd	Note #5

DOCUMENTATION REFERENCE:

A. Tech Spec. 10855E135(Q), Rev.5

B. 10855-E135(Q)2-8 PEN-TR-79-05, Rev.9 9/12/84

C. Beta Radiation Qualification Report CCN #0269335 dt. 8/1/84

NOTES

	°F	PSIG	%RH
1. 0-20s	340	0-62	100
20s-5min	340	62	100
5m-3hrs	340	40	100
3hr-6hrs	320	40	100
6hr-24hrs	250	25	100
1da-4days	200	25	100
4da-100days	200	10	100

2. For Profile see Ref.B, Pg.29

3. B Radiation included.

4. Provides seal for cables pentrating containment structure for reactor recirc. pump motors.Cat.2b.

5. Not req'd to be operable during Post Accident Flooding conditions. The electrical penetration still maintains their leak tight integrity. (BFC Ref. Doc.PS-278, dt.1/18/85)

Prepared by I. Nag Date 10/9/85

Reviewed by [illegible] Date 10/18/85

006A

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
RAYCHEM SHRINK TUBING

SHT. NO: E135-ST-003
REV. NO: 3
DATE: 10/9/85

(1) SYSTEM Containment Atmos. Cont.
(2) TAG NO. Note # 5
(3) COMPONENT SHRINK TUBING
(4) MANUFACTURER RAYCHEM
(5) MODEL NO. WCSF-N
(6) FUNCTION See Note #4
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION See Sheet Attached.
(9) ABOVE FLOOD LEVEL YES ___ NO X
(10) SEISMICALLY TESTED YES ___ REF. ___ NO X N/A
(11) SURVEILLANCE REQD. YES ___ REF. ___ NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	110 days	A Pg.A-2	B Pg.4,5 & 6	Test and Analysis	None	10 days	31 day Test extended by Arrhenius Calculation Ref. B, Pg.4,5.
TEMP. (°F)	See Note #1	See Note #2	A Pg.A-2	B Pg.4 & 6	Test	None	15°	
PRESSURE (PSIG)	62 (Peak) See Note #1	120 (Peak) See Note #2	A Pg.A-2	B Pg.4 & 6	Test	None	58	
RELATIVE HUMIDITY (%)	100%	Steam	A Pg.A-2	B Pg.7	Test	None	Not req'd	
FLOODING/ FROTH	N/A	Resistance Test while submerged	A Pg.A-7 ¶2.26 Note #6	B Pg.18 ¶4.3	Test	None	Not req'd	Note #6
RADIATION (RADS)	1.3×10^8 RG Note #3	2.1×10^8 RG.	A Pg.A-8	B Pg.12	Test	None	0.8×10^8 RG	
AGING	40 years @ 150°F	40 years @ 194°F	A Pg. A-1	B Pg.12	Test and Analysis	None	Not req'd	
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	Note #6

DOCUMENTATION REFERENCE:
A. Tech. Spec. 10855-E135(Q) Rev.6 Appendix A
B. Enviro. Qual. Report PEN-TR-81-72, Rev.1 10855 E135(Q)81-2

NOTES

	SPEC. °F	SPEC. PSIG	QUAL. °F	QUAL. PSIG
0-20sec	340	0-62	263	60
20s-5min	340	62	400	60
5m-3hr	340	40	355	60-120
3hr-6hr	320	40	355	120
6hr-1day	250	25	325	70-50
1d-4day	200	25	280	28
4d-100day	200	10	232	28
	NOTE #1		NOTE #2	

NOTE #3 - B Radiation included.

006A

ATTACHMENT TO ESSS NO. E135-ST-003

4. Insulate Connection between cable and penetration. Category 2b.

5. Tag Nos.: 1AW200, 1BW200, 1CW200, 1DW200.
1AW203, 1BW203, 1AW202, 1BW202, 1CW202
1AW204. 1BW204, 1CW204, 1EW204,
1FW204, 1GW204, 1JW204, 1KW204.

1AW205, 1BW205, 1CW205, 1DW205,
1EW205, 1FW205, 1GW205, 1HW205.

1AW206, 1BW206, 1CW206.
1AW207, 1BW207, 1CW207, 1DW207
1AW208
1AW209.

6. Not required to be operatable during post accident flooding condition. Waterproof enclosure will be sufficient to protect the penetration from water, spray, etc. (BPC ref. document PS-184 dated 1/18/85 and Ref. b)

BECHTEL

CALCULATION SHEET

Attachment to EESS NO. E135-ST-003

CALC NO _____ REV. NO. _____

ORIGINATOR _____ DATE _____ CHECKED _____ DATE _____

PROJECT _____ JOB NO _____

SUBJECT _____ SHEET NO. 006A

DRYWELL PENETRATIONS

1AW	200	Rev. No.	4326
1AW	203		4318
1AW	204		4318
1EW	204		4327
1BW	200		4322
[illegible]	[illegible]		4330
[illegible]	[illegible]		4318
[illegible]	[illegible]		4327
[illegible]	[illegible]		4330
[illegible]	[illegible]		4326
1BW	204		4318
[illegible]	[illegible]		4327
[illegible]	[illegible]		4318
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		4326
[illegible]	[illegible]		4330
[illegible]	[illegible]		4326
[illegible]	[illegible]		4326
[illegible]	[illegible]		4322
[illegible]	[illegible]		4326
[illegible]	[illegible]		4330
[illegible]	[illegible]		4322
[illegible]	[illegible]		4318
[illegible]	[illegible]		4322
[illegible]	206		4326
[illegible]	206		4318
[illegible]	206		4330

[illegible] REVISED BY
[illegible] ST3- [illegible] REV 16

TORUS PENETRATIONS

	Rev. No.	REF. DWG.
1AW 207	4102	E1571-1 SH. 2 REV 24
1AW 208	[illegible]	E-1571-1 SH. 2 REV 22
1AW 209		E1561-1 SH. 2 REV 14
1BW 207		[illegible] SH. 2 REV [illegible]
1CW 207		[illegible] SH. 2 REV [illegible]
1DW 207		E-1571-1 SH. 2 REV [illegible]

Prepared by T. Nazemy I. Nag Date 10/10/85

Reviewed by C.M. [illegible] Date 10/18/85

006B

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
ANACONDA 600V CABLE

SHT. NO: E135-CABL-004
REV. NO: 2
DATE: 7/24/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM INSTRUMENTATION & THERMOCOUPLE (2) TAG NO. See Note #1 (3) COMPONENT INST. & T/C WIRE (4) MANUFACTURER ANACONDA ERICSSON (5) MODEL NO. TYPE FR-EP INSULATION (6) FUNCTION NOTE #3 (7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A (8) LOCATION DRYWELL PENETRATIONS (9) ABOVE FLOOD LEVEL YES X NO ___ (10) SEISMICALLY TESTED YES ___ REF. A NO X (11) SURVEILLANCE REQD. YES ___ REF. A NO X	OPERATING TIME	100 days	115 Actual 193@200°F Equiv.	Ref.B Pg.A-2 & A-3	Ref.A Pg. 2 & 9 Pg.20	Test and Analysis	None	93 days	Ref.A W Ltr. 7/12/82
	TEMP. (°F)	340°F-DBE 200°F-Max	385°F-DBE 214°F-85days		Ref.A Pg.20,9	Test	None	45°F	"
	PRESSURE (PSIG)	62psig-peak 2psig Max	66psig-DBE 65 psig-8hr 3psig-85days		Ref.A Pg.20,9 and Fig.4	Test	None None	Adequate	Excess test duration provides margin. Ref.C
	RELATIVE HUMIDITY (%)	100%	100%		Ref.A Pg. 112	Test	None	Not req'd	
	FLOODING/ FROTH	N/A	Water Absorption IEEE-383	Ref.A Pg. 110	Ref.A Pg. 112	Test	None	Not req'd	
	RADIATION (RADS)	1.3×10^8 R G TID Note #2	2×10^8 R G	Ref.B Pg.A-8	Ref.A Pg.66 Ref.D	Test	None	$.7 \times 10^8$ R	Data included in E135(Q)-3(4)-2, Pg.EQ-182
	AGING	40 yrs 150°F	40 yrs @ 165°F	Ref.B Pg.7 and A-1	Ref.A Pg. 1&2	Test and Analysis	None	Not req'd	
	SPRAY	N/A	Chemical Spray PH 10.5	Ref.B for penetra-	Ref.A Pgs.48 & 20	Test	None	N/A	---

DOCUMENTATION REFERENCE:

A. Vendor Report 135(Q)-3(4)-3, Westinghouse Report PEN-TR-81-06 Addendum #2-Anaconda Ericsson Rev.6, 7/8/82 & W ltr. 7/12/82.

B. Bechtel Tech. Spec. 10855-E135(Q), Rev.5, dt. 2/1/83.

C. Westinghouse ltr dtd. 7/12/82.

D. Beta Radiation Qualification Report CCN #0269335 dt. 8/10/84.

NOTES

1. Low voltage (600V) instrumentation and thermocouple cables are installed inside modular electrical penetrations.

2. B Radiation Included.

3. Cable associated with low voltage penetrations. Supplies power to safety related equipment. Category 2a.

Prepared by J. Narang, I. Nag. Date 10/10/85

Reviewed by [illegible] Date 10/18/85

006C

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
WESTINGHOUSE CO-AXIAL CONNECTION

SHT. NO: E135-CONN-005
REV. NO: 2
DATE: 7/25/85

EQUIPMENT DESCRIPTION

(1) SYSTEM VARIOUS

(2) TAG NO. N/A

(3) COMPONENT CO-AXIAL CONN.

(4) MANUFACTURER WESTINGHOUSE

(5) MODEL NO. Note #6

(6) FUNCTION NOTE #5

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION Drywell

(9) ABOVE FLOOD LEVEL YES ___ NO X

(10) SEISMICALLY TESTED YES ___ REF. ___ NO ___ N/A

(11) SURVEILLANCE REQD. YES ___ REF. ___ NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	108.9 days	A, App.A ¶1.1.2	B, Pg.5 ¶4.2 Pg.27	Test and Analysis	None	8.9days	Adequate margin provided in Temp. and Pressure.
TEMP. (°F)	See Note #1	392 (Max) See Note #2	"	B, Pg.4&5 Pg.27	Test	"	Adequate	Minimum >12°F
PRESSURE (PSIA)	"	120 (Max) See Note #2	"	"	"	"	Adequate	Minimum 7 psig
RELATIVE HUMIDITY (%)	"	Steam	"	B, Pg.5 ¶4.2, Pg.27	"	"	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	"	N/A	"	Not req'd	<Function not req'd Post LOCA
RADIATION (RADS)	1.3×10^8R G TID Note #3	2.55×10^8R G Note #4	A, Pg.A-8 ¶5.0	B. Pg.27	"	"	1.25×10^8R	
AGING	40 yrs @ 150°F	40 yrs @150°F	A, Pg.A-1 ¶1.1.1	B, Pg.12 ¶5.1, Pg.20	Test and Analysis	"	Not req'd	
SPRAY	N/A	0.2 gpm 24 hrs	N/A	B, Pg.4 ¶3.5.5	Test	"	Not req'd	

DOCUMENTATION REFERENCE:

A. Spec. 10855-E-135(Q), Rev.5 Appendix A

B. PEN-TR-84-10 1/22/85, Rev.2 (10855-E-135(Q)98-3)

C. Beta Radiation Qualification Report CCN #0269335 dt. 8/10/84

NOTES

	°F	PSIG	%RH
1. 0-20sec	340	0-62	100
20s-5min	340	62	100
5m-3hr	340	40	100
3h-6hrs	320	40	100
6h-24hrs	250	25	100
1da-4days	200	25	100
4da-100days	200	10	100

2. For Profile see Ref.B, Pg. 4&5

3. B Radiation included.

4. For further info regarding B Radiation Qualification see Ref.C.

5. Associated with penetration. Provides connection to safety related equipment. Category 2a.

6.

PLUG	JACK	SERIES
28650-1000	82-502-10001	C
28650-1000	82-502-1001	C
82-320-1007	82-324-1002	HN
82-320-1007	82-324-1002	HN

Prepared by Z. Nasong, I. Nag Date 10/10/85

Reviewed by C.D. Miller Date 10/18/85

007

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
OKONITE 600 VOLT COPPER CONTROL CABLE

SHT. NO: E157-CABL-001
REV. NO: 2
DATE: 7/25/85

EQUIPMENT DESCRIPTION

(1) SYSTEM VARIOUS

(2) TAG NO. Note #7

(3) COMPONENT 600 VOLT COPPER CONTROL CABLE

(4) MANUFACTURER OKONITE

(5) MODEL NO. Note # 8

(6) FUNCTION NOTE #6

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL

(8) LOCATION VARIOUS

(9) ABOVE FLOOD LEVEL
YES ___ NO X

(10) SEISMICALLY TESTED
YES ___ REF. ___
NO X

(11) SURVEILLANCE REQD.
YES ___ REF. ___
NO X

PARAMETERS	ENVIRONMENT		DOCUMENTATION REFERENCE		QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
	SPECIFIED	QUALIFIED	SPECIFIED	QUALIFIED				
OPERATING TIME	100 days	127days	A, App.A Page A-1	B, App.4, Pg.1	Test	None	27 days	
TEMP. (°F)	See Note #1	See Note #3		Pg.2 & Test Prof.	Test	None	Adequate	Second DBE transient provides acceptable margin.
PRESSURE (PSIA)	See Note #2	See Note #4		Pg.3 & Test Prof.	Test and Analysis	None	Adequate	Lack of 10psig test for Day 4 thru Day 100 is justified in App.4 of Ref.B,Pg.1&2
RELATIVE HUMIDITY (%)	100%	100%		B, App.7 Page 1	Test	None	Not req'd	
FLOODING/ FROTH	Yes	Yes	A, Page 5	B, App.7	Test	None	Not req'd	
RADIATION (RADS)	TID 1.3×10^8 RAD Note #5	2.0×10^8 RAD	A, App.A Page A-2	B, App.4 Page 3	Test	None	0.7×10^8 RAD	
AGING	40 yrs @ 66°C	40 yrs @90°C	A, App.A Page A-1	B, App.10 and App.2	Test and Analysis	None	Not req'd	
SPRAY	N/A	Yes	N/A	B, App.4 Page 3	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A - Technical Specification E157(Q) Rev.5

B - Nuclear Environ. Qual. Report HC 0579-1 Rev.3 12/11/81 (E157(Q)7-5)

Also: E157(Q)7(3)-2 Addendum to 7-5

NOTES

#1 0-3 hrs - 340°F
3-6 hrs - 320°F
6-24 hrs - 250°F
24 hrs-100 days - 200°F

#2 0-20 sec - 0-62 psig
205-5 min - 62 psig
5 min-6 hrs - 40 psig
6 hrs-4 days - 25 psig
4 days-100 days-10 psig

#3 0-6 hrs - 346°F
6-9 hrs - 335°F
9-13 hrs - 315°F
13-94 hrs - 265°F
127 days - 212°F

#4 0-6 hrs - 113 psig
6-9 hrs - 95 psig
9-13 hrs - [illegible] psig
13-94 hrs - 28 psig

#7 Tag Nos. C02,C03,C05,C07, C09,C12,C19

#8 Type Okonite, EPR Insulation, Hypalon Jacket

#5 B radiation included. For further information refer to CCN#0254438 dt.11/17/83.

#6 Supplies power to safety related equipment, Category 2a.

Prepared by I. Nagl / T. Narayan Date 6/29/85

Reviewed by J. Wojtolewski Date 7/2/85

008

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
OKONITE 600 VOLT COPPER POWER CABLE

SNT. NO: E158-CABL-001
REV. NO: 1
DATE: 6/13/85

(1) SYSTEM VARIOUS

(2) TAG NO. Note #7

(3) COMPONENT 600 VOLT COPPER POWER CABLE

(4) MANUFACTURER OKONITE

(5) MODEL NO. Note #8

(6) FUNCTION NOTE #6

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL

(8) LOCATION VARIOUS

(9) ABOVE FLOOD LEVEL YES ___ NO X

(10) SEISMICALLY TESTED YES ___ REF. ___ NO X

(11) SURVEILLANCE REQD. YES ___ REF. ___ NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	127 days	A, App A Page A	B, App.#4 Page 1	Test	None	27 days	
TEMP. (°F)	See Note #1	See Note #3		Pg.2 & Test Proof	Test	None	Adequate	Second DBE Transient provides acceptable margin.
PRESSURE (PSIA)	See Note #2	See Note #4		Pg.3 & Test Proof	Test and Analysis	None	Adequate	Justification for lack of 10 psig from Day 4 thru Day 100 is presented in Ref. 8 App.4, Pg.1
RELATIVE HUMIDITY (%)	100%	100%		B. App.7 Pg.1	Test	None	Not req'd	
FLOODING/ FROTH	Yes	Yes	A, Pag	B.App.7	Test	None	Not req'd	
RADIATION (RADS)	TID 1.3x10^8 RAD Note #5	2.0x10^8 RAD	A, App.A Page A-2	B, App.4 Page 3	Test	None	0.7x10^8 R	
AGING	40 yrs 866°C	40 yrs 990°C	A, App.A Page A-1	B, App.#2 & App-10	Test and Analysis	None	Not req'd	
SPRAY	N/A	Yes	N/A	B.App.4 Page 3	Test	None	Not req'd	

DOCUMENTATION REFERENCE:
A - Tech. Spec. E158(Q) REV.6
B - Nuclear Environ. Qual. Report HC-0579 - 2 Rev.3 12/11/81 (E158(Q)-7(1)-3)
E158(Q)7(3)-2, Add.#1
E158(Q)-7(4)-2, Add. #2 > to 7 (1)-3

NOTES

#1 0-3 hr - 340°F
3-6 hr - 320°F
6-24 hrs - 250°F
24 hrs-100 days-200°F

#2 0-20 sec - 0-62 psig
20 sec-5 min - 62 psig
5 min-6 hrs - 40 psig
6 hrs-4 days - 25 psig
4days-100days - 10 psig

#3 6 hrs - 346°F
6-9 hrs - 335°F
9-13 hrs - 315°F
127 days - 212°F

#4 6 hrs - 113 psig
6-9 hrs - 95 psig
9-13 hrs - 69 psig
13-94 hrs - 28 psig

7 Tag Nos. 1YB, 1YS, 102, 106, 110, 118, 120, 135, 140, 150, 202, 209, 302, 304, 306, 308, 309, 312, 320, 340, 402, 404, 409, 412, 420, 510, 712.

8 Type OKONITE, EPR Insul., Hypalon Jacket

#5 B Radiation included. For further information refer to CCN#025443 dt 11/25/8

#6 Supplies power to safety related equipment, Category 2a

rrepared by T. Narang I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/18/85

009

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
BRAND-REX CO-AXIAL, TWINAXIAL, TRI-AXIAL CABLES

SHT. NO: E170-CABL-001
REV. NO: 3
DATE: 8/1/85

EQUIPMENT DESCRIPTION

(1) SYSTEM GENERIC

(2) TAG NO. R14, R16, R58, R59, R62, RG2, RG3

(3) COMPONENT CABLE: COAXIAL, TRI-AXIAL, TWINAXIAL

(4) MANIFACTURER BRAND-REX COMPANY

(5) MODEL NO. NOTE #7

(6) FUNCTION NOTE #6

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION VARIOUS

(9) ABOVE FLOOD LEVEL YES ___ NO X

(10) SEISMICALLY TESTED YES ___ REF. ___ NO X

(11) SURVEILLANCE REQD. YES ___ REF. ___ NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days		Ref. #A Pg.A-1,2	Ref.B Pg.93 (See Pg.105)	Test	None	50 days	
TEMP. (°F)	Note #1	Note #3		Ref.B Pgs.54 & 93	Test	None	Adequate	Second DBE transient provides acceptable margin
PRESSURE (PSIG)	Note #2	Note #4			Test	None	71 (Peak)	Spec. Reqm't for 10psig(4days-100days) tested @10psig for 30 days, resolution provided by Re. B
RELATIVE HUMIDITY (%)	100% 100 days	100% 2 yrs		Ref.B Pg.30	Test	None	Not req'd	
FLOODING/ FROTH	Yes	Yes	Ref.A Pg.5		Test	None	Not req'd	
RADIATION (RADS)	TID 1.3×10^8 RAD Note #5	2×10^8 RAD	Ref.A Pg.A-1	Ref.B Pg.72	Test	None	0.7×10^8 RAD	
AGING	40 yrs. @150°F	40 yrs. @194°F		Ref.B Pg.38	Test and Analysis	None	Not req'd	
SPRAY	N/A	Yes	N/A	Ref.B Pg.53	Test	None	Not req'd	

DOCUMENTATION REFERENCE:
A. Tech Spec E-170(Q), Rev.6
B. E170(Q)-21(1)-7 (Qual. data pg. #85038-85039, Rev.5 6/16/84)

NOTES

1. 0-3 hr - 340°F
   3-6 hr - 320°F
   6-24 hr - 250°F
   24 hr-100days 200°F

2. 0-20 sec 0-62 psig
   20 sec-5 min 62 psig
   5 min-6 hr 40 psig
   6 hr - 4 day 25 psig
   4 day-100 day 10 psig

3. 50 sec-12 min - 385°F 50 sec-12 min 65 psig
   12 min-3 hr - 346°F 12 min-3 hr 113 psig
   3 hr - 5 hr - 335°F 3 hr - 5 hr 95 psig
   5 hr - 54 hr - 317°F 5 hr - 54 hr 70 psig
   64 hr - 246 hr - 280°F 54 hr - 246 hr 35 psig
   246 hr - 30 days- 230°F 246 hr - 30 days 10 psig
   120 days - 200°F 120 days 0 psig

4. B Radiation included. For further info refer to Beta Qualification Resolution.

5. Supplies power to safety-related equipment, Category 2a.

6. RG-114, RG-116, RG-58, RG-59, RG174A/U, RG62B/U

Prepared by I. Nag. Date 10/10/85

Reviewed by [illegible] Date 10/18/85

010

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
ROCKBESTOS COAXIAL AND TWINAXIAL CABLE
TRIAXIAL CABLE

SHT. NO: E170A-CABL-001
REV. NO: 2
DATE: 8/1/85

EQUIPMENT DESCRIPTION

(1) SYSTEM GENERIC CABLE
(2) TAG NO. R06,R22,RF9,RG11
(3) COMPONENT CABLE: COAXIAL AND TWINAXIAL
(4) MANUFACTURER ROCKBESTOS CO.
(5) MODEL NO. FIREWALL III
(6) FUNCTION NOTE #6
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION VARIOUS
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES ___ REF. ___ NO X
(11) SURVEILLANCE REQD. YES ___ REF. ___ NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	100 days	Ref.A Pg. A-1, A-2	Ref.B Report QR 2814,Pg.3	Test	None	None	Adequate margin is provided in temp. and pressure
TEMP. (°F)	Note #1	Note #3		Ref.B,Report QR2814,Pg.13	Test	None	Adequate	Second DBE transient provides acceptable margin
PRESSURE (PSIG)	Note #2	Note #4			Test	None	71 (Peak)	
RELATIVE HUMIDITY (%)	100% 100 days	100% 100 days		Ref.B Report QR 2814,Pg.3	Test	None	Not req'd	
FLOODING/ FROTH	N/A	Yes	N/A	Ref.B,C Pg.3	Test	None	Not req'd	
RADIATION (RADS)	TID 1.3×10^8 RADS Note #5	2.0×10^8 RADS	Ref.A Pg.A-1	Ref.B Pg.2 & 12	Test	None	0.7×10^8 RADS	
AGING	40 yrs @150°F	40 yrs @149°F		Ref.B Report QR 2814,Pg.1&10	Test and Analysis	None	Not req'd	
SPRAY	N/A	Yes		Ref.B Report QR 2814,Pg.13	Test	None	Not req'd	Sprayed for first 24 hour period

DOCUMENTATION REFERENCE:
A. Tech. Spec. E170(Q), Rev.6
B. Rockbestos Report QR#2814 Rev. Dtd 4/19/83 (E170A(Q)-7-2)
C. Report #QR2814/letter of 11/26/84 (PS-241) E170A(Q)-7-3

NOTES

1. 0-3 hr - 340°F
   3-6hr - 320°F
   6-24 hr - 250°F
   24hr-100days - 200°F

2. 0-20 sec 0-62psig
   20 sec-5 min 62psig
   5 min-6hr 40psig
   6 hr-4 day 25psig
   4 day-100 day 10psig

3. 5 min-4hr/55 min-346°F
   5 hr/5 min - 8 hr-346°F
   8 hr-11 hr - 335°F
   11 hr-15 hr- 315°F
   15 hr-4 days-265°F
   4 days-30 days-212°F
   100 days -212°F

4. 0-10 sec 70psig
   10 sec-5 min 113psig
   5 min-4 hr/55 min 113psig
   5 hr/5 min-8 hr 113psig
   8 hr-11 hr 93 psig
   11 hr-15 hr 69 psig
   15 hrs-4 days 28psig
   4 days-30 days 0psig
   100 days 0psig

5. B radiation included

6. Supplies power to safety related equipment, Category 2a.

Prepared by T. Narang / I. Nag Date 10/10/85

Reviewed by C.M. Date 10/18/85

011

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
ROCKBESTOS TYPE SIS SWITCHBOARD WIRE

SHT. NO: E170A-CABL-002
REV. NO: 2
DATE: 8/7/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM GENERIC (600V. I&C WIRE) (2) TAG NO. SI3,SI4,SI6,SI8 (3) COMPONENT TYPE SIS SWITCHBOARD WIRE (4) MANUFACTURER ROCKBESTOS (5) MODEL NO. FIREWALL III (TYPE SIS) (6) FUNCTION I&C CABLE, NOTE #5 (7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A (8) LOCATION VARIOUS (9) ABOVE FLOOD LEVEL YES X NO (10) SEISMICALLY TESTED YES ___ REF. ___ NO X (11) SURVEILLANCE REQD. YES ___ REF. ___ NO X	OPERATING TIME	100 days	395 days	Ref.A Pg.A-1	Ref.B Pgs. 4 & 8	Test	None	295 days	
	TEMP. (°F)	Note #1	Note #2	↓	↓	Test	None	Adequate	Second DBE transient provides acceptable margin
	PRESSURE (PSIG)	Note #2	Note #3	Ref.A Pg.A-2	↓	Test	None	71 (Peak)	
	RELATIVE HUMIDITY (%)	100%	100%	↓	Ref.B Pg.4	Test	None	Not req'd	
	FLOODING/ FROTH	N/A	Yes	N/A	Ref.C Pg.4		None	Not req'd	
	RADIATION (RADS)	TID 1.3×10^8 Note #4	2.0×10^8 RADS	Ref.A Pg.A-1	Ref.B Pg.3	Test	None	0.7×10^8 RADS	
	AGING	40 yrs @ 150°F Max	40 yrs @ 194°F	Ref.A Pg.A-1	Ref.B Pgs.5 & 7	Test and Analysis	None	Not req'd	
	SPRAY	N/A	Yes	N/A	Ref.B Pg.8	Test		Not req'd	Spray for 24 hours

DOCUMENTATION REFERENCE:

A. Tech. Spec. E170(Q) Rev.#6

B. Rockbestos Report QR#1806, Rev. Dtd. 12/6/82 (E170A(Q)-11-1)

C. Report (PS-245/E170A(Q)-11-2)

NOTES

1.

0-3 hr	340°F
3-6 hr	320°F
6-24 hr	250°F
24 hr-100 day	200°F

2.

0-20 sec	0-62psig
20 sec-5 min	62psig
5 min-6 hr	40psig
6 hr-4 day	25psig
4 day-100 day	10psig

3.

5 min-5 hr	346°F	113psig
10 min spike @5 hr	--	--
5 hr-8 hr	346°F	113psig
8 hr-11 hr	335°F	93psig
11 hr-15 hr	315°F	69psig
15 hr-4 days	265°F	28psig
4 days-30 days	212°F	0psig
365 days	200°F	0psig

4. B Radiation included

5. Supplies power to safety related equipment, Category 2a.

Prepared by T. Nazarine I. Nag Date 10/10/85

Reviewed by C.M. Yuhlen Date 10/18/85

012

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
ROCKBESTOS MULTICONDUCTOR CABLE

SHT. NO: E170A-CABL-003
REV. NO: 2
DATE: 8/1/85

EQUIPMENT DESCRIPTION

(1) SYSTEM GENERIC MULTI-CONDUCTOR CABLE
(2) TAG NO. RM1, RM2
(3) COMPONENT MULTI-CONDUCTOR CABLE
(4) MANUFACTURER ROCKBESTOS
(5) MODEL NO. FIREWALL III
(6) FUNCTION I&C CABLE, NOTE #5
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION VARIOUS
(9) ABOVE FLOOD LEVEL YES X NO (SUBMERGENCE NOT SPECI)
(10) SEISMICALLY TESTED YES ___ REF. ___ NO X
(11) SURVEILLANCE REQD. YES ___ REF. ___ NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	days	Ref. Pg.A-1	Ref.B Pgs.4 & 9	Test	None	30 days	
TEMP. (°F)	Note #1	Note #3		Ref.B Appendix III	Test	None	Adequate	Second DBE transient provides acceptable margin
PRESSURE (PSIG)	Note #2	Note #3	Ref.A Pg.A-2		Test	None	71 (Peak)	
RELATIVE HUMIDITY (%)	100%	100% 30 days		Ref.B Pg.3	Test	None	Not req'd	
FLOODING/ FROTH	N/A	Yes	N/A	Ref.B,C Pg.3	Test	None	Not req'd	
RADIATION (RADS)	TID 1.3×10^8 RADS 180da,N.#4	2×10^8 RADS	Ref.A Pg.A-1	Ref.B Appendix III & Pg.2	Test	None	$.7 \times 10^8$ RADS	
AGING	40 yrs. @ 150°F	40 yrs. @ 194°F		Ref.B Pgs. 2 & 7	Test and Analysis	None	Not req'd	Using Arrhenius plot of Ref.B, life is beyond 41 years
SPRAY	N/A	Yes	N/A	Ref.C Appendix III	Test	None	Not req'd	Spray for 14 days.

DOCUMENTATION REFERENCE:
A. Tech. Spec. E170(Q) Rev.5
B. Rockbestos Report QR#2810 dated 6/20/82 (E170A(Q)-12-1)
C. Report QR#2810 (E170A(Q)-12-2/P50246)

NOTES

1. 0-3 hr 340°F
   3-6 hr 320°F
   6-24 hr 250°F
   24 hr-100 day 200°F

2. 0-20 sec 0-62psig
   20 sec-5 min 62psig
   5 min-6 hr 40psig
   6 hr-4 day 20psig
   4 day-100 day 10psig

3. 5 min-4 hr/55min spike @5 hr 346°F 113psig
   5hr/5 min 346°F 113psig
   8 hr-11 hr 335°F 93psig
   11 hr-15 hr 315°F 69psig
   15 hr-4 days 265°F 28psig
   4 days-130 days 212°F 0psig

4. B Radiation included

5. Supplies power to safety related equipment, Category 2a.

Prepared by T. Nasang I. Nag Date 10/10/85

Reviewed by C. M. Finlay Date 10/18/85

012A

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
ROCKBESTOS SINGLE CONDUCTOR WIRE

SHT. NO: E170A-CABL-004
REV. NO: 2
DATE: 8/1/85

(1) SYSTEM GENERIC (300V. I&C WIRE) THERMOCOUPLE
(2) T&G NO. VK4
(3) COMPONENT SINGLE COND #16 AWG-20 MILS COATED CU SWITCH BOARD WIRE
(4) MANUFACTURER ROCKBESTOS
(5) MODEL NO. FIREWALL III
(6) FUNCTION THERMOCOUPLE & I&C CABLE, NOTE #5
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION VARIOUS
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES ___ REF. ___ NO X
(11) SURVEILLANCE REQD. YES ___ REF. ___ NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	130 days	Ref.A Pg.A-1	Ref.B Pgs.3 & 7	Test	None	30 days	
TEMP. (°F)	Note #1	Note #3	"	"	Test	None	Adequate	Second DBE transient provides acceptable margin
PRESSURE (PSIG)	Note #2	Note #3	Ref.A Pg. A-2	"	Test	None	71 (Peak)	
RELATIVE HUMIDITY (%)	100%	100%	"	Ref.B Pg.3	Test	None	Not req'd	
FLOODING/ FROTH	Outdoors wet application	Yes	N/A	Ref.B Pg.3	None		Not req'd	
RADIATION (RADS)	1.3×10^8 180days Note #4	2.0×10^8	Ref.A Pg.A-1	Ref.B Pg.2	Test	None	0.7×10^8 RADS	
AGING	40 yrs @ 150°F	40 yrs @ 194°F	Ref.A Pg.A-1	Ref.B Pgs.2 & 6	Test and Analysis	None	Not req'd	
SPRAY	N/A	Yes	N/A	Ref.B Pg.7	Test	None	Not req'd	Spray 24 hours

DOCUMENTATION REFERENCE:
A. Tech. Spec. E170(Q), Rev.5
B. Rockbestos Report QR#2805 Rev. Dtd. 12/6/82 (E170A(Q)-21-1)

NOTES

1. 0-3 hr 340°F; 3-6 hr 320°F; 6-24 hr 250°F; 24 hr-100 day 200°F

2. 0-20 sec 0-62psig; 20 sec-5 min 62psig; 5 min-6 hr 40psig; 6 hr-4 days 25psig; 4 day-100 days 10psig

3. 5 min-5 hr 346°F 113psig; 12min spike @5 hr; 5 hr-8 hr 345°F 3psig; 8 hr-11 hr 335°F 93psig; 11 hr-15 hr 315°F 69psig; 15 hr-4 days 265°F 28psig; 4 days-30 days 212°F 0psig; 130 days 200°F 0psig

4. B Radiation included

5. Supplies power to safety related equipment, Category 2a.

Prepared by I. Nagarajan I. Nag. Date 10/10/85

Reviewed by [illegible] Date 10/18/85

013

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
EATON 600V INSTRUMENT CABLE

SHT. NO: E171-CABL-001
REV. NO: 2
DATE: 8/1/85

(1) SYSTEM GENERIC

(2) TAG NO.
SEE SHEET ATTACHED

(3) COMPONENT 600 V SHIELDED INSTRUMENT CABLE

(4) MANUFACTURER
EATON

(5) MODEL NO.
TYPE FREPDM

(6) FUNCTION
SEE SHEET ATTACHED

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
VARIOUS

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES ___ REF. ___
NO X

(11) SURVEILLANCE REQD.
YES ___ REF. ___
NO X

PARAMETERS	ENVIRONMENT		DOCUMENTATION REFERENCE		QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
	SPECIFIED	QUALFIIED	SPECIFIED	QUALIFIED				
OPERATING TIME	100 days	100 days	Ref.A App.A,Pg. A-2	Ref.B Pgs. 2 & 12	Test	None	None	Adequate margin is provided in temp. and pressure.
TEMP. (°F)	Note 1	Note 2	Ref.A,App. A,Pg.A-2	Ref.B Pgs.2 & 12	Test	None	Adequate	Second DBE transient provides acceptable margin
PRESSURE (PSIG)	Note 1	Note 2	Ref.A,App. A, Pg.A-3	Ref.B Pgs.2 & 12	Test	None	13 (Peak)	
RELATIVE HUMIDITY (%)	100%	100%	Ref.A,App. A,Pg.A-3	Ref.B Pgs. 6-7	Test	None	N/A	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	N/A	
RADIATION (RADS)	1.3×10^8 B & G	2×10^8 RG - Ref.C	Ref.A App.A Pg.A-3	Ref.B Pgs. 4 & 5	Test	None	$.7 \times 10^8$ RADS	
AGING	40 yrs @ 150°F	40 yrs @ 194°F	Ref.A App.A Pg.A-2	Ref.B Attachment #2	Test and Analysis	None	Not req'd	
SPRAY	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

DOCUMENTATION REFERENCE:
A. Technical Specification 10855-E171(Q) Rev.2
B. NTS Report 558-1088 (E-171(Q)-109-3)
C. Ltr. CCN #0254728 of 11/29/83 (Beta Qualification)

NOTES 1.

TEMP F°	PRESS. PSIG
0-3hr - 340°	0-20sec - 0-52
3-6hr - 320°	20s-5min - 62
6-24hr - 250°	5min-6hr - 40
24hr-100days-200°	6hr-4days- 25
	40da-100da- 10

2.

0-6hr - 340°	0-6hrs - 70
6hrs-9hrs - 320°	6hrs-9hrs - 75
9hrs-13hrs- 300°	9hrs-13hrs- 55
13hrs-4days- 250°	13hrs-4days- 40
4days-100da- 223°	4days-100da- 10

The above qualified figures are conservative. For actual Qualified Temp. and Pressure Profile see Ref.B, Pg.12.

013

ATTACHMENT TO EESS NO. E171-CABL-001

TAG NO. (Item 2)		LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
D01	N08	VARIOUS	Conducts signals to safety related components	2a	
D02	TH1				
D03	TH2				
D04	TH3				
D05	TP1				
D06	TP2				
D07	TP3				
D08	TP4				
D09	TA1				
D30	TA2				
D31	TB1				
S03	TB2				
S19					
D32					
D33					
I04					
S24					
S28					
I02					
I03					
I04					
I06					
I10					
I12					
I20					
I24					
I28					
IT2					
IT3					
IT4					
IT6					

Prepared by T. Narang, I. Nag Date 10/16/85

Reviewed by C.M. Kimlen Date 10/16/85

014

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
THOMAS AND BETTS WIRE TERMINAL

SHT. NO: F353734Wire Ter-001
REV. NO: 2
DATE: 7/25/85

(1) SYSTEM VARIOUS

(2) TAG NO. N/A

(3) COMPONENT WIRE TERMINAL

(4) MANUFACTURER THOMAS & BETTS

(5) MODEL NO. TEFZEL INSULATED STA-KON

(6) FUNCTION NOTE #4

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION R.B. including inside drywell

(9) ABOVE FLOOD LEVEL YES X NO ___

(10) SEISMICALLY TESTED YES ___ REF. ___ NO ___ N/A

(11) SURVEILLANCE REQD. YES ___ REF. ___ NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	30 day(Test)	A, Table #5, Pg.40 E.	B, Pg.40	Test and Analysis	None	None	Note #5
TEMP. (°F)	See Note#1	340 (Max) Note #2	"	"	"	"	"	Second transient during DBE provides acceptable margin.
PRESSURE (PSIA)	See Note#1	105 (Max) Note #2	"	"	"	"	43	
RELATIVE HUMIDITY (%)	100	Steam	B, Pg.37 "	B, Pg.37 & 38	"	"	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	"	"	
RADIATION (RADS)	1.09×10^8 RG Note #3	2×10^8 R G	C, Pg.1	B, Pg.36 & 37	Test and Analysis	"	0.91×10^8 R G	
AGING	40 yrs @ 150°F	40 yrs @ 156°F	A, Pg.18 ¶B.1a	B, Pg.43	Test and Analysis	"	Not req'd	Note #6
SPRAY	N/A	N/A	N/A	N/A	N/A	"	"	Inside drywell, the wire terminals will be installed in water tight compartments.

DOCUMENTATION REFERENCE:

A. DITS 1085E 27.5, Rev.2

B. T&B Spec. No. QPS-TB(CH)-878 Rev.0

C. Letter No. CCN-0200418 Dt. 11/81

D. Bechtel Resolution of Comments PS84 (10/13/83).

E. Bechtel memo dt. 6/10/85. (Confirming 100 days DBE duration inside primary containment.)

NOTES

	°F	Psig	RH%
1. 0-20sec	340	0-62	100
20s-5min	340	62	100
5m-3hrs	340	40	100
3h-6hrs	320	40	100
6h-24hrs	250	25	100
1da-4days	200	25	100
4d-100days	200	10	100

2. For Temp. and Press. Profile see Ref.B, Pg.40

3. INCLUDES Beta Radiation.

4. Provides connection for safety related equipment. Category 2a.

5. A barrier is provided on Terminal Block so that if the wire terminal insulation is lost for any reason, the effected circuit still can perform. Therefore, failure of insulation can be of no significance after 30 days Post DBE. See Ref.D.

6. Temp. of 156°F includes self heating of terminals.

Prepared by I. Narang I. Nag Date 10/10/85

Reviewed by C.M. Gill Date 10/13/85

015

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
THOMAS & BETTS TIE WRAPS

SHT. NO: F35373-TWRAP-002
REV. NO: 2
DATE: 7/25/85

EQUIPMENT DESCRIPTION

(1) SYSTEM VARIOUS

(2) TAG NO. N/A

(3) COMPONENT
TIE WRAP

(4) MANUFACTURER
THOMAS & BETTS

(5) MODEL NO.
TYZ25M
TYZ27M

(6) FUNCTION
NOTE #5

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
NOTE #4

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES ___ REF. ___
NO ___ N/A

(11) SURVEILLANCE REQD.
YES ___ REF. ___
NO X

PARAMETERS	ENVIRONMENT		DOCUMENTATION REFERENCE		QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
	SPECIFIED	QUALIFIED	SPECIFIED	QUALIFIED				
OPERATING TIME	100 days	30 days (Test)	A Table 6 Pg.81	B, Pg.28	Test	None	None	Note #6
TEMP. (°F)	302 (Peak) Note #1	340 Note #2	A Table 6 Pg.42	"	"	None	38	Rm. #4102
PRESSURE (PSIA)	35 (Peak)	105 (Peak) Note #2	A, Pg.95	"	"	"	70	Inside Torus Wet Well
RELATIVE HUMIDITY (%)	100	Steam	A Table 6	B, Pg.25 & 26	"	"	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	"	"	
RADIATION (RADS)	3.3E7 RG 1.1E6 RB	2.07E8 RG Note #3	A Table 6 Pg.44, 81	B, Pg.24	Test	"	1.74 E8 RG	Rm. #4316
AGING	40 yrs @ 115°F	40 yrs @ 122°F	A, Pg.15 ¶VI A	B, Pg.34	Test and Analysis	"	56 yrs	
SPRAY	N/A	N/A	N/A	N/A	N/A	"	Not req'd	Note #4

DOCUMENTATION REFERENCE:

A. DITS 10855-D7.5, Rev.2

B. F-35373Q-2-1F

C. Bechtel Resolution of Comments PS84 (10/13/83)

NOTES

1. In Torus Compartment (Rm.#4102) 302°F-30 min., or 175°F-9 days, 148°F thereafter.
2. For Temp. and Pressure Profile see Ref.B, Pg.28.
3. Qualified Radiation Dose encompasses specified G and B Doses.
4. Reactor Building but not used in "Inside Drywell." See Ref.C.
5. Provides Cable Support. Category 2a.
6. Failure of Tie Wrap will not jeopardize Class 1E function. Therefore, failure can be of no significance after 30 days Post DBE.

Prepared by I. Nag / T. Narang Date 7/23/85

Reviewed by J. Wolkowski Date 7/25/85

016

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET

BUCHANAN TERMINAL BLOCK

SHT. NO: E37917-IEB-001
REV. NO: 3
DATE: 7/17/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM VARIOUS	OPERATING TIME	100 days	160.4 days	A, Pg.42 & 81 Note #4	E1	Test and Analysis	None	60.4 days	7 day DBE test extended by Ref.E1
(2) TAG NO. N/A	TEMP. (°F)	300 (Max) Note #6	346 (Max) Note #1	"	E2	"	None	46	
(3) COMPONENT TERMINAL BLOCK	PRESSURE (PSIG)	2.9 (Peak) Note #6	113 peak Note #1	"	B, Pg.5-14	Test	None	110	
(4) MANUFACTURER BUCHANAN	RELATIVE HUMIDITY (%)	100-6 hrs then 95	Steam		B, Pg.5-15 §5.10	"	None	Not req'd	
(5) MODEL NO. NQB 104 NQB 108, NQB 112	FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
(6) FUNCTION NOTE #3	RADIATION (RADS)	2.34E5 RG 1.1E6R B	2.08E8 G Note #2	D	B, Pg.5-7 §5.5	Test	None	1.9/8E8 R	
(7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A	AGING	40 yrs @ 115°F	40 yrs @ 122°F	A, §VIA1 Pg.15	Note #5	and Analysis	None	Not req'd	
(8) LOCATION REACTOR BLDG. NOTE #4	SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
(9) ABOVE FLOOD LEVEL YES X NO ___									
(10) SEISMICALLY TESTED YES X REF. B NO ___									
(11) SURVEILLANCE REQD. YES ___ REF. ___ NO X									

DOCUMENTATION REFERENCE:

A. DITS 10855-D7.5, Rev.2

B. FRC Report F-C5143 Dt. 7/17/80 (F 37917Q-1-1F)

C. FRC Project C5143 Dt. 6/27/79 (F 37917Q-1-1F)

D. 10855-D7.5, Rev.2, Table 6.

E1. Doc.No.F37917-ARRH-001, Rev.0 (5/24/85)

E2. Doc.No.F37917-ARRH-002, Rev.0 (5/24/85)

F. Bechtel memo dt. 3/29/85 and 7/17/85.

NOTES

1. For Temp. and Press. Profile see Ref.B, Pg.5-14.

2. The Qualified Radiation Dose encompasses specified G and B Doses.

3. Provides connection for safety related equipment, Category 2a.

   °In areas subjected to direct spray, terminal blocks should be enclosed in NEMA 4 Boxes with bottom entry. For top entry, the entry should be sealed.

   °In areas which are not subjected to direct spray, both NEMA 4 and and NEMA 12 boxes can be used.

4. No Class 1E Terminal Box is located in Steam Tunnel, Pipe Chase, Torus and Inside Drywell area. See Ref.F, Rm #4111 (HPCI) has been considered for worst environment condition.

5. Ref.C, Pg. A5, A6, and A6a.
   Ref.B, Pg.5-3, Para. 5.3.

6. For specified temp. and pressure profile, see Ref.A, Pg., 42&81.

Prepared by T. Marong I. Nag Date 10/9/85

Reviewed by C.W. [illegible] Date 10/18/85

017

EQUIPMENT EVALUATION SUMMARY SHEET
ANNACONDA FLEXIBLE CONDUIT (NWC)

SHT. NO: F43511-COND-001
REV. NO: 3
DATE: 10/9/85

HOPE CREEK GENERATING STATION

(1) SYSTEM VARIOUS

(2) TAG NO. N/A

(3) COMPONENT FLEX CONDUIT

(4) MANUFACTURER ANNACONDA

(5) MODEL NO. NWC

(6) FUNCTION SEE NOTE #5

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION INSIDE DRYWELL

(9) ABOVE FLOOD LEVEL YES ___ NO X

(10) SEISMICALLY TESTED YES ___ REF. ___ NO ___ N/A

(11) SURVEILLANCE REQD. YES ___ REF. ___ NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	>> 1.3 years	A Table 5 D	B Item 2	Test and Analysis	None	>1.3 yrs	
TEMP. (°F)	See Note #1	346°F(Max) 8hr Note #2	A Table 5	C Pg.3-5	Test	None	Adequate	Excess duration at high temp. Also adequate margin provided in pres.
PRESSURE (PSIG)	See Note #1	113 (Max) Note #2	A Table 5	C Pg.3-5	Test	None	51	
RELATIVE HUMIDITY (%)	See Note #1	100	A Table 5	C Pg.3-2	Test	None	Not req'd	
FLOODING/ FROTH	Yes	Yes	A, Pg.12	C, Pg.3-3	Test	None	Not req'd	
RADIATION (RADS)	See Note #1	$2x10^8$ RG Note #4	A Table 4	C App.C	Test	Note #4	$1.632x10^8$ RG	Qualified Radiation level Encompasses normal Gamma plus Neutron TID.
AGING	40 years @150°F	40 years @150°F	A Pg.18 ¶B.1a	C, Pg.1-1 E	Test and Analysis	None	Not req'd	
SPRAY	Yes	Yes	A, Pg.19, 21	C, Pg.3-2	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. 10855-D7.5, Rev.2 (1 of 84)

B. Annaconda ltr 3/15/84 (Justification of extension of 30 day test and thermal aging).

C. Franklin Report F-C4350-2 dt 7/76 (See Ref.F.)

D. Bechtel memo dt.6/10/85 (Confirming 100 days DBE duration inside primary containment.)

E. F43511-ARRH-001, Rev.0, 7/18/85

F. Annaconda ltr dt 7/19/85 indicating similarity of NWC Conduit Jacket Material to that of Annaconda wiring cable.

NOTES

3. Gamma Normal TID $7.4x10^6$ RAD
Gamma DBE TID Air. $2.6x10^7$
Gamma DBE Plate out $3.4x10^6$
Beta DBE TID Air $9.5x10^8$
Beta DBE TID Plate $6.7x10^8$
Neutron Normal TID $1.1x10^6$

4. N Radiation Qualification (later).

5. Provides raceway for cables to safety related equipment, Category 2C.

1.

	°F	Psig	RH%
0-20	340	0-62	100
20s-5min	340	62	100
5m-3hr	340	40	100
3h-6hr	320	40	100
6h-24hr	250	25	100
1d-4days	200	25	100
4d-100days	200	10	100

2. For time dependent profile, refer to Pg.3-5 of Ref. C.

Prepared by T. Narang, I. Nag Date 10/9/85

Reviewed by C.U. [illegible] Date 10/12/85

018

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
ANNACONDA FLEXIBLE CONDUIT (NPW)

SHT. NO: F43511-COND-002
REV. NO: 3
DATE: 10/9/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM VARIOUS (2) TAG NO. N/A (3) COMPONENT FLEX CONDUIT (4) MANUFACTURER ANNACONDA (5) MODEL NO. NPW (6) FUNCTION SEE NOTE #5 (7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A (8) LOCATION INSIDE DRYWELL (9) ABOVE FLOOD LEVEL YES ___ NO X (10) SEISMICALLY TESTED YES ___ REF. ___ NO ___ N/A (11) SURVEILLANCE REQD. YES ___ REF. ___ NO X	OPERATING TIME	100 days	>> 2.5 yrs	A Table 5	C Item #2	test	None	> 2.5 yrs	
	TEMP. (°F)	See Note#1	357 (Max) Note #2	A Table 5	B. Pg.6	Test	None	17	
	PRESSURE (PSIG)	See Note#1	70psig(Max) Note #2	A Table 5	B. Pg.6	Test	None	8	
	RELATIVE HUMIDITY (%)	See Note#1	100	A Table 5	B. ¶3.6	Test	None	Not req'd	
	FLOODING/ FROTH	Yes	Yes	A, Pg.12	B, Pg.3-2	Test	None	Not req'd	
	RADIATION (RADS)	See Note#3	2.0×10^8 RG Note #4	A Table 4	B Pg.1 & Fig.8	Test	Note #4	1.632×10^8 RG	Qualified Radiation Level encompasses normal Gamma plus neutron TID.
	AGING	40 yrs @ 150°F	40 yrs @ 150°F	A Pg.18 ¶B.1a	C Item #1 D	Test and Analysis	None	Not Req'd.	
	SPRAY	Yes	Yes	A, Pg.19, 21	B, Pg.3-2	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. 10855-D7.5, Rev.2

B. Franklin Report F-C4033-3 (10855-F43511-3-1F) (See Ref.E)

C. Annaconda ltr 3/15/84 -Justification of extension of 30 day DBE test and thermal aging.

D. F43511-ARRH-001, Rev.0 dt. 7/18/85

E. Annaconda ltr. dt. 7/23/85 indicating similarity of NPW conduit jacket material to that of wiring cable

1.

TIME	°F	PSIG	RH%
0-20sec	340	0-62	100
20s-5min	340	62	100
5m-3hr	340	40	100
3h-6hr	320	40	100
6h-24hr	250	25	100
1d-4days	200	25	100
4d-100days	200	10	100

4. B Radiation Qualification (later).

5. Provides pathway for cables 8 to safety related equipment. Catagory 2C.

NOTES

2. For Time Dependent Profile refer to Pg.6 of Ref.B.

3. Gamma Normal TID 7.4×10^6 RAD

Gamma DBE TID Air 2.6×10^7 RAD

Gamma DBE Plateout 3.4×10^6 RAD

Beta DBE Air 9.5×10^8 RAD

Beta DBE Plateout 6.7×10^8 RAD

Neutron Normal TID 1.1×10^6 RAD

Prepared by T. Narang, I. Nag Date 10/9/85

Reviewed by C.M. [illegible] Date 10/16/85

019

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET

RAYCHEM MEDIUM VOLTAGE TERMINAL KIT

SHT. NO: F43620-HVT-001
REV. NO: 2
DATE: 10/9/85

(1) SYSTEM VARIOUS

(2) TAG NO. N/A

COMPONENT MED. UN VOLTAGE TERMINATION KITS

(4) MANUFACTURER RAY CHEM

(5) MODEL NO. N/A

(6) FUNCTION SEE NOTE #2

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION 4104,4105, 4107,4109,4113,4114,4116 4118

(9) ABOVE FLOOD LEVEL
YES X NO ___
Ref.A

(10) SEISMICALLY TESTED
YES ___ REF. ___
NO X

.) SURVEILLANCE REQD.
YES ___ REF. ___
NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	100 days	DIT 7.5 Rev.2,Table 6 note 3	Ref.C Table #4	Test	None	Adequate	Adequate margin provided in Temp. and Pressure.
TEMP. (°F)	148°F	212°F	DITs 7.5 Rev.2,Tb.6	"	Test and Analysis	None	64°F	
PRESSURE (PSIG)	Atmos.	70 psig (Peak)	"	"	Test	none	70 psig	
RELATIVE HUMIDITY (%)	100%-30min 95%-100days	100%	" Note 6	Ref.A Pg.11	Test and Analysis	None	Not req'd	
FLOODING/ FROTH	N/A	Yes	N/A	"	N/A	None	Not req'd	
RADIATION (RADS)	5.06E6 RG 1.1E6 RB	5.0E7 RG	DITS 7.5 Rev.2,Tb.6	Ref.A,Pg.2 & Appendix B	Test	None	4.5E7 RG	Note #1
AGING	40 yrs @ 84°F	40 yrs @ 90°C(194°F)	" "	Ref.B Pg.8	Test and Analysis	None	Not req'd	
SPRAY	N/A	Yes	N/A	Ref.C Table #4	N/A	N/A	Not req'd	

DOCUMENTATION REFERENCE:

A. Raychem Report EDR-5037 dated 1/14/82 [Refer to Telecopy dt. 10/24/84 from Don Tom (Bechtel) to PSE&G]

B. Raychem ltr to Bechtel CCN#0271401 dated 9/17/84.

C. Addendum to EDR-5037 Submitted by PS-231 dt. 10/11/84.

NOTES

1. Qualified Radiation dose encompasses specified G&B Doses.
2. Provides connection to safety related equipment. Category 2a.
3. Worst environment condition to which the device will be exposed is shown in "Specified" column.

Prepared by T. Narang T. Nag Date 10/10/85

Reviewed by [illegible] Date 10/18/85

020

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
RAYCHEM N-MCK MOTOR CONNECTION KIT

SHT. NO: F47888-MCON-001
REV. NO: 3
DATE: 7/25/85

(1) SYSTEM
VARIOUS

(2) TAG NO.
NOT APPLICABLE

(3) COMPONENT
N-MCK MOTOR COMM. KIT

(4) MANUFACTURER
RAYCHEM

(5) MODEL NO.
N-MCK

(6) FUNCTION
NOTE #5

(7) ACCURACY
a) SPECIFIED NA
b) ACTUAL NA

(8) LOCATION
VARIOUS

(9) ABOVE FLOOD LEVEL
YES ___ NO X

(10) SEISMICALLY TESTED
YES ___ REF. ___
NO X

(11) SURVEILLANCE REQD.
YES ___ REF. ___
NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	190 days	180 days	A-D7.5 Table. F	B-Pg.7 D-Pgs.7&8	Test and Analysis	None	80 days	---
TEMP. (°F)	See Note#1	See Note #2	↓	↓	Test and Analysis	None	↓	---
PRESSURE (PSIA)	↓	↓	↓	↓	Test and Analysis	None	↓	---
RELATIVE HUMIDITY (%)	100%	100%	↓	↓	Test	None	Not req'd	---
FLOODING/ FROTH	Yes	Yes	E, Pg.12	EDR 5037 Table #2	Test	None	Not req'd	
RADIATION (RADS)	See Note #3	2.45×10^8 G Note #4	A-D7.5 Table 4	B-Pg.A-1	Test	Note #4	2.082×10^8 RG	Qualified Radiation level encompasses specified normal Gamma and Neutron TID.
AGING	40 yrs @ 115°F	40 yrs @ 194°F	DIT 7.5 Rev.2 Pg.15	D- Pg 8	Test and Analysis	None	Not req'd	---
SPRAY	Yes	Yes	E, Pg.19, 21	B-Pg.7	Test	None	Not req'd	---

DOCUMENTATION REFERENCE:

A. BPC Ltr to Raychem 9/5/84 CCN 0270617

B. Wyle Lab Rpt #58442-3 (47888Q-1-1F)

C. Raychem Report EDR-5046 (CCN 0271401)

D. Raychem ltr to BPC 9/17/84 (CCN 0271401)

E. Environmental Design Criteria-10655-D7.5, Rev.2(10/84)

F. Bechtel memo dt. 6/10/85 Confirming 100 Days DBE duration inside Primary Containment.

NOTES

1.

TIME	TEMP°F	PSIG
0-20sec	340	0-62
20-5min	340	62
5min-3hr	340	40
3hr-6hr	320	40
6hr-24hr	250	25
1day-4days	200	25
4days-100days	200	10

2.

TIME	TEMP°F	PSIG
0-4min	390	66
4-12min	370	66
12min-32.2hrs	314	66
32.2hrs-56.2hrs	298	47
56.2hrs-80.2hrs	285	39
80.2hrs-152.2hrs	272	27
152.2hrs-220.2hrs	250	15
200.2hrs-248.2hrs	240	10
248.2hrs-382.2hrs	230	6
382.2hrs-720hrs	210	0

020

ATTACHMENT TO EESS NO. F47888-MCON-001

3. Gamma TID Normal 7.4×10^6
   Gamma TID DBE Air. 2.6×10^7
   Gamma TID DBE Plate. 3.4×10^6
   Beta TID DBE Air. 9.5×10^8
   Beta TID DBE Plate. 6.7×10^8
   Neutron TID Normal 1.1×10^6

4. B Radiation Qualification (later).

5. Provides insulated termination, Category 2a.

Prepared by T. Nagarajan, T. Nag Date 10/10/85

Reviewed by [illegible] Date 10/13/85

021

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
RAYCHEM CABLE END SEALING KIT

SMT. NO: F48479-SEAL-001
REV. NO: 3
DATE: 7/25/84

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM VARIOUS	OPERATING TIME	100 days	180 days	A-Table 5,F	B-Pg.8 D-Pgs.7&8	Test and Analysis	None	More than adequate	
(2) TAG NO. VARIOUS	TEMP. (°F)	See Note#1	See Note #2	"	"	"	None	"	
(3) COMPONENT CABLE END SEALING KITS	PRESSURE (PSIA)	See Note#1	See Note #2	"	"	"	None	"	
(4) MANUFACTURER RAYCHEM	RELATIVE HUMEDITY (%)	100%	100%	"	"	Test	None	Not req'd	
(5) MODEL NO.	FLOODING/ FROTH	Yes	Yes	E, Pg.12	EDR-5037 Table 2	Test	No	Not req'd	
(6) FUNCTION SEE NOTE #5	RADIATION (RADS)	See Note#3	2.45×10^8 Note #4	A-Table 4	B-Pg.A1	Test	Note #4	2.082×10^8 RG	Qualified Radiation level encompasses specified normal Gamma and Neutron TID
(7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A	AGING	40 yrs @ 115°F	40 yrs @ 90°C(194°F)	E, Pg.15	D-8	Test and Analysis	None	Not req'd	---
(8) LOCATION VARIOUS	SPRAY	Yes	Yes	E, Pg.19, 21	B-Pg.8	Test	None	Not req'd	---

(9) ABOVE FLOOD LEVEL
YES ___ NO X

(10) SEISMICALLY TESTED
YES ___ REF. ___
NO X

(11) SURVEILLANCE REQD.
YES ___ REF. ___
NO X

DOCUMENTATION REFERENCE:

A. BPC Ltr. to Raychem 9/5/84 CCN 0270617

B. Wyle Lab Rpt.#58442-2 F434790-1-F

C. Raychem Report EDR-5046 CCN 0271401

D. Raychem Ltr. to BPC 9/17/84 (CCN 0271401)

E. Environmental Design Criteria 10855-07.5, Rev.2 (10/84)

F. Bechtel memo dt.6/10/85-confirming 100 days DBE duration inside containment.

TIME	TEMP°F	PSIG	NOTES
1. 0-20sec	340	0-62	
20sec-5min	340	62	
5min-3hrs	340	40	
3hrs-6hrs	320	40	
6hrs-24hrs	250	25	
1day-4days	200	25	
4days-100days	200	10	

TIME	TEMP °F	PSIG
2. 0-4min	390	66
4min-12min	370	66
12min-32.2hrs	314	66
32.2hrs-56.2hrs	298	47
56.2hrs-80.2hrs	285	39
80.2hrs-152.2hr	272	27
152.2hrs-200.2hr	250	15
200.2hrs-248.2hr	240	10
248.2hrs-382.2hr	230	6
382.2hrs-720hrs	210	0

021

ATTACHMENT TO EESS NO. F48479-SEAL-001

3. Gamma TID Normal 7.4×10^6
   Gamma TID DBE Air 2.6×10^7
   Gamma TID DBE Plate 3.4×10^6
   Beta TID DBE Air 9.5×10^8
   Beta TID DBE Plate 6.7×10^8
   Neutron TID Normal 1.1×10^6

4. B Radiation Qualification (later).

5. Provide insulated termination, Category 2a.

Prepared by T. Narasing I Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/18/85

022

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
RAYCHEM THERMOFIT INSULATION

SHT. NO: F48561-TIMS-001
REV. NO: 4
DATE: 7/25/84

(1) SYSTEM VARIOUS

(2) TAG NO. VARIOUS

(3) COMPONENT THERMOFIT INSULATION

(4) MANUFACTURER RAYCHEM

(5) MODEL NO.

(6) FUNCTION SEE NOTE #5

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION VARIOUS

(9) ABOVE FLOOD LEVEL YES ___ NO X

(10) SEISMICALLY TESTED YES ___ REF. ___ NO X

(11) SURVEILLANCE REQD. YES ___ REF. ___ NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	180 days	A-Table 5, F	B-Pg.6 D-Pgs.7&8	Test and Analysis	None	More than adequate	
TEMP. (°F)	See Note#1	See Note #2			Test and Analysis	None		
PRESSURE (PSIA)					Test and Analysis			
RELATIVE HUMIDITY (%)	100	100			Test	None	Not req'd	
FLOODING/ FROTH	Yes	Yes	F, Pg.12	EDR-5037 Table-2	Test	None	Not req'd	
RADIATION (RADS)	See Note #3	2.45×10^8 RG Note #4	A-Table 4	B Pg.A-1	Test	Note #4	2.082×10^8 RG	Qualified Radiation Level encompasses specified normal Gamma and Neutron TID
AGING	40 yrs @ 150°F	40 yrs @ 90°C (194°F)	F, Pg. 18	C,Pg.7,8,9 D,Pg.7,8 E	Test and Analysis	None	Not req'd	
SPRAY	Yes	Yes	F,Pg.19-21	B-Pg.6	---	None	Not req'd	

DOCUMENTATION REFERENCE:

A. BPC Ltr. to Raychem 9/5/84 CCN 0270617

B. Wyle Labs Rpt. #58442-1 F48561Q

C. Raychem Rpt. EDR-5046 CCN 0271401

D. Raychem Ltr to BPC 9/7/84 (CCN 0271401)

2.

	TEMP°F	PSIG
0-4min	390	66
4-12min	370	66
12-32.2hrs	314	66
32.2-56.2hrs	298	47
56.2-80.2hrs	285	39
80-2-152.2hrs	272	27
152.2-200.2hrs	250	15
200.2-248.2hrs	240	10
248.2-382.2hrs	230	6
382.2-720hrs	210	0

NOTES

1.

TIME	TEMP °F	PSIG
0-20sec	340	0-62
20sec-5min	340	62
5min-3hr	340	40
3hr-6hr	320	40
6hr-24hr	250	25
1day-4days	200	25
4days-100days	200	10

DOC. REF. (Cont'd)

F. DITS 10855-D7.5, Rev.2 (10/84).

G. Bechtel memo dt.6/10/85 (confirming 100 days DBE duration inside primary containment)

022

ATTACHMENT TO EESS NO. F48561-TINS-001

3. Gamma Normal TID 7.4×10^6
   Gamma DBE TID Air. 2.6×10^7
   Gamma DBE TID Plate. 3.4×10^6
   Beta DBE TID Air. 9.5×10^8
   Beta DBE TID Plate. 6.7×10^8
   Neutron Normal TID 1.1×10^6

4. B Radiation Qualification (later).

5. Cable splice provides insultated termination Category 2a.

Prepared by T. Warsame, I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/15/85

023

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
RAYCHEM WCSF-N SPLICE

SHT. NO: F48561-SPL-002
REV. NO: 2
DATE: 7/25/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM VARIOUS	OPERATING TIME	100 days	180 days	A-Table 5,F	B-Page 6 D-Pages 7&8	Test and Analysis	None	More than adequate	
(2) TAG NO. VARIOUS	TEMP. (°F)	See Note #1	See Note #2	"	"	"	None	"	
(3) COMPONENT WCSF-N IN LINE CABLE SPLICE	PRESSURE (PSIA)	See Note #1	"	"	"	"	None	"	
(4) MANUFACTURER RAYCHEM	RELATIVE HUMIDITY (%)	100%	100%	"	"	Test	None	Not req'd	---
(5) MODEL NO.	FLOODING/ FROTH	Yes	Yes	E, Pg.12	EDR-5037 Table 2	Test	None	Not req'd	---
(6) FUNCTION SEE NOTE #5	RADIATION (RADS)	See Note #3	2.45E3 RG Note #4	A-Table 4	B, Pg.A-1	Test	Note #4	2.82E8 RG	Qual. Rad. Level encompasses specified normal Gamma & Neutron TID
(7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A	AGING	40 yrs @ 135°F	40 yrs @ 90°C (194°F)	E Pg.8	C-Pages 7,8 & 9 D-Pg.7 & 9	Test and Analysis	Note #4	Not req	---
(8) LOCATION VARIOUS	SPRAY	Yes	Yes	E, Pg.19,21	B-Pg. C6	Test	None	Not req'd	

(9) ABOVE FLOOD LEVEL YES ___ NO X

(10) SEISMICALLY TESTED YES ___ REF. ___ NO X

(11) SURVEILLANCE REQD. YES ___ REF. ___ NO X

DOCUMENTATION REFERENCE:

A. BPC letter to Raychem 9/5/84 CCN 0270617

B. Wyle Labs Rpth F48561Q-1-1F 58442-1

C. Raychem Report EDR-5046 CCN 0271401

D. Raychem letter to BPC 9/17/84 (CCN 0271401)

E. DITS 10855-07.5, Rev.2 (10/89)

F. Bechtel Memo dt.6/1/85 (Confirming 100 days DBE duration inside primary containment)

NOTES

2.

	TEMP°F	PSIG
0-4min	390	66
4min-12min	370	66
12min-32.2hrs	314	66
32.2hrs-56.2hrs	298	47
56.2hrs-80.2hrs	285	39
80.2hrs-152.2hrs	272	27
152.2hrs-200.2hrs	250	15
200.2hrs-248.2hrs	240	10
248.2hrs-382.2hrs	230	6
382.2hrs-720hrs	210	0

1.

TIME	TEMP°F	PSIG
0-20sec	340	0-62
20sec-5min	340	62
5min-3hrs	340	40
3hrs-6hrs	320	40
6hrs-24hrs	250	25
1day-4days	200	25
4days-100days	200	10

023

ATTACHMENT TO EESS NO. F40561-SPL-002

3. Gamma Normal TID 7.4×10^6
   Gamma DBE TID Air 2.6×10^7
   Gamma DBE TID Plate 3.4×10^6
   Beta DBE TID Air 9.5×10^8
   Beta DBE TID Plate 6.7×10^8
   Neutron TID Normal 1.1×10^6

4. Beta Radiation Qualification Later.

5. Cable splice provides insulated termination Category 2a.

Prepared by I. Nag. T. Narang Date 7/23/85

Reviewed by J. Wroblewski Date 7/25/85

024

EQUIPMENT EVALUATION SUMMARY SHEET
CONAX ELEC. COND. SEAL ASS'Y.

SHT. NO: F51216-SEAL-001
REV. NO: 4
DATE: 7/17/85

HOPE CREEK GENERATING STATION

(1) SYSTEM VARIOUS, GENERIC USE
(2) TAG NO. FIELD PURCHASE
(3) COMPONENT ELECTRICAL CONDUCTOR SEAL ASS'Y
(4) MANUFACTURER CONAX
(5) MODEL NO. ECSA
(6) FUNCTION TO SEAL ELECTRICAL CONNECTIONS
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION NOTE #1
(9) ABOVE FLOOD LEVEL YES ___ NO X
(10) SEISMICALLY TESTED YES X REF. B1 NO ___
(11) SURVEILLANCE REQD. YES ___ REF. B2 NO X

PARAMETERS	ENVIRONMENT SPECIFIED NOTE #1	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	>2141 day	Ref.A Table 5.C	Ref.B1 Figure 6.9.3 Ref.B3	Test and Analysis	None	>2041 days	17 days DBE Test extended by Ref.B3.
TEMP. (°F)	340 (Max). Note #4	355 (Max). Note #5			Test	None	Adequate	See Note #3
PRESSURE (PSIG)	62 psig (Peak) Note #4	72 psig (Peak) Note #5			Test	None	10psig	
RELATIVE HUMIDITY (%)	100%	100%			Test	None	Not req'd	
FLOODING/ FROTH	Yes	Submergence 2406 hours	Ref.A, Pg.12	Ref.B1 Addendum A	Test	None	Not req'd	
RADIATION (RADS)	5.04E7R G 1.62E9R B	2.25E8R G Note#2	Ref.A Table 4	Ref.B1 Appendix B Pg.B-3	Test	None	1.75E8R G	
AGING	40 yrs @ 150°F	40 yrs @ 250°F	Ref.A Pg.18	Ref.B2 CONAX ltr of 3/31/84	Test and Analysis	None	Not req'd	Periodic maintenance is not required.
SPRAY	Yes	Chemical Spray	Ref.A, Pg.19,21	Ref.B Fig. 6.9.3	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. HCGS Environmental Design Criteria 10855-D7.5 Rev.2 Dtd. 10/84

B. CONAX Qualification Reports:
1. IPS-1079 Rev.A, Dtd. 1/84 (10855-F51216(Q)-1-1F)
2. IPS-325 Rev.D Dtd. 5/81 (10855-F51216(Q)-3-1F) including CONAX forwarding ltr of 5/31/84.
3. IPS-409.1 Dtd. 2/82 (10855-P301(Q)-539(2)-1) Fig. 4.5.1 and ¶4.5.3.

C. Bechtel Memo dt.6/10/85 (Confirming 100 days DBE duration inside primary containment.)

NOTES

1. The CONAX ECSA Seals should not be used inside the Vessel Shield.
2. For Beta Radiation refer to Beta Rad. Qual. Report for P.O. No. P301(Q),P302(Q) and P303A(Q) and the Telecon Dt.3/18/85 attached.
3. CONAX Report IPS-409.1 (2/82), Ref.B3, 10855-P301(Q)-539(2)-1 encompasses specified temperature for adequate duration. Ref.B1,Fig.6.9.5-Second DBE Transient provides acceptable margin.
4. For Spec. Temp. and Pressure Profile, See Ref.A, Pg.40, Table 5.
5. For Qualified Temp. and Pressure Profile, See Ref.B1, Fig.6.9.3 and Ref.B3, Fig. 4.5.1.

Prepared by L. Narang I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/18/85

025

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
MICRO SWITCH SELECTOR SWITCH

SHT. NO: J201-HS-001
REV. NO: 2
DATE: 10/10/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM	OPERATING TIME	100 days	100 days	C, Pg.81	B, App.E ¶8.2, Pg. 8-9	Test and Analysis	None	None	Adequate margin is provided in temp. and Pressure
(2) TAG NO. SEE ATTACHED SHEET	TEMP. (°F)	148	163 (max)	A	Note #1	Test		15	
(3) COMPONENT SELECTOR SWITCH	PRESSURE (PSIG)	3 (max)	3.3 (max)	A				0.3	
(4) MANUFACTURER MICRO SWITCH	RELATIVE HUMIDITY (%)	100	95-100	A				Not req'd	
(5) MODEL NO. PTS-J-R3-02-C	FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A		Not req'd	
(6) FUNCTION SEE ATTACHED SHEET	RADIATION (RADS)	2.5E4 RG 1.1E6 RB	2.32E6 RG Note #3	C, Pg.44,81	B, App.D Note #2	Test		2.295E6 RG	Note #4
(7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A	AGING	40 yrs @ 94°F	20 yrs @ 107°F	A	B, App.E ¶ 8.2 Pg.8-9	Test and Analysis		Not req'd	Clean and inspect every six months
(8) LOCATION SEE ATTACHED SHEET	SPRAY	N/A	N/A	N/A	N/A	N/A		Not req'd	

(9) ABOVE FLOOD LEVEL YES X NO ___

(10) SEISMICALLY TESTED YES X REF. B NO ___

(11) SURVEILLANCE REQD. YES X REF. B NO ___

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-J201(Q), Rev.4 Figure #1

B. Acton Test Report 16923, Rev.2 (M/80(Q) 199-4)(J201(Q)66-4)

C. Environmental Design Criteria for HCGS 10855-D7.5, Rev.2

NOTES

1. Ref.B, Para 8.11, Pg.8-42 and Fig.8.11e, Pg.8-47
2. Isomedix letter dated 5/17/84
3. Qualified Radiation Level encompasses specified G and B doses. For further information, refer to Bechtel Beta Radiation Qualification Report for P.O.M/80(Q) on Microswitch Selector Switch. CCN #274809, dt. 11/28/84
4. Worst condition (Rm.#4307 and 4309) considered.

025

ATTACHMENT TO EESS NO. J 201-HS-001

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1EG-HS2517A	4309	Hand Switch. Provides manual cont. to open SACS heat exchanger bypass valve.	2b	M11-1
1EG-HS2485A2	4309	Hand switch. Provides manual control of SACS pump motor.	2a	M10-1
1EA-HS2367A	4309	Control sw. Operates solenoid valve at highest pt. of SACS Heat exchanger cooling water discharge line following a loss of power to admit air to reduce hydraulic pressure on restart of service water pump.	2b	M10-1
1EG-HS2517B	4307	Hand switch. Provides manual control to open SACS heat exchanger bypass valve.	2b	M11-1
1EG-HS2522B3	4307	Hand Switch, operates hydraulic control unit for hydraulic control valve.	2b	M11-1
1EG-HS2485B2	4307	Hand switch. Provides manual control of SACS pump motor.	2a	M11-1
1EA-HS2367B	4307	Control sw. Operates solenoid valve at highest pt. of SACS Heat exchanger cooling water discharge line following a loss of power to admit air to reduce hydraulic pressure on restart of service water pump.	2b	M10-1
1EG-HS2457A	4309	Hand Sw. Provides manual cont. to open SACS heat exchanger bypass valve.	2b	M11-1
1EG-HS2485C2	4309	Hand Sw. Provides manual control of SACS pump	2a	M11-1
1EA-HS2367C	4309	Control sw. Operates solenoid valve at highest pt. of SACS Heat exchanger cooling water discharge line following a loss of power to admit air to reduce hydraulic pressure on restart of service water pump.	2b	M10-1
				M11-1

025

ATTACHMENT TO EESS NO. J201-HS-001

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1EG-HS2457B	4307	Hand sw. Provides manual cont. to open SACS heat exchanger bypass valve.	2b	M11-1
1EG-HS2522D3	4307	Hand switch, operates hydraulic control unit for hydraulic control valve.	2b	M11-1
1EG-HS2485D2	4307	Hand sw. Provides manual control of SACS pump motor	2a	M11-1
1EA-HS2367D	4307	Control sw. Operates solenoid valve at highest pt. of SACS Heat exchanger cooling water discharge line following a loss of power to admit air to reduce hydraulic pressure on restart of service water pump.	2b	M10-1

Prepared by Z. Nazeeg, I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/18/85

026

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
AMP WIRE LUG

DOC. NO: J201-AMP-002
REV. NO: 2
DATE: 8/1/85

(1) SYSTEM SACS AND SERVICE WATER
(2) TAG NO. N/A
(3) COMPONENT WIRE LUG
(4) MANUFACTURER AMP
(5) MODEL NO. P/N-53415-1 & -53417-1
(6) FUNCTION SEE NOTE #4
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION SEE NOTE #5
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. ___ NO ___
(11) SURVEILLANCE REQD. YES ___ REF. ___ NO X

PARAMETERS	ENVIRONMENT		DOCUMENTATION REFERENCE		QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
	SPECIFIED	QUALIFIED	SPECIFIED	QUALIFIED				
OPERATING TIME	100 days	30 days (Test) Note #1	C., Pg.81	A, Pg.9 & 10	Type Test and Analysis	None	Approx. 265 days	
TEMP. (°F)	148 (Max)	400 Note #2	B	A,Pg.9 & 10	"	"	252	
PRESSURE (PSIG)	3 (Max)	74 Note #2	"	A,Pg.10	"	"	71	
RELATIVE HUMIDITY (%)	100%	100%	"	A,Pg.9	"	"	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	"	Not req'd	
RADIATION (RADS)	2.584 RG 1.1×10^6 R B	259×10^6 RG Note #3	C, Pg.44,81	A,Pg.8	Type Test	"	259×10^6 R G	
AGING	40 yrs @ 94°F	40 yrs @ 194°F	B	A,Pg.6	Type Test and Analysis	"	Not req'd	
SPRAY	N/A	N/A	N/A	N/A	N/A	"	Not req'd	

DOCUMENTATION REFERENCE:

A. AMP Qual. Test Report 110-11004 2/2/82 (J201(Q)-26-1,2,3)
B. Spec. 10855-J201(Q) Rev.3, Fig.#1
C. DITS 10855-D7.5, Rev.2
D. AMP Ltr. dated 8/13/84

NOTES

1. Approx. 365 days @200°F, See Ref.D, Item 1
2. For Temp. and Pressure Profile refer to Ref.B, Pg.9 & 10 respectively.
3. Qualified Radiation Dose encompasses Specified G & B Doses.
4. Provides connection to safety related equipment, Category 2a.
5. Located in Panels: 1AC201-Rm#4309, 1BC201-Rm#4307
1CC201-Rm#4303, 1DC201-Rm#4307

Prepared by T. Narang I. Nag Date 10/10/85

Reviewed by C.M. [illegible] Date 10/18/85

027

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
BUCHANAN TERMINAL AND FUSE BLOCK

SHT. NO: J201-TFB-003
REV. NO: 3
DATE: 7/25/85

EQUIPMENT DESCRIPTION

(1) SYSTEM SACS AND SERVICE WATER
(2) TAG NO. N/A
(3) COMPONENT TERMINAL AND FUSE BLOCK
(4) MANUFACTURER BUCHANAN
(5) MODEL NO. NQB 112 NQB 0361
(6) FUNCTION NOTE #3
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION NOTE #5
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. A NO ___
(11) SURVEILLANCE REQD. YES ___ REF. ___ NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	7 days (Test) 160.4 days (equiv.)	D, Pg.44 & 81	D 1	Type Test and Analysis	None	160.4 days	
TEMP. (°F)	104	163 Note #1		D 2	"	"	59	
PRESSURE (PSI G)	0	113 Peak Note #1		A,Pg.5-14	Type Test	"	113	
RELATIVE HUMIDITY (%)	100-30 Min. then 95	Steam		A,Pg.5-15 ¶5.10	"	"	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	"	"	
RADIATION (RADS)	2.5E4 RG 1.1E6 RB	2.08E8 RG Note #2	D Pg.44,81	A Pg.5-7 ¶5.5	Type Test	"	2.08E8 RG	
AGING	40 yrs @ 94°F	>40 yrs 122°F	D Pg.44	Note #4	Type Test and Analysis	"	Not req'd	
SPRAY	N/A	N/A	N/A	N/A	N/A	"	"	

DOCUMENTATION REFERENCE:

A. FRC Report F-C5143 Dt.7/17/80 (10855-J201(Q)-64-1.2)
B. FRC Project C5143 dt.6/27/79 (10855-J201(Q)-64-1.2)
C1. Doc.No.F37917-ARRH-001,Rev.0 (5/24/85)
C2. Doc.No.F37917-ARRH-001,Rev.0 (5/24/85)
D. Environmental Design criteria for HCGS 10855-D7.5, Rev.2

NOTES

1. For Temp. and Pressure Profile see Ref.B, Pg.5-14.
2. The Qualified Radiation Dose encompasses specified G and B Doses.
3. Provides connection for safety related equipment. Category 2a.
4. Ref.B, Pg.A5,A6 and A6a, Ref.B. Pg.5-3, ¶5.3.
5. Located in Panels: 1AC201-Rm#4309, 1BC201-Rm#4307
1CC201-Rm#4309, 1DC201-Rm#4307

Prepared by T. Narang, I. Nag Date 10/10/85

Reviewed by A.W. [illegible] Date 10/18/85

028

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
TOBAR INSTRUMENT TRANSMITTER (32 SERIES #1)

SHT. NO: J301-T-001
REV. NO: 2
DATE: 10/10/85

(1) SYSTEM
SEE ATTACHED SHEET
(2) TAG NO.
SEE ATTACHED SHEET
(3) COMPONENT
INSTRUMENT TRANSMITTER
(4) MANUFACTURER
TOBAR.
(5) MODEL NO. 32 Series #1
SEE ATTACHED SHEET
(6) FUNCTION
SEE ATTACHED SHEET
(7) ACCURACY
a) SPECIFIED ±0.5%
b) ACTUAL +0.3,-0.2
(8) LOCATION SEE ATTACHED SHEET
(9) ABOVE FLOOD LEVEL
YES X NO ___
(10) SEISMICALLY TESTED
YES X REF. B1, B2
NO ___
(11) SURVEILLANCE REQD.
YES X REF. E
NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	197.7 days	Ref.A Pg.9	Ref.C Pg.1	Test and Analysis	None	97 days	16 day test extended by analysis
TEMP. (°F)	148	225	Ref.A Pg.9	Ref.C Pg.1	Test	None	77	
PRESSURE (PSI)	2	5	Ref.A Pg.9	See Note #2	Test	None	3	
RELATIVE HUMIDITY (%)	100/90	Steam	Ref.A Pg.9	Ref.B1 & B2 Page 16	Test	None	Not req'd	
FLOODING, FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	1E7 RG 1.1E RB	6.8E7 RG Note #4	Ref.A Pg.8 Ref.D,Pg81	Ref.B1 & B2 Page 17	Test	None	5.8E7 RG	
AGING	40 yrs @ 101°F Note #1	14 yrs @ 104°F	Ref.A Pg.7	Ref.B1 & B2 Page 10	Test	None	Not req'd	See Note 3
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	---

DOCUMENTATION REFERENCE:

A. Bechtel Tech. Spec. 10855-J-301(Q) Rev.4

B1. Vendor Report J301(Q) 32-4
Westinghouse Report WCAP-8687 Suppl.2-E01B Rev.1

B2. Vendor Report J301(Q)31-5
Westinghouse Report WCAP-8687 Suppl.1-E03B Rev.1

C. Tobar ltr ES-4171 Dt. 12/4/84 (J301(Q) 32-4 & 31-5)

D. DITS 10855-D7.5 Rev.2

E. Tobar ltr dated 12/12/84 from H.A.Blake to K.W.Burrows

NOTES

1. Seals, gaskets and non-permanent lubrication shall have a minimum design life of 5 years. Ref.A, Pg.7
2. Ref.B1-Pg. 132E, 122; Ref.B2-Pg.127E,128
3. Max. Temp. in Rm.4605=101°F, Ref.D, Pg.48
New O-ring to be used when cover is replaced after calibration Ref. E, Pg.5
4. Qualified Radiation Level encompasses Specified Gamma and Beta doses.

028

ATTACHMENT TO EESS NO. J301-T-001 Sh.1 of 2

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BB-LT-7854	RB 77', Rm.4203	Provides signal to reactor vessel water level control system	2a	M42-1, M/R Item 2.13, Model 32DP1
1-BJ-LT-4801	RB 54', Rm.4116	Senses suppression chamber level and provides signal in main control room for PAM equipment. R.G. 1.97 parameter	2a	M55-1, M/R Item 2.21, Model 32DP1
1-BB-LT-3632A	RB 77', Rm. 4215	Senses reactor vessel water level and provides a signal for level indication in the control room	Additional operator info and supplied for Class 1E bus	M42-1, M/R Item 2.23, Model 32DP1
1-BB-LT-3682B	RB 77', Rm.4203	"	"	"
1-BB-LT-3683A	RB 77', Rm.4215	"	"	M42-1, M/R Item 2.24, Model 32DP1
1-BB-LT-3683B	RB 77', Rm.4203	"	"	"
1-BB-LT-3622A	RB 77', Rm.4215	Senses reactor vessel water level and provides a signal to a recorder in control room R.G. 1.97 parameter	2a	M42-1, M/R Item 2.27, Model 32DP1
1-BB-LT-3622B	RB 77', Rm.4203	"	"	"

028

ATTACHMENT TO EPSS NO. J301-T-001 Sh.2 of 2

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GS-PT-496CA1	RB 102', Rm.4331	Provides suppression chamber pressure signal to pressure recorders. R.G. 1.97 requirement	2a	M57-1, M/R Item 3.1, Model 32PA1
1-GS-PT_4960B1	RB 102', Rm.4323	"	2a	"
1-BB-PT-7853A	RB 77', Rm.4215	Provides reactor pressure low permissive interlock to open RHR inboard shutdown cooling isolation valve and RHR RFV (reactor) head spray inbd isol. viv. during shutdown cooling mode	2a	M42-1, M/R Item 3.71, Model 32PA1
1-BB-PT-7[illegible]3D	RB 77', Rm.4202	Provides reactor pressure low permissive interlock to open RHR outboard shutdown cooling isolation valve	2a	"
1-GS-PT-4960A2	RB 162', Rm.4605	Sends signal to recorder in main control room and computer to continuously record drywell pressure during normal and post accident condition (R.G. 1.97 requirement & TMI action)	2a	M42-1, M/R Item 3.85, Model 32PA1
1-GS-PT-4960B2	RB 162', Rm.4601	"	2a	"
1-BB-PT-3684A	RB 77', Rm.4215	Sends signal to pressure indicator in main control room indicating reactor pressure R.G. 1.97 requirement	2a	M42-1, M/R Item 3.89, Model 32PA1
1-BB-PT-3[illegible]	RB 77', Rm.4203	"	2a	"
1-GS-PDT-5029	RB 102', Rm.4301	Senses differential pressure between reactor building and torus provides signal to open reactor building to torus vaccum relief valve on low containment pressure	2a	M57-1, M/R Item 4.23, Model 32DP1
1-GS-PDT-5031	RB 102', Rm.4328	"	2a	M57-1, M/R Item 4.24, Model 32DP1

029

Prepared by T. Narang I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/18/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
TOBAR INSTRUMENT TRANSMITTER (32 SERIES #2)

SHT. NO: J301-T-002
REV. NO: 2
DATE: 10/10/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM SEE ATTACHED SHEETS (2) TAG NO. SEE ATTACHED SHEETS (3) COMPONENT INSTRUMENT TRANSMITTER (4) MANUFACTURER TOBAR (5) MODEL NO. 32 SERIES #2 (6) FUNCTION SEE ATTACHED SHEETS (7) ACCURACY a) SPECIFIED ±0.5% b) ACTUAL +0.3 -0.2 (8) LOCATION SEE ATTACHED SHEETS (9) ABOVE FLOOD LEVEL YES X NO ___ (10) SEISMICALLY TESTED YES X REF. B NO ___ (11) SURVEILLANCE REQD. YES X REF. F NO ___	OPERATING TIME	100 days	116 days	Ref.A Pg.9	Ref.C Pg.8	Test	None	16 days	
	TEMP. (°F)	148	230	Ref.A Pg.9	Ref.B Fig.61	Test	None	82	
	PRESSURE (PSIG)	2	2.5	Ref.A Pg.9	Ref.B Appendix-D D-27	Test	None	0.5	
	RELATIVE HUMIDITY (%)	100/90	Spray	Ref.A Pg.9	Ref.B Sect 6.2 Pg.6-1	Test	None	Not req'd	
	FLOODING/ FROSH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
	RADIATION (RADS)	1E7 RG 1.1E6 RB	1.2E7RG Note #4	Ref.A Pg.8 Ref.E,P.81	Ref.B Pg.4.6	Test	None	2E6 RG	
	AGING	40 yrs @ 100°F Note #1	20 yrs 104°F	Ref.A Pg.7 Ref.E Table #6	Ref.B Errata sh. dt.10/15/82 Ref.D	Test	None	Not req'd	Note #2
	SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Bechtel Tech. Spec. 10855-J-301(Q) Rev.4

B. Vendor Report J301(Q)-66-1, Westinghouse Model 32 Series 2 Qualification Program, Post Test Analysis and Summary Report 5519A32, Rev.1.

C. Vendor Report No. J301(Q)-66(2)-1

D. Telecon between E. Crandall (PSE&G) and Ed Miller (TOBAR) dated 3/5/85 - (Qualified Life)

E. DITS 10855-D7.5, Rev.2

F. TOBAR Ltr dt. 12/12/84 from H.A.Blake to K.W.Burrows

NOTES

1. Seals, gaskets and non-permanent lubrication shall have a minimum design life of 5 yrs - Ref.A Pg.7
2. New O-Ring is to be used when cover is replaced after calibration Ref. Pg.5
3. Most severe service conditions for room locations as listed in attached sheets are shown in "Specified" column. (Rm#4706, Ref.E, Pg.50)
4. Qualified Radiation Level encompasses specified Gamma and Beta doses.

029

ATTACHMENT TO EESS NO. J301-T-002 Sh. 1 of 4

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-EG-FT-2549A1	RB 102', Rm.4309	Measures SACS pump discharge flow. Provides signal to main control board for indication. R.G. 1.97 requirement	2a	M11-1 M/R Item 1.3 Model 32DP2
1-EG-FT-2549B1	RB 102', Rm.4307	"	"	"
1-BC-FT-4435	RB 77', Rm.4205	Provides signal for flow indication of remote shutdown. Panel based on RHR flow to reactor vessel	Additional operator information and power supplied from Class 1E bus	M51-1 M/R Item 1.5 Model 32DP2
1-EC-FT-4649A&B	RB 162', Rm.4608	Provides low pump discharge alarm signal and control signal to shutdown fuel cooling pump on low discharge flow	2a	M53-1 M/R Item 1.9 Model 32DP2
1-FC-FT-4158	RB 54', Rm.4108	Senses RCIC pump discharge flow and provides control signal for RCIC pump turbine	2a	M49-1 M/R Item 1.17 Model 32DP2
1-KP-FT-6053A&B	RB 102', Rm.4315	Provides a signal for alarm and indication and control of MSIV inlet seal gas line flow.	2a	M72-1 M/R Item 1.23 Model 32DP2
1-EG-FT-2511A&B	RB 77', Rm.4211	Measures RHR heat exchanger discharge flow. Provides signal to main control room for indication.	Additional operator info & power supplied from Class 1E bus	M11-1 M/R Item 1.27 Model 32DP2
1-EG-FT-2544A,B, C&D	RB 102', Rm.4309	Measures flow in SACS loop and starts back up pump in alternate loop on low flow	2a	M11-1 M/R Item 1.28 Model 32DP2
1-BC-FT-4461A	RB 77', Rm.4216	Provides signal for flow indication to control room based on flow to suppression pool spray header. R.G. 1.97 requirement	2a	M51-1 M/R Item 1.29 Model 32DP2
1-BC-FT-4461B	RB 77', Rm.4203	"	"	"
1-BC-FT-4462A	RB 102', Rm.4328	Provides signal for flow indication in control room based on RHR flow to drywell spray headers	"	M51-1 M/R Item 1.30 Model 32DP2
1-BC-FT-4462B	RB 77', Rm.4203	"	"	"

029

ATTACHMENT TO EESS NO. J301-T-002 Sh.2 of 4

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GU-FT-9394A -9394B -9394C -9394D -9394E -9394F	RB 132', Rm.4410 RB 176', Rm.4617 RB 132', Rm.4411 RB 162', Rm.4615 RB 162', Rm.4614 RB 178', Rm.4616	Provides control signal to FRV's recirculation fan on deluge activation	2a	M83-1 M/R Item 1.35 Model 32DP2
1-GU-FT-9425A&B	RB 145', Rm.4511	Upon detection of deluge actuation, shuts down its corresponding FRVS vent system fan	2a	M84-1 M/R Item 1.36 Model 32DP2
1-EG-LT-2508A,B C&D	RB 201', Rm.4706	Located on expansion tank, indicates excessive loss of water in one SACS loop starts the alternate cooling loop	2a	M11-1 M/R Item 2.11 Model 32DP2
1-EC-LT-4661A 1-EC-LT-4661B	RB 162', Rm.4605	Provides low-low level alarm signal for skimmer surge tank and control signal to shutdown fuel pool cooling pump and close filter demineralizing system isolation valves	2a	M53-1 M/R Item 2.15 Model 32DP2
1-EA-PT-2356A1, A2 & A3	RB 77', Rm.4211	Senses high pressure in SACS heat exchanger cooling water discharge line to cooling tower. Provides signal (two out of three required) to open dump valve to discharge to year if normal discharge line is restricted	2a	M10-1 M/R Item 3.45 Model 32DP2
1-EA-PT-2356B1, B2 & B3	RB 77', Rm.4209	"	"	M10-1 M/R Item 3.47 Model 32DP2
1-BD-PT-4157	RB 54', Rm.4108	Senses RCIC injection pressure. Provides signal for alarm in control room on low pressure.	Additional info to operator and power supplied from Class 1E bus	M49-1 M/R Item 3.55 Model 32PG2
1-BD-PT-4303	RB 54', Rm.4108	Measured jockey pump discharge pressure for alarm and indication	"	M49-1 M/R Item 3.37 Model 32PG2
1-EC-PT-4669A 1-EC-PT-4669B	RB 162', Rm.4608	Provides low pump suction signal to shutdown fuel pool cooling pump	2a	M53-1 M/R Item 3.75 Model 32PG2

029

ATTACHMENT TO EESS NO. J301-T-002 Sh.3 of 4

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BJ-PT-4891	RB 77', Rm.4219	Measures jockey pump discharge pressure and provides signal for alarm and indication.	Additional info to operator and power supplied from Class 1E bus	M56-1 M/R Item 3.77 Model 32PG2
1-KP-PT-5827A&B	RB 102', Rm.4315	Senses MSIV seal gas line pressure and provides signal for indication and control of MSIV system pressure differential control valve	2a	M72-1 M/R Item 3.81 Model 32PG2
1-EA-PDT-2373A 1-EA-PDT-2373B	RB102', Rm.4309	Senses low cooling water differential pressure across SACS heat exchanger. Provides signal for alarm on low service water cooling flow through heat exchanger	Additional info to operator and power supplied from Class 1E bus	M10-1 M/R Item 4.9 Model 32DP2
1-EA-PDT-2359A 1-EA-PDT-2354B	RB 102', Rm.4309 RB 102', Rm.4307	"	"	M10-1 M/R Item 4.11 Model 32DP2
1-EG-PDT-2529A&B	RB 162', Rm.4608	Measure flow through fuel pool heat exchanger and initiates alarm in control room	"	M11-1 M/R Item 4.13 Model 32DP2
1-EG-FT-2549B3	RB102', Rm.4307	Measures SACS Pump Discharge Flow. Provides signal to Remote Shut Down Panel for indication.	"	M11-1 Model 32DP2

029

ATTACHMENT TO EESS NO. J301-T-002 Sh.4 of 4

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BJ-PT-4771	RB 54' Rm 4112	Senses pump discharge header pressure and provides signal for indication and alarm.	Additional info to operator and power supplied from Class 1E bus	M55-1, MR Item 3.3, Model 32PG2
1-GS-PT-4960A3	RB 162' Rm 4605	Senses drywell pressure and provides signal to recorder in control room. R.G. 1.97 parameters	2a	M42-1. MR Item 3.13, Model 32DP2
1-GS-PT-4960B3	RB 102' Rm 4323	Senses suppression chamber pressure and provides signal to recorder in control room. R.G. 1.97 parameters.	2a	M57-1, MR Item 3.13, Model 32DP2

030

Prepared by T. Narang, I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/18/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
H_2O_2 ANALYZER PANELS AND ASSOCIATED COMPONENTS

SHT. NO: J359(Q)-VAR-001
REV. NO: 2
DATE: 10/10/85

EQUIPMENT DESCRIPTION

(1) SYSTEM HYDROGEN & OXYGEN ANALYSER SYS (GS)

(2) TAG NO.
See Page Attach.

(3) COMPONENT
See Page Attach.
Note #5

(4) MANUFACTURER
COMSIP

(5) MODEL NO.
K-IV

(6) FUNCTION
See Page Attach.

(7) ACCURACY
a) SPECIFIED ±5% H_2 and O_2
b) ACTUAL ±2.3%

(8) LOCATION R.B. ELEV. 162', Rms. 4602 & 4604

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. B
NO ___

(11) SURVEILLANCE REQD.
YES X REF. B, E
NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	100 days	Ref.A Pg.9,¶4.3.2	Ref.B Section 6, App.F,Pg.211	Test	None	Note #2	
TEMP. (°F)	340°F(Cont) 150°F(R.B.)	300°F(Max) 150°F(R.B.)	Ref.A Pg.9,¶4.3.2	Ref.B,Sec.6 AppF,Pg.211	Test	None	Note #2	See Note 1 & 3
PRESSURE (PSIA)	62psig(Cont) .25 - 2psig (R.B.)	70 psi (Cont) ATM (R.B.)	Ref.A Pg.9,¶4.3.2	Ref.B,Sec.6 AppF,Pg.211	Test	None	Note #2	See Note 1
RELATIVE HUMIDITY (%)	100%	90% ±5%	Ref.A Pg.9,¶4.3.2	Ref.B,Sec.6 AppF,Pg.211	Test	None	N/R	See Note 3
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	N/R	
RADIATION (RADS)	8.5E4 RG	$1x10^6$RG (T.I.D.)	Ref.D	Ref.B,Sec.6 App.D, Table DIII	Test	None	9.1E5 RG	
AGING	40 yrs @84°F	40 yrs	Ref.A Pg.7,¶4. Ref.F,Pg.48	Ref.B,Sec.6 App.D,Table D-I	Test and Analysis	None	N/R	Note 4 For replacement Sch. See Ref.E.
SPRAY	N/A	N/A	N/A	N/A	N/A	None	N/R	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-J-359(Q),Rev.4

B. EA&T Test Report 1035-1, Rev.1, (J-359Q-47(1)-1)

C. 10855-J359(Q)-47(1)-2

D. Telecon dt.6/13/85 providing TID and indicating Beta Radiation is not a concern.

E. 10855-J359(Q)-47(1)-3.

F. Environmental Design Criteria 10855-DF.5, Rev.2 (10/84)

NOTES

1. Since the cabinets are in the reactor bldg. the lower parameters represent reactor bldg. LOCA conditions, while the higher values represent primary containment LOCA parameters at the sample point.
2. All specified parameters include margins of 15°F for temp. 10% for gauge pressure, and +10% for period of time equipment req'd to operate following a DBE.
3. Justification for temp. & humidity differences are shown in Ref.C, Pg.2.(attached).
4. Aging temp. for specific components are shown in Ref.B, Table D-I.
5. Devices in attached sheets are mounted on Panels 1AC200 & 1BC200

030

ATTACHMENT TO EESS NO. J359-VAR-001 Sh. 1 of 3

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GS-AE-5039A1	Reactor Bldg. 162' El., Rms.4602&4604	Analysis Element, measures hydrogen content of sample. R.G. 1.97 parameter.	2a	M-57-1
1-GS-AE-5039A2	"	Analysis Element, measures oxygen content of sample. R.G. 1.97 parameter.	"	"
5-AE-5039B1	"	Analysis Element, measures hydrogen content of sample. R.G. 1.97 parameter.	"	"
1-GS-AE-5039B2	"	"	"	"
1-GS-PSH-5081A	"	Pressure Switch High, senses sample return pump pressure and provides signal for alarm and indication.	"	"
1-GS-PSL-5081A	"	"	"	"
1-GS-PSH-5081B	"	"	"	"
1-GS-PSL-5081B	"	"	"	"
1-GS-PSL-5085A1	"	Pressure Switch Low, senses line pressure from H_2O_2 bottle station and provides signal for alarm and indication.	"	"
1-GS-PSL-5085A2	"	"	"	"
1-GS-PSL-5085A3	"	"	Additional info to operator and fed from Class 1E Power supply	"
1-GS-PSL-5085A4	"	"	"	"
1-GS-PSL-5085B1	"	"	"	"
1-GS-PSL-5085B2	"	"	"	"
1-GS-A1-5040A	"	Analysis Indicator, remote oxygen indicator	"	"
GS-A1-5040B	"	"	"	"
1-GS-PSL-5085B3	"	Pressure Switch Low, senses line pressure from H_2/O_2 bottle station and provides signal for alarm and indication.	"	"

030

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GS-PSL-5065B4	Reactor Bldg. 162' 1., Rms.4602&4604	Pressure Switch Low, senses line pressure from H_2/O_2 bottle station and provides signal for alarm and indication.	2a	M-57-1
1-GS-SV-5086A1	"	Solenoid Valve, H_2/O_2 Analyzer Panel isolation valve to bottle station.	"	"
1-GS-SV-5086A2	"	"	"	"
1-GS-SV-5086B1	"	"	"	"
1-GS-SV-5086B2	"	Solenoid Valve, H_2/O_2 Analyser Panel isolation valve to bottle station.	"	"
1-GS-HS-5087A	"	Hand Switch, operates solenoid valves to H_2/O_2 analysis regent bottles.	"	"
1-GS-SV-5087A1	"	Solenoid Valve, H_2/O_2 Analyzer Panel isolation valve to bottle station.	"	"
1-GS-SV-5087A2	"	"	"	"
1-GS-HS-5087B	"	Hand Switch, operates solenoid valves to H_2/O_2 analysis regent bottles	"	"
1-GS-SV-5087B1	"	Solenoid Valve, H_2/O_2 Analyzer Panel isolation valve to bottle station.	"	"
1-GS-SV-5087B2	"	"	"	"
1-GS-TSH-5092A	"	Temperature Switch, senses temperature in heated compartment H_2/O_2 Analyzer Cabinet and provides a signal for heater control and alarm and indication.	"	"
1-GS-TSL-5092A	"	"	"	"
1-GS-TSH-5092B	"	"	"	"
1-GS-TSL-5092B	"	"	"	"
GS-PDS-5094A1	"	Pressure Differential Switch, senses differential pressure across sample line flow orifice and provides signal to flow alarm and indication.	Additional info to operator and fed from Class 1E power supply.	"

030

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GS-PDS-5094A2	Reactor Bldg. 162' El. Rms.4602&4604	Pressure Differential Switch, senses differential pressure across sample line flow orifice and provides signal to flow alarm and indication.	Additional info to operator and fed from Class 1E power supply	M-57-1
1-GS-PDS-5094B1	"	"	"	"
1-GS-PDS-5094B2	"	"	"	"
1-GS-PAHL-5081A	"	Alarm Point, provides signal from various sensing switches to alarm points and indicating lights.	"	"
1-GS-PAHL-5081B	"	"	"	"
1-GS-PAL-5085A	"	"	"	"
1-GS-PAL-5085B	"	"	"	"
1-GS-XA-5042A	"	"	"	"
1-GS-XA-5042B	"	"	"	"
1-GS-TAH-5092A	"	"	"	"
1-GS-TAL-5092A	"	"	"	"
1-GS-TAH-5092B	"	"	"	"
1-GS-TAL-5092B	"	"	"	"
1-GS-FAL-5094A	"	"	"	"
1-GS-FAL-5094B	"	"	"	"

Prepared by I. Nagang, I. Nag Date 10/10-5

Reviewed by C.W. [illegible] Date 10/15/85

042

EQUIPMENT EVALUATION SUMMARY SHEET

FCI LIQUID LEVEL SENSOR

HOPE CREEK GENERATING STATION

SHT. NO: J483-LS-001
REV. NO: 3
DATE: 8/1/85

(1) SYSTEM SEE ATTACHED SHEETS
(2) TAG NO. SEE ATTACHED SHEETS
(3) COMPONENT LIQUID LEVEL SENSOR
(4) MANUFACTURER FLUID COMPONENTS, INC.
(5) MODEL NO. 8-66 & FR-72
(6) FUNCTION SEE ATTACHED SHEETS
(7) ACCURACY
a) SPECIFIED ±0.01"
b) ACTUAL ±0.01"
(8) LOCATION SEE ATTACHED SHEETS
(9) ABOVE FLOOD LEVEL YES ___ NO X
(10) SEISMICALLY TESTED YES X REF. B NO ___
(11) SURVEILLANCE REQD. YES X REF. NOTE #8 NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	24 hrs	110.75 hrs	#A Page 7	C App E, Pg.20	Test	None	86.75 hrs	
TEMP. (°F)	Note #1	Note #2	#A Page 6	↓	↓	None	Adequate	Note #5
PRESSURE (PSI)	Note #3	Note #4	#A Page 7	↓	↓	None	23 PSI	
RELATIVE HUMIDITY (%)	100	100	↓	↓	↓	None	Not req'd	
FLOODING/ FROTH	Yes	Yes	By function	B, Pg.15	↓	None	Not req'd	
RADIATION (RADS)	8.1E5 RG Note #6	Note #7 Note #6	A, Pg.7	B, Pg.10 Ref. E		Note #6	RG Adequate	
AGING	40 yrs @ 94°F	40 yrs @ 104°F	#F, Pg.44 (Rm #4307)	B, ¶6, Pg.11 & Note #8	Test and Analysis	None	Not req'd	Note #8 Worst avg. ambient temp. considered.
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Tech Spec. 10855-J483(Q), Rev.2.
B. FCI Report 708086 Rev.A (10855-J483(Q)-14(1)-4)
C. FCI Report 708053, Rev.F (10855-J483(Q)-14(1)-4 Attachment II)
D. 10855-J483(Q)-14(1)-5.
E. Beta Radiation Qualification Report.
F. Environmental Design Criteria for HCGS. 10855-D7.5, Rev.2 (10/84)

NOTES

1. 340°F-0 to ½ hrs. 148°F-½ to 24 hrs.
2. 340°F(Max)-14 hrs For temp. profile see Ref.C Appendix E - pg.20.
3. 20 psig-0 to 1 hr. 0 psig-1 hr to 100 days
4. 43 psig-14 hrs For press. profile see Ref.C, App.E, Pg.20.
5. Lack of margin at 340°F is compensated by longer test time than required (@340°F).
6. For beta radiation qualification see Ref.E.
7. Electronics 5E6 RADS Gamma
   Sensor Heads 1.5E7 RADS Gamma
   Sensors 10^8 RADS Gamma
   EPR O-ring 1.2E6 RADS Gamma
8. For component or subassembly with qualified life less than 40 yrs & periodic replacement schedule See Ref.B-Table II Pg.21, Table I Pg.20 and ¶1.1 Pg.3, Ref.D Pg.4 thru 6. Ref.D, Attach.2 (FCI Report #708342) ¶3.6 Pg.51 thru 55.

042

ATTACHMENT TO EESS NO. J483-LS-001 Sh.1

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-ED-LSH-2165A	4209	Senses (high) flood level in RACS pump room. Operates alarm in control room and provides signal to close cooling water supply valve to RACS heat exchanger.	2a	M-25-1
B	4209	"		
C	4108	Senses (high) flood level in RACS pump room. Provides signal to close cooling water supply valve to RACS heat exchanger.	2a	
1-BD-LSH-4151-1	4108	Provides contact for RCIC flood level alarm	2a	
2	4108		Add. info to operator and supplied from Class 1E Bus.	M-25-1
1-BD-LS-N035A	4203	"		
1-BD-LS-N035E	4203	Senses Lo Lo water level of condensate storage tank and initiates suction transfer to suppression pool for RCIC	2a	M-08-0
1-BE-LSH-4581A-1	4118	"		
B-1	4104	Senses (high) flood level in core spray pump room and operates alarm in control room	2a	M-08-0
C-1	4116	"	Add. info to operator and supplied from Class 1E Bus.	M-25-1
D-1	4105	"		"
1-BE-LSH-4581A-2	4118	"		"
B-2	4104	"	"	"
C-2	4116	"	"	"
D-2	4105	"	"	"
1-BD-LE-4151-1	4110	"	"	"
-2	4110	Senses (high) flood level in RCIC pump room provides signal to operate alarm in control room.	"	"
1-BD-LSH-4151-1	4108	Receives signal on (high) flood level in RCIC pump room. Operates alarm in control room.		
-2	4108			
1-BC-LSH-4403A-1	4112	Receives signal on (high) flood level in RHR pump room. Operates alarm in control room.	"	"
B-1	4108			
D-1	4107	"		
1-BC-LE-4403A-1	4113	Senses (high) flood level in RHR pump room and provides signal to operate alarm in control room.	"	"
B-1	4109		"	"
D-1	4107	"	"	"

042

ATTACHMENT TO EESS NO. J483-LS-001 Sh.2

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BC-LSH-4403A-2	4112	Receives signal on (high) flood level in RHR pump room.	Add. info to operator and supplied from Class 1E Bus.	M25-1
↓ B-2	4108	Operates alarm in control room.		
↓ D-2	4107	"		
1-BC-LE-4403A-2	4113	Senses (high) flood level in RHR pump room and provides signal to operate alarm in control room.		
↓ B-2	4109			
↓ D-2	4107	"	"	"
1-EG-LSH-2359A	4309	Senses (high) flood level in SACS pump room. Operates alarm in control room.	"	"
↓ B	4309			
2364A	4307	"	"	"
↓ B	4307	"	"	"
1-BJ-LSH-4807	4112	Receives signal on (high) flood level in HPCI pump room. Operates alarm in control room.	↓	↓
1-BJ-LE-4807	4111	Senses (high) flood level in HPCI pump room. Operates alarm in control room.		
1-BJ-LSH-4808	4112	Receives signal on (high) flood level in HPCI pump room. Operates alarm in control room.		
1-BJ-LE-4808	4111	Senses (high) flood level in HPCI pump room. Operates alarm in control room.		

Prepared by T. Narang I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/18/85

043

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
WEED PLATINUM RTD'S

SHT. NO: J556-TE-001
REV. NO: 2
DATE: 7/25/85

(1) SYSTEM
SEE ATTACHED SHEET
(2) TAG NO.
SEE ATTACHED SHEET

(3) COMPONENT
PLATIMUM RTD'S

(4) MANUFACTURER
WEED

(5) MODEL NO.
612-1BD-D-6-C-14.00-Q-0
611-1A-D-4-C-70-A2-0
(6) FUNCTION
SEE ATTACHED SHEET

(7) ACCURACY
a) SPECIFIED Note #5
b) ACTUAL Note #5

(8) LOCATION
SEE ATTACHED SHEET
(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. B
NO ___

11) SURVEILLANCE REQD.
YES X REF. C
NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	427 days	Ref.E Pg.40 Table5,Ref.H	Ref.B, Pg.70 Ref.F	Test and Analysis	None	327 days	641 hrs @300°F extended by analysis, Ref.F
TEMP. (°F)	See Note #1	See Note #2		Ref.B Pg.70	Test	None	10°F	Extended DBE time at 350°F provides adequate margin
PRESSURE (PSIA)	See Note #1	See Note #2			Test	None	8psig at peak	Extended DBE at 70 psig (above 10%) provides adequate
RELATIVE HUMIDITY (%)	100%	Steam			Test		Not req'd	Assumed steam because of rapid temp. rise shown on LOCA Profile Pg.70(350°F in 10sec)
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	TID 5.1E7 RG	3.03 E8 G	Ref.A Pg.6 & 7	Ref.B,Pg.73& 74, Ref.G	Test	None	2.52E8 RG	Note #3
AGING	40 yrs @ 150°F	40 yrs @ 135°F, 21 yrs @150°F	Ref.E Pg.18	Ref.B, Pg.9 Ref.I	Test and Analysis	None	Not req'd	724 hrs thermal aging @304°F extended by ARRH. Calc. Ref.I
SPRAY	Yes	Yes	Ref.E Pg.13,21	Ref.B Pg.20	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Tech. Spec. 10855-J-556(Q) Rev.7

B. NTS Report 548-8854-2 Rev.B (J556-57(1)-1)

C. Weed Instrument Co. Inc. Installation/Instruction/Operation Manual 3017-00015-009 Rev.0

D. 10855-J556-57(2) 1 Pg.C-12, C-11.

E. DITS 10855-D7.5, Rev.2

3. See Attached Sheet No.3.

4. For info refer to Bechtel Beta Qualification Report, CCN# 0275853 dt.12/80/84

5. Specified 1/2% or ±0.5°F whichever is greater. Tested +.65 to -.72 cummulative for 40 yrs, Ref.D, therefore well within specified value.

NOTES

1.

Time	Temp °F	Press. psig
0.20 sec	340	0-62
20sec-5min	340	62
5min-3hr	340	40
3-6hr	320	40
6-24hr	250	25
4-100days	200	10

2.

Time	Temp °F	Time	Press.psig
0-9hr	350	0-22hr	70
9-12hr	320	22hr-4days	45
12hr-27days	310	4-27days	10

The qualified data shown are conservative. For actual qualified profile see Ref B, Pg.70.

043

ATTACHMENT TO EESS NO. J556-TE-001

F. Doc. No. J556-AXRH-001, Rev.0, dt. 6/11/85

G. Bechtel Beta Qualification Report CCN #0275853, dt. 12/20/84

H. Bechtel memo dated 6/10/85 indicating DBE duration in Primary Containment as 100 days

I. Doc. No. J556-APRH-002 Rev.1, dt. 7/25/85

3. The qualified radiation level encompasses normal Gamma plub neutral doses 2.5E7 Rads inside drywell. See Ref.E, Para. VI B.1.b, Pg.19.

043

ATTACHMENT TO EESS NO. J556-TE-001 Sh.1

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BC-TE-4401	Rm. No. 4102	Senses temperature of RHR flow when directed to radwaste system and provides indication at remote shutdown panel	Additional operator info and fed from Class 1E power supply	M51-1 M/R Item #94*
1-EG-TE-2457A&B 1-EG-TE-2457B	Rm. No. 4309 Rm. No. 4307	Measures SACS pump coolant supply temperature and initiates closing of SACS bypass valve, if temp. rise is excessive.	2a	M-11-1 M/R Item #90*
1-EG-TE-2535A	Rm. No. 4309	Measures SACS pump coolant supply temperature and initiates closure of SACS bypass valve if temp. is excessive. Also provides temp. indication in control room (R.G.1.97 parameter)	2a	M11-1 M/R Item #88*
1-EG-TE-2535B	Rm. No. 4307	"	"	"
1-EC-TE-4683	Rm. No. 4625	Provides signal to: temp. indicator on remote shutdown panel, temp. recorder and high temp. alarm in control room for temp. of water at common discharge of fuel pool cooling pumps.	Additional operator info and fed from Class 1E power supply	M53-1 M/R Item #96*
1-GS-TE-4967A-1	4102	Temp. element, senses primary containment or suppression chamber temp. and provides a signal to a temperature recorder in control room. R.G. 1.97 parameter.	2a	M57-1 M/R Item #192
1-GS-TE-4967A-2	4220		"	#193
1-GS-TE-4967B-1	4102		"	#195
1-GS-TE-4967B-2	4220		"	#196
A3,B-3	Inside drywell	"	"	#194,197
1-SB-TE-3647 A thru H, J thru N. P thru R	Rm. No. 4102	Senses suppression chamber temperature and provides signal for recording and alarm. R.G. 1.97 parameter	2a	M41-1 M/R Item #70
1-SB-TE-3648 A thru D	Rm. No. 4102	"	2a	M41-1 M/R Item #72

*NOTE: Purchased as prequalified devices by P.O. J773(Q).

Prepared by P.P. Langely / I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/18/85

044

SHT. NO: J601-SV-001
REV. NO: 4
DATE: 8/29/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
ASCO SOLENOID VALVE

(1) SYSTEM BC,FC,FD
SEE SHEET ATTACHED

(2) TAG NO.
SEE SHEET ATTACHED

(3) COMPONENT
SOLENOID VALVE

(4) MANUFACTURER
ASCO

(5) MODEL NO.
NPK-832065E

(6) FUNCTION
SEE SHEET ATTACHED

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION Reactor Building
SEE SHEET ATTACHED

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. B (¶4.1.6)
NO ___

(11) SURVEILLANCE REQD.
YES X REF. B (App. C)
NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	>2000 days	Ref.D,Pg42 Note #2	Ref.B (1) Figure 4.1 Ref.C;Ref.B(2)	Test and Analysis	None	>2000days	30 day test extended by analysis Ref.C.
TEMP. (°F)	300°F-30min 148°F-100day	345°F-3hrs 265°F-30days			Test	None	45°F (max)	Rm.#4110 Notes #2 & 3
PRESSURE (PSIA)	1.5psig-30m 0psig-100day	30psig-5days 24psig-30day			Test	None	28.5psig	Rm.#4110 Notes #2 & 3
RELATIVE HUMIDITY (%)	100%-6hrs 95%-100days	100% Steam & Spray 29 days		Ref.b Figure 4.1 ¶4.2.3	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	5.06E6 RG -- 1.1E6 RB	(TID) 2.05E8 RG Note #1	Ref.D Pg.42,81	Ref.B Table 5.2 Appendix D	Test	None	2E8R G	Rm.#4110 Note #3
AGING	40 years @79°F	8 years @140°F 20K Cycles	Ref.D Pg.42 Note #2	Ref.B Appendix C and ¶4.1.1	Test and Analysis	None	Not req'd	Periodic Maint. Req'd. App.C of the Ref.B Report provides maintenance guidelines
SPRAY	N/A	Water Spray 29 days	N/A	Ref.B Figure 4.1	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification No. 10855-J601(Q) Rev.6 (12/80)

B. (1)ASCO Qual. Rept-AQR--67368/Rev.0 (3/82) (10855-J601(Q)-126-1
(2)Hiller Rpt.#ER-ST-200-P[P301(Q)-533(2)-1]

C. Arrhenius calculations for extending DBE test duration, EQPM #364

D. Environmental Design Criteria for HCGS, 10855-D7.5, Rev.2 (10/84)

NOTES

1. The Qualified Radiation dose encompasses specified B&G doses.
2. Most severe conditions considered. Rm.#4110.
3. The qualified values shown are conservative. For actual qualified temp. and pressure profile see Ref.B, Fig.4.1.

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-FC-SV-F005	RB.54' Rm.#4110	Operates condensate pump discharge isolation valve	2a	FC-RCIC turbine steam system M-50-1
1FD-SV-F025	RB.54' Rm.#4110	Operates pneumatic isolation valve when HPCI steam supply valve opens	"	FD-HPCI turbine steam system M-56-1
1-FC-SV-F054	RB.54' Rm.#4108	RCIC steam line condensate drain pot bypass drain valve. Normally closed, automatically opens on high drain pit level.	2b	M49-1
1-FD-SV-F054	RB.54' Rm.#4110	Operates a pneumatic valve to drain steam line condensate drain pot to main condenser around steam trap when HPCI inlet steam line water drain pot level is high.	"	M55-1

Prepared by P.P. Ganguly/I. Nag Date 10/10/.

Reviewed by [illegible] Date 10/18/85

045

SHT. NO: J601-ZS-002
REV. NO: 2
DATE: 7/25/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET

NAMCO LIMIT SWITCH

(1) SYSTEM BC, FC, FD
SEE ATTACHED SHEET

(2) TAG NO.
SEE ATTACHED SHEET

(3) COMPONENT
LIMIT SWITCH

(4) MANUFACTURER
NAMCO

(5) MODEL NO.
EA180-32302

(6) FUNCTION
SEE ATTACHED SHEET

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION REACTOR BLDG., SEE ATTACH. SH.

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. A
NO ___

(11) SURVEILLANCE REQD.
YES X REF. B
NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	134day	Ref.C Pg.81	Ref.A Fig.13,P.7-8 Ref.B	Test and Analysis	None	34 days	30 day test extended by analysis-Ref.B
TEMP. (°F)	300°F-30min 148°F-100day	340°F-5 3/4 200°F-25days	Ref.C Pg.42	Ref.A Fig.13,P.7-8	Test	None	40°F	Room #4110 Note #3 & 4
PRESSURE (PSIA)	1.5psig-30m 0psig-100da	80psig-5 3/4 10psig-25day	"	"	Test	None	78.5psig	"
RELATIVE HUMIDITY (%)	100%-6hrs 95%-100days	100% Water Spray	"	"	Test	None	Not req'd	Room #4110 Note #3
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	5.06E6 RG 1.1E6 RB	2.04E8 RG Note #1	Ref.C Pg.42,81	Ref.A Pg.4-9,10-15 Note #1	Test	None	1.94E8 RG	Room #4110 Note #3
AGING	40 yrs 79°F	5yrs @55% 4yrs @40°C	Ref.C Pg.42,43 Note 3 (Rm.#4111)	Ref.A Pg.4-7,EQ12 Note #2	Test and Analysis	None	Not req'd	Periodic Maint. Req'd Main Instruction EA189-90050 & 90051 of Ref.B provide Main. schedule.
SPRAY	N/A	Chemical and water spray	N/A	Ref.A Figure 13 Pg.7-8	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. NAMCO Qualification Report QTR 105, Rev.4 (1/84) (10855-P301(Q)-228-2

B. Arrhenius calculation to extend DBE test time, EQPM #421 (part 4 of 4) DTD. 6/1/82 (J605).

C. Environmental Design Criteria 10855-07.5, Rev.2 (10/84), Table #6

NOTES

1. Beta radiation qualification report. CCN#0264399 dt,5/15/84.
2. Switches with silicone cover gaskets qualified for 5 yrs @55°C (Ref.A Fig.8 & EA189-90051) Switches with NBR-Accobest gaskets qualified for 4 yrs @40°C (Ref.A, Pg.EQ-11, EQ 12)
3. Most severe conditions for room locations as listed in attached sheet are shown in "Specified" column.
4. The qualified data shown are conservative. For Actual Test Profile see Ref.A, Fig. 13, P.7-8.

045

ATTACHMENT TO EESS NO. J601-ZS-002

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-FC-ZS-F005	Rm #4110	Operations open/close valve status light in control room for RCIC condensate pump discharge isolation valve (outboard).	Addl. Operator info and supplied from Class 1E Power.	M50-1
FD-ZS-F025	Rm #4110	Operates open/close valve status light in control room for HPCI condensate pump discharge isolation valve (outboard).	"	M56-1

046

Prepared by S.P. Ganguly/I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/18/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
VALCOR SOLENOID VALVE

SHT. NO: J603-SV-001
REV. NO: 3
DATE: 10/10/85

(1) SYSTEM
SEE SHEET ATTACHED

(2) TAG NO.
SEE SHEET ATTACHED

(3) COMPONENT
SOLENOID VALVE

(4) MANUFACTURER
VALCOR

(5) MODEL NO.
SEE SHEET ATTACHED

(6) FUNCTION
SEE SHEET ATTACHED

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
SEE SHEET ATTACHED

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. E
NO ___ (App.Z)

(11) SURVEILLANCE REQD.
YES X REF. D
NO ___ (App.II)

PARAMETERS	ENVIRONMENT		DOCUMENTATION REFERENCE		QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
	SPECIFIED	QUALIFIED	SPECIFIED	QUALIFIED				
OPERATING TIME	100 days	204 days	Ref.A1, Table 5, Ref.F	Ref.C Appendix 4 Ref.E	Test and Analysis	None	104 days	31 day test extended by anayisis- Ref.E
TEMP, (°F)	See Note #3 #8	See Note #4 #9	Ref.A1 Table 5	Ref.C, App.4 Figure 1	Test	None	6°F @ Peak	Second DBE transient provides acceptable margin
PRESSURE (PSIA)	See Note #5 #8	See Note #6 #9			Test	None	51 psig	
RELATIVE HUMIDITY (%)	100%	100% Steam/ Chemical Spray		Ref.C Appendix 4 ¶2.2.6	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	5.04E7R G	2E8R G	Ref.A1 Table 4	Ref.C Appendix 3 Note #1	Test	None	1.5E8R G	
AGING	40 yrs @ 150°F 13000 cycles	40 yrs @~~135°F~~ 150°F Note #7 I.N. 11/26	Ref.A1, Pg.18 Ref.A,App. 4	Rev.D,App.II & Table II Ref.C ¶5.3, Ref.G	Test and Analysis	None	Not req'd	Periodic main. is req'd. All elastometer seals to be replaced at 5 yr intervals (Ref.D).
SPRAY	Yes	Steam/Chemical Spray 31 days	Ref.A1 Pg:21	Ref.C ¶5.6.3.2 I.N. 11/26	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Design Specification 10855-J603(Q), Rev.2 (3/82)

A1. Environmental Design Criteria 10855-D7.5, Rev.2 (10/84)

B. Valcor Qualification Report QR52600-5940-2, Rev.C (4/81) (10855-J603(Q)-98-2)

C. Valcor Qualification Report QR52600-515, Rev.C (11/79) (10855-J603(Q)-96-2)

D. Valcor Similarity Qualification Report #MR526-5295-92-2, Rev.A (8/84) (10855-J603(Q)-99-2)

NOTES

1. For B Radiation Qualification, refer to Bechtel Beta Radiation Qualif. Report.CCN#0264399, dtd. 3/15/84.

2. Vendor reports B&C provide qualif. of Valcor valve Model V52600-5291-2. These results apply to V526-5295-92, V526-5297-1, V526-5297-3, V526-5687-1, V526-5687-2 and V526-5295-114 thru 116 (as shown on Sh.#2) by similarity

3. 340°F-3hr
320°F-3-6hrs
250°F-6-24hrs
200°F-1-100days

4. 346°F-6 hr
335°F-10hr
245°F-27days

5. 62psig-5 min
40psig-6hr
25psig-4days
10psig-180days

6. 113psig-6 hr
69psig-10hr
28psig-4days
13psig-27days

7. 7500 cy pre-DBE, 50,000 cy Post-DBE

E. Arrhenius Calc. Doc.#J603-ARRH-001,Rev.0 5/13/85

F. Bechtel memo dt. 6/10/85, confirming 100 days DBE duration inside containment.

G. DCC. No. PSE-EE-E-009 Rev.0
I. Nag 11/26/85
CWL

046

ATTACHMENT TO EESS NO. J603-SV-001

8. Specified data shown in Notes 3 and 5 are conservative. For actual profile see Ref.A1, Table 5.

9. Qualified data shown in Notes 4 and 6 are conservative. For actual profile see Ref.C, App.4, Fig.1.

046

ATTACHMENT TO EESS NO. J603-SV-001

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BC-SV-F074	RB. 77', Rm.#4209	Solenoid valve (N.O.) provides a leakage drain path for isolation valves between service water system and SACS.	2b	M-10-1, M/R Item #2.1 (V526-5295-92)
1-EA-SV-2237	RB. 77' Rm.#4209	"	"	M-10-1, M/R Item #6.1 (V526-5295-92)
1-BB-SV-4310	Drywell,Rm.#4220	Containment isolation valve in recirculation pump discharge sample line.	2a	M-43-1, M/R Item #4.1 (V526-5297-1)
1-BB-SV-4311	RB.145',Rm.#4505	"	"	M-43-1, M/R Item #4.3 (V526-5297-1)
1-BC-SV-F079B	RB.54', Rm.#4102	RHR Hx discharge sample line isolation valve.	"	M-51-1, M/R Item #17.1 (V526-5297-3)
1-BC-SV-F080A&B	RB.54', Rm.#4102	"	"	M-51-1, M/R Item #18.1 (V526-5297-3)
0-RC-SV-0643A&B	RB.54'm Rm.#4102	Supression chamber liquid sample return line isolation valve	2b (Non-1E power)	M-38-0, M/R Item #22.1 (V526-5295-114)
0-RC-SV-0646A&B	RB.54', Rm.#4113	Used for reactor coolant liquid sample line isolation	"	M-38-0, M/R Item #23.1 (V526-5295-115)
0-RC-SV-0645A&B	RB.54', Rm.#4109	"	"	M-38-0, M/R Item #24.1 (V526-5295-115)
0-RC-SV-8903A&B	RB.54', Rm.#4102	Used for drywell gas sample line isolation	"	M-38-0, M/R Item #25.1 (V526-5295-115)
0-RC-SV-0731A&B	Rm.#4620	"	"	M-38-0, M/R Item #26.1 (V526-5295-116)
0-RC-SV-0730A&B	Rm.#4607	"	"	M-38-0, M/R Item #27.1 (V526-5295-116)
0-RC-SV-0729A&B	RB.54', Rm.#4102	Used for suppression chamber gas sample line isolation	"	M-38-0, M/R Item #28.1 (V526-5295-116)
0-RC-SV-0728A&B	RB.54', Rm.#4102	"	"	M-38-0, M/R Item #30.1 (V526-5295-116)
0-RC-SV-0707A&B	RB.54', Rm.#4102	Used for suppression chamber gas sample return line isolation	"	M-38-0, M/R Item #29.1 (V526-5295-116)
1-KL-PDV-5825A&B	RB.102',Rm.#4316	Pressure differential control valve, maintains MSIV seal system pressure above reactor vessel pressure.	"	M-72-1, M/R Item #3.1 (V526-6530-1)

Prepared by N. Chaudhry/E. Nag Date 10/10/85

Reviewed by C.W. Fields Date 10/18/85

047

EQUIPMENT EVALUATION SUMMARY SHEET

HOPE CREEK GENERATING STATION

VALCOR SOLENOID VAL. E

SHT. NO: J603-SV-002
REV. NO: 3
DATE: 8/1/85

(1) SYSTEM
SEE SHEET ATTACHED

(2) TAG NO.
SEE SHEET ATTACHED

COMPONENT
SOLENOID VALVES

(4) MANUFACTURER
VALCOR

(5) MODEL NO.
SEE SHEET ATTACHED

(6) FUNCTION
SEE SHEET ATTACHED

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
SEE SHEET ATTACHED

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. B
NO ___

(11) SURVEILLANCE REQD.
YES X REF. C
NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	100 days	Ref.A	Ref.B Appendix VII Pg.D-2, Ref.D	Test and Analysis	None Ref.D	None	Note #6
TEMP. (°F)	148°F	Note #3	Ref.A, ¶2.3	"	Test	None	67°F	Note #5
PRESSURE (PSIA)	3psig	Note #4	"	"	Test	None	8 psig	Note # 5
RELATIVE HUMIDITY (%)	100%	100%	"	"	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	N/A	Not req'd	
RADIATION (RADS)	2E7R G 1.1E6R B	5.9E7R G	Ref.B Pg.42&81 (Rm.#4102)	Ref.B ¶4.5	Test	None	3.79R G	The device is qualified even if B dose is assumed to be equivalent to G dose.
AGING	40 yrs @ 94°F >13,000 cycles	40 yrs @ 120°F 50,000 cycles	Ref.A1, Pg.44 Ref.A,App. 4	Ref.C,Table II & App.II Ref.B	Test and Analysis	None	Not req'd	Periodic main. is req'd. O-Ring replacement @5 yr intervals, see Ref.C
SPRAY	Not specified	Steam & Chemical spray 30days	N/A	Ref.B ¶4.7.3	Test	---	Not req'd	

DOCUMENTATION REFERENCE:

A. Design Specification 10855-J603(Q), Rev.2 (3/82).

A1. Environmental Design Criteria 10855-D7.5, Rev.2 (10/84).

B. VALCOR Qualification Test Report QR.526-5683-6, Rev.C (6/83) (10855-J603(Q)-100-2)

C. VALCOR Similarity Qualification Report MR 526-5295-92-2, REv.A (8/84) (10855-J603(Q)-99-2

D. Comment 11, VALCOR ltr., Dt.7/2/84

NOTES

1. Vendor Report B provides qualification of VALCOR valve model V526-5683-6 and -45. These results apply by similarity to valves V526-5687-1, V526-5687-2 (vendor comment #1). VALCOR Report MR 526-5295-92-2 extends similarity to V 526-6030-11
2. For further detailed information regarding B radiation qualification, refer to Bechtel Beta Radiation Qualification Report.
3. 365°F-24min
   310°F-2days
   215°F-27days
4. 66psig-24 min
   63psig-2days
   11psig-27days
5. The qualified value shown is conservative. For actual qualified temp. & pres. profile see Ref.B, Appendix VII, Pg.D-2
6. 30 days DBE Test extended by Ref.D. Adequate margin provided in Temp. & Pres.

047

ATTACHMENT TO EESS NO. J603-SV-002

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-EA-SV-2235	RB.77' Rm.#4211	Solenoid valve (N.O.) provides a leakage drain path for isolation valves between service water system and SACS.	2b	M-10-1, M/R Item #5.1 (V526-5687-1)
1-EA-SV-2239	RB.77' Rm.#4209	"	2b	M-10-1, M/R Item #7.1 (V526-5687-1)
1-EA-SV-2367 A thru D	A-RB102' Rm.#4309 B-RB102' Rm.#4307 C-RB102' Rm.#4309 D-RB102' Rm.#4307	Operates in SACS Hx cooling water discharge line following loss of power to admit air to reduce hydraulic pressure on restart of service water pumps	2b	M-10-1, M/R Item #8.1 (V526-5687-2)
1-BD-SV-F019	RB.77' Rm.#4102	RCIC minimum flow bypass line to suppression pool normally closed valve automatically opens on high RCIC discharge pressure and low flow. Also functions as isolation valve for minimum flow discharge line.	2a	M-49-1, M/R Item #35.1 (V526-C030-11)

Prepared by S.Y. Chungly / I. Nag Date 10/10/85

Reviewed by A.W. Ko Date 10/18/85

048

SHT. NO: J605-SV-001
REV. NO: 3
DATE: 8/27/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
ASCO SOLENOID VALVES

EQUIPMENT DESCRIPTION

(1) SYSTEM SACS

(2) TAG NO. EG-SV-2517 A&B

(3) COMPONENT SOLENOID VALVE

(4) MANUFACTURER ASCO

(5) MODEL NO. NP8320A184E

(6) FUNCTION Note #2

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION REACTOR BUILDING, 4307 & 4309

(9) ABOVE FLOOD LEVEL YES X NO ___

(10) SEISMICALLY TESTED YES X REF. B NO ___ (App.E,F,G)

(11) SURVEILLANCE REQD. YES X REF. B NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	240 days	Ref.A ¶5.3	Ref.B,P4-21 Ref.C	Test and Analysis	None	140 days	30 day test extended by analysis.Ref.C
TEMP. (°F)	340°F(1hr) 150°F(100dy)	346°F(max)-Note #1 8hrs		Ref.B Pg.4-21	Test	None	6°F	2nd Transient during DBE prov.adequ.margin
PRESSURE (PSIA)	2psig(1hr) 0.3psig (100day)	110psig(Peak) Note #1			Test	None	108psig (Peak)	
RELATIVE HUMIDITY (%)	100%	100% Steam & Spray			Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	1E7R	2.01E8 RADS	Ref.A ¶5.3	Ref.B Appendix D Note #3	Test	None	1.91E8RG	
AGING	40 yrs @94°F	10 yrs @ 140°F 40K cycles	Ref. D Pg.44	Ref.B Supplement No.3	Test and Analysis	None		Per.Maint.Req'd-Replacement parts per ASCO Catalog NP-1
SPRAY	N/A	Chemical Spray @ PH-10 for 30 days	N/A	Ref.B Pg. 4.4	Test	---	Not req'd	---

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-J605(Q), Rev.6 (3/5/79)

B. ASCO Qualification Report AQS 21678/TR DTD. March 1978 through supplement No.3 (10855-J605(Q)-69-1 & 69-2)

C. Arrhenius analysis for extending test data (M728(Q)-41(4)-1)

D. Environmental Design Criteria 10855-D7.5, Rev.2 (10/84).

NOTES

1. For actual qualified profile of Temperature and Pressure see Ref.B, Pg. 4-21

2. Operates SACS Hx bypass valve. Category 2b Item/NUREG-0588 App.E

3. Beta radiation qualification

Prepared by I. Nag / N.P. Ganguly Date: 6/29/85

Reviewed by J.W. Poblenski Date: 7/2/85

048A

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
NAMCO LIMIT SWITCH

SHT. NO: J605-ZS-002
REV. NO: 2
DATE: 6/12/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT		DOCUMENTATION REFERENCE		QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
		SPECIFIED	QUALIFIED	SPECIFIED	QUALIFIED				
(1) SYSTEM (EG) SACS SYSTEM (2) TAG NO. 1-EG-ZS-2517 A&B (3) COMPONENT LIMIT SWITCH (4) MANUFACTURER NAMCO (5) MODEL NO. EA180-32302 (6) FUNCTION See Note #1 (7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A (8) LOCATION REACTOR BLDG. 102' Rooms 4309 & 4307 (9) ABOVE FLOOD LEVEL YES X NO ___ (10) SEISMICALLY TESTED YES X REF. B NO ___ (11) SURVEILLANCE REQD. YES X REF. B NO ___	OPERATING TIME	100 days	134 days	Ref.A §5.3	Ref.B Fig.13 P.7-8 Ref.C	Test and Analysis	None	34 days	30 day test extended by analysis. Ref.C.
	TEMP. (°F)	340°F-30min 150°F-100da	340°F-5 3/4 200°F-25days		Ref.B Fig.13 P.7-8	Test	None	Note #5	2nd transient during DBE provides accept.margin
	PRESSURE (PSIA)	5psi-30min -.25psi-100 days	80psig-5 3/4 10psig-25day			Test	None	70psig	
	RELATIVE HUMIDITY (%)	100%-30min 90%-100days	100% Water spray			Test	None	Not req'd	
	FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
	RADIATION (RADS)	1.0E7R G	2.04E8R G	Ref.A §5.3	Ref.B Pg4-9,10-15 Note #2	Test	None	1.94E8R G	
	AGING	40 yrs @87°F	5yrs @55°C 4yrs @40°C	Ref. Pg.44	Ref.B Pg.4-7 Note #3	Test and Analysis	None	Note #4	Periodic Maint. Req'd Main. Instruction EA189-90050 & 90051 of Ref.B provide Main. schedule.
	SPRAY	N/A	Chemical and water spray	N/A	Ref.B Figure 13 Pg.7-8	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-J605(Q), Rev.7 (11/84).

B. NAMCO Qualification Report QTR 105, Rev.4 (1/84) (10855-P301(Q)-228-2

C. Arrhenius calculation to extend DBE test time, EQPM #421 (part 4 of 4) DTD. 6/1/82.

NOTES

1. Provides position indication for SACS heat exchanger bypass valve (Powered from a 1E source and addl. operator info.)
2. Beta radiation qualification Report. CCN#0264399 dt. 5/15/84
3. Switches with silicone cover gaskets qualified for 5 yrs @55°C (EA189-90051,Ref.B). Switches with NBR-Accobest gaskets qualified for 4 yrs @40°C (Ref.B, EQ-11,12)
4. DITS 7.5 Rev 2 indicates max. 40 yr temperature is 84°F

Prepared by I. Nag / R Thungely Date 7/18/85

Reviewed by J. Wolkowski Date 7/25/85

049

EQUIPMENT EVALUATION SUMMARY SHEET
ROTORK VALVE ACTUATOR

HOPE CREEK GENERATING STATION

SHT. NO: J605-HV-003
REV. NO: 3
DATE: 7/18/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM (BC) RHR SYSTEM (2) TAG NO. 1-BC-HV-F048A 1-BC-HV-F048B (3) COMPONENT VALVE ACTUATOR (4) MANUFACTURER ROTORK (5) MODEL NO. SYNCROSET (6) FUNCTION See Note #1 (7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A (8) LOCATION REACTOR BLDG. RM. 4214(A) 4208(B) (9) ABOVE FLOOD LEVEL YES X NO ___ (10) SEISMICALLY TESTED YES X REF. B NO ___ (Sect.8) (11) SURVEILLANCE REQD. YES X REF. B NO ___ M-51-1	OPERATING TIME	100 days	100 days	Ref.A ¶5.3	Ref.B Appendix X-2 & Ref.C	Test and Analysis	None	Adequate	30 day test extended analysis. Ref.C
	TEMP. (°F)	340°F-30min 150°F-100da	385°F-2hrs 215°F-30days	↓	↓	Test	None	45°F	Note #3
	PRESSURE (PSIA)	5psi-30min -.25"wg.-100days	75psig-2hrs 15psig-30day	↓	↓	Test	None	70psig (Peak)	Note #3
	RELATIVE HUMIDITY (%)	100%-30min 90%-100 days	100%	↓	↓	Test	None	Not req'd	
	FLOODING/ FROTH	N/A	Submergence	N/A	Ref.D	Test	None	Not req'd	
	RADIATION (RADS)	1E7R G	2.04E8R G	Ref.A	Ref.B Section 6 Note #2	Test	None	1.94E8R G	
	AGING	40 yrs @79°F	44.5 yrs. @94 °F	Rev.E Pg.43	Ref.C	Test and Analysis	None	Not req'd	
	SPRAY	N/A	Chemical spray and stm imping.	N/A	Ref.B Appendix 10-2	Test	N/A	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-J605(Q), Rev.7 (11/84)

B. Wyle Qualification Report 43979-1 Rev.A (12/78) (10855-J605(Q)-70-3)

C. Rotork letter 8/16/84 (J605) 10855-J605(Q)-70-3)

D. Rotork letter 8/21/84 including TR-178 (10855-P303A(Q)-304-1)

E. Environmental Design Criteria - 10855-D7.5, Rev.2 (10/84)

NOTES

1. Operates RHR Hx bypass control valve automatically opens on low reactor water level and high drywell pressure. Category 2a item.
2. Beta radiation qualification report. CCN#0264399 dt. 5/15/84.
3. The qualified valve shown is conservative. For actual temp. and pressure profile see Ref. B, Pg. X-9.
4. Qualification of the actuator constitutes qualification of the internal limit switches.

Prepared by I. Nag / T. Nazary Date 7/1/85

Reviewed by J. Wojslawski Date 7/2/85

050

EQUIPMENT EVALUATION SUMMARY SHEET
NDT PREAMPLIFIER

HOPE CREEK GENERATING STATION

SHT. NO: J800-XT-001
REV. NO: 1
DATE: 6/25/85

(1) SYSTEM SRV POSITION INDICATING
(2) TAG NO. 1-AB-XT-4507A,B,C,D,E,F,G,H,J,K,L,M,P,R
(3) COMPONENT PREAMPLIFIER
(4) MANUFACTURER NDT
(5) MODEL NO. NDT-400A
(6) FUNCTION Note #4
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION REACTOR BLDG. 102'
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. B NO ___ SEC. XII
(11) SURVEILLANCE REQD. YES ___ REF. ___ NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	8 hours	54 hours	See Note #2	B-Pages XIV-23,24,25,26	Test	None	46 hrs.	
TEMP. (°F)	148°F	165°F Note #3	A-Page 8	↓	Test	None	17°F	
PRESSURE (PSIA)	3-psig 30 min. Then 1s ATM	10psig-3min Note #3.	A-Page 8	↓	Test	None	Adequate	15 PSIG Peak.
RELATIVE HUMIDITY (%)	100%	100%	↓	D	Test	None	Not Req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	4.5E4 RG 2.2E6 RB	5.35E5 RG Note #1.	A-Page 6	B, Page II-12	Test	Note #1	4.9E5 RG.	
AGING	40 years @ 92°F	40 years @ 110°F	A-Page 8	B Page IV-1 and C	Test and Analysis	No	None	
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Tech. Spec. J800(Q), Rev. 3, 3/14/84
B. Wyle Labs NEQ-TR#45638-1 Rev.A 6/83 (J800(Q)-39-1)
C. J800(Q)39-2, Page 2 of letter item 2.3 indicating Qualified Life.
D. NDT Telex to Bechtel dated 4/29/85

NOTES

1. Beta qualification later.
2. Vendor says equipment not required after 8 hours. Comment has been made to Bechtel requesting resolution. Bechtel will change spec. later. Refer to J800(Q) 39-2.
3. For Temp. and Pressure Profile See Ref B Pages XIV-23,24,25,26
4. Conditions signal from acoustic element for use by flow detection equipment in Main Control Room. RG197 Parameter Category-2a.

Prepared by T. A Nasang I. Nag Date 10/10/85

Reviewed by C. W. [illegible] Date 10/18/85

051

EQUIPMENT EVALUATION SUMMARY SHEET

NDT ACCELEROMETER

HOPE CREEK GENERATING STATION

SHT. NO: J800-XE-002
REV. NO: 2
DATE: 8/2/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM SRV POSITION INDICATING (2) TAG NO. AB-XE 4507A,B,C,D,E,F, G,H,J,K,L,M,P,R (3) COMPONENT ACOUSTIC VALVE FLOW SENSORS (ACCELEROMETER) (4) MANUFACTURER NDT (5) MODEL NO. NDT-836 (6) FUNCTION NOTE #5 (7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A (8) LOCATION 121' DRYWELL Rm4220 (9) ABOVE FLOOD LEVEL YES X NO ___ (10) SEISMICALLY TESTED YES X REF. B NO ___ SECT XII (11) SURVEILLANCE REQD. YES ___ REF. ___ NO X	OPERATING TIME	8 hours	54 hours	See Note #4	B-Pages XIV-21 & 22	Test	None	46 hrs.	
	TEMP. (°F)	Note #1	Note #2	DITS-7.5 Tbl 5 Pg.40	B-Pages XIV-21 & 22	Test	None	15°F	
	PRESSURE (PSIA)	Note #1	Note #2	Ref. E		Test	None	Adequate	
	RELATIVE HUMIDITY (%)	100%	Water Spray		D-Page XIV-22	Test.	No	None required	
	FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	No	Not req'd	
	RADIATION (RADS)	1.09E8 RG 2.85E9 RB	2.0E8	A-Page 8	B-Page II-10	Test	Note #3	0.91E8 RG	
	AGING	40 yrs @ 150°F (Max)	Temp N.A 40 years	A-Pages 7 and 8	B-Page IV-1 and C	Test and Analysis	None	Not req'd	No age sensitive material
	SPRAY	Yes	Yes	Ref.D,Pg. 19,21	B-Pages XIV-22 & XIV-1	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Tech. Spec. J800(Q), Rev.3, 3/14/84

B. Wyle Labs. NEQ-TR#45638-1, Rev.A 6/83 (J-800(Q)-39-1)

C. J800(Q)39-2 Pg.2 of letter item 4.5 indicating N/A for aging.

D. Environmental Design Criteria 10855-D7.5, Rev.2 (10/84).

E. Bechtel memo dt. 6/10/85 confirming 100 days DBE duration inside primary containment.

NOTES

#1

TIME	TEMP°F	PRESS PSIG
0-20s	340	0-62
20s-5m	340	62
5m-3hr	340	40
3hr-6hr	320	40
6hr-24hr	250	25
1D-4D	200	25
4D-100D	200	10

#2

0-6hrs	355°F	62psig - 54 min
6hrs-12hrs	280°F	60psig - 55 min
12hrs-54hrs	265°F	35psig - 10 hrs
		25psig - 42 hrs

#3 Beta qualification later.

#4 Vendor says equipment not required after 8 hours. Comment has been made to Bechtel requesting resolution. Bechtel will change spec. later. Refer to J800(Q)39-2.

#5 Senses steam flow in the reactor steam relief lines. Provides alarm and indication in control rm. R.G.1.97 parameter. Category-2a

Prepared by T Narayan I. Nag Date 10/10/85

Reviewed by C.M. [illegible] Date 10/18/85

052

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
RELIANCE 460 VOLT MOTOR

SHT. NO: M047A-MOT-001
REV. NO: 3
DATE: 8/2/85

(1) SYSTEM
H_2 RECOMBINER
(2) TAG NO.
1AV215
1BV215
(3) COMPONENT
460V MOTOR

(4) MANUFACTURER
RELIANCE

(5) MODEL NO.
TEFC, CLASS H
286 TCZ
(6) FUNCTION
HYDROGEN
RECOMBINER
BLOWER MOTOR
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION REACTOR
BLDG. Rms.4602 & 4604
(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. B
NO ___

(11) SURVEILLANCE REQD.
YES X REF.B
NO ___ Pg. 21

(Ref.B, Pg.21)

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	406 days @150°F	Ref.E,Pg.48 81, Ref.F	Ref.B,Pg.22 Ref.C,Pg.14	Test	None	306 days	Note #1
TEMP. (°F)	131°F/100da 104°F/83day	170°F	Ref.A ¶3.2.4.1	Ref.B,Pg.17 Ref.C,Pg.14	Test	None	39°F	
PRESSURE (PSIA)	-0.25 to +6.5in.H_2O	21.4 psig	Ref.D ¶5.2.3(c)	Ref.B,Pg.18 Ref.C,Pg.14	Test	None	>10 psig	Ref.B,Pg.22
RELATIVE HUMIDITY (%)	100%	10-100%		Ref.B,Pg.18 Ref.C,Pg.14 and 89	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A		Not req'd	
RADIATION (RADS)	1.7E5 RG 7E4 RB	$1.1x10^8$R	Ref.D ¶5.2.3(c)	Ref.B Pg.23	Test	None	1.1E8 RG Note #3	
AGING	40 yrs @ 4°F	40yrs.@90°F Insul.Sys. 5yr. brg. lubricant	Ref.E Pg.48	Ref.B App.C and pgs. 21,22,23	Test and Analysis	None	Not req'd	Periodic Maint Req'd. Replacement of bearing lubricant req'd. @5yr. intervals (Ref.B,Pg.21)
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Design Specification N10022-03 Rev.D, Dtd. 10/84

B. Rockwell International Qualification Report N0C1QR000013, Rev.A (M047A-30703)

C. Rockwell International Report N001QR000001, Rev.A (M047A-306-3)

D. Technical Specification M047A(Q) Rev.2, Dtd. 12/84

E. Environmental Design Criteria. -10855-D7.5, Rev.2 (10/84)

F. Bechtel memo dt. 6/10/85 confirming 100 days DBE duration inside primary containment.

NOTES

1. Qualification by analysis based on "similarity" to type tested motor, Model 256TCZ of Ref.C.
2. Category 2a of NUREG-0588, Appendix E.
3. The Qualified Radiation Dose encompasses specified G and B Radiation Doses.

072

Prepared by R.P. Langely / I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/18/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
WESTINGHOUSE MOTOR

SHT. NO: M048-MOT-001
REV. NO: 2
DATE: 10/10/85

EQUIPMENT DESCRIPTION

(1) SYSTEM (KL) PRI.CONT.INST.GAS
(2) TAG NO. See Sheet Attached
(3) COMPONENT MOTOR, GAS COMPRESSOR
(4) MANUFACTURER WESTINGHOUSE
(5) MODEL NO. 5631D86
(6) FUNCTION See Sheet Attachment
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION See Sheet
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES ___ REF. C NO X Analysis Part 4
(11) SURVEILLANCE REQD. YES X REF. C NO ___ (Para. 1.4)

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	313 days	Ref.A Appendix F ¶F	Ref.C ¶2.10.5.2	Motorette Test	None	213 days	Based on motorette testing per IEEE-334-1974 Section 5
TEMP. (°F)	148°F	410°F	↓	↓	↓	None	262°F	
PRESSURE (PSIA)	Atmos.	Atmos.	Ref.D Pg.46	↓	↓	Yes	None	
RELATIVE HUMIDITY (%)	100%	100%, moist. exposure 672 hrs	Ref.B ¶2.1	Ref.C ¶2.10.7	↓	None	Not req'd	
FLOODING/ SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	2.8E4R G 1.1E6R B	2E8R	Ref.A Appendix F ¶F	Ref.C App.B	Motorette Test	None	2E8RG	Note #1
AGING	40yrs @80°F Max Maint.not <1yr	40 yrs. @ 266°F	Ref.A ¶5.4 and App.F	Ref.C ¶1A.1.2 and Figure 3	Motorette Test and Analysis	None	Not req'd	Periodic Maintenance req'd per Ref.C ¶1.4
SPRAY	N/A	Moisture Exposure 672hrs	N/A	Ref.C ¶2.10.7	Motorette Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-M048(Q), Rev.6 (2/85)

B. Design Specification 10855-M048(Q), Rev.6 (2/85)

C. Westinghouse Qualification Documentation MM-9112 Rev. Dtd. 1/15/82 (10855-M082(Q)-153-1, latest revision of WECO Report in file).

D. DITS 7.5, Rev.2 (10/84)

NOTES

1. Qualified Radiation Dose encompasses specified G&B doses.

072

ATTACHMENT TO EESS NO. M048-MOI-001

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
Motor for 1A-K-202	RB.132' Rm.#4413	Provides motive power to instrument gas compressor	2A	M-59-1, M/R Item #
Motor for 1B-K-202	RB.132' Rm.#4412	"	"	"

Prepared by S.K. Ganguly/I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/18/85

073

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET

CVI GAS COMPRESSOR AND CONTROL

SHT. NO: M048-COMP-002
REV. NO: 2
DATE: 8/6/85

EQUIPMENT DESCRIPTION

(1) SYSTEM (KL) PRI. COAL INST. GAS.
(2) TAG NO.
SEE SHEET ATTACHED

(3) COMPONENT
GAS COMPRESSOR AND CONTROLS
(4) MANUFACTURER
CVI

(5) MODEL NO. 100NL8-F
WORTHINGTON

(6) FUNCTION
SEE SHEET ATTACHED

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION REACTOR BLDG. RM. 4412,4413
(9) ABOVE FLOOD LEVEL
YES X NO X

(10) SEISMICALLY TESTED
YES X REF. B
NO

(11) SURVEILLANCE REQD.
YES X REF. B,C, D
NO

M59-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	180 days	E,Pg.46, 81	B,Pg.B15	Test	None	80 days	
TEMP. (°F)	133	148	A, Pg.F-2 F	B,Pg.B15	"	"	15	
PRESSURE (PSIG)	0	-3psig to 1.0 in H_2O	E, Pg.46	B,Pg.B14	"	"	Adequate	
RELATIVE HUMIDITY (%)	100-30 min then 95	100	"	B,Pg.B14	"	"	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	"	Not req'd	
RADIATION (RADS)	$2.8x10^4$ R G $1.1x10^6$ R B	Note #1 Note #2	A, Pg. F2	Note #1 Note #2	Test	"	$1.43x10^5$	
AGING	40 yrs @ 67°F	See Table of Qual. life attached	E,Pg.46	B,C,D	Test and Analysis	"	Not req'd	Periodic main. req'd Ref.B,C,D
SPRAY	N/A	N/A	N/A	N/A	N/A	"	Not req'd	

DOCUMENTATION REFERENCE:

A. Spec 10855-M-048(Q), Rev.6
B. Farwell & Hendricks Report 20001, REV.0 (10855-M-048(Q)-104-1)
C. F&H letter dtd. 1/21/85 (PS-296/M48-104-2)
D. CVI ltr dtd. 2/25/85 (PS-301/M48-RR-104-1)
E. DITS 10855-D7 5, Rev.2
F. CCN #20261608 dt. 3/28/84, describes that the specified temp. 148°F includes 15°F margin.

NOTES

1. Gamma Radiation:
   $1.88x10^5$ RADS for compressor, see Ref.B., Pg.F2
   $1.71x10^5$ RADS for electrical components, see Ref.B, Pg.F5
2. Beta Radiation qualified by Bechtel Beta Qualification Report for P.O. 10855-M-48(Q).

073

ATTACHMENT TO EESS NO. M048-COMP-002

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-KL-ME-5031A	Rm #4413	Moisture element, senses moisture content at outlet of compressor and provides signal for alarm and control of compressor.	2a	M59-1, Panametric Part #550-10B-05
1-KL-ME-5031B	Rm #4412	"	"	"
1-KL-HS-5137A2	Rm #4413	Hand switch, provides control to compressor	"	M59-1, Westinghouse PTP22D/E
1-KL-HS-5137B2	Rm #4412	"	"	"
1A-S-934	Rm #4413	Provides instrument gas to operate primary containment safety related valves and main steam isolation valve sealing system.	"	M59-1
1B-S-934	Rm #4412	"	"	"

073

ATTACHMENT TO EESS NO. M048-COMP-002

Number	AT (°C)	Rt (hrs)	Ea (eV)	ST/Time (°F/%)	Q.L. (Yrs)	Maintenance/Replacement Schedule
20001-01-01-01	180	816.67	1.14	180/ 4.2 60/ 9.6 80/ 9.6 88/76.3 110/ 0.3	75.12	None
20001-02-01-01	80 106	710.64 700.09	0.71	96/10 125/10 156/ 0.3 114.79.7	0.98 4.52 5.50	Replace Coil Assembly Every 5 Years Replace Relay Every 15 Years
20001-02-02-01	80	710.64	0.95	54/10 94/10 124/ 0.3 83/79.7	15.96	Replace Every 15 Years
20001-02-03-01	80	710.64	1.17	54/10 94/10 124/ 0.3 83/79.7	51.77	None
20001-02-04-01	80	710.64	0.95	54/10 94/10 124/ 0.3 83/79.7	16.84	Replace every 15 Years
20001-02-05-01	80	710.64	0.95	54/10 94/10 124/ 0.3 83/79.7	15.96	Replace Every 15 Years
20001-02-05-02	75	384.00	0.95	54/10 94/10 124/ 0.3 83/79.7	5.0	Replace Every 5 Years
20001-02-05-01	80	710.64	0.95	54/10 94/10 124/ 0.3 83/79.7	15.96	Replace Every 15 Years
20001-02-05-05	75	384.00	0.95	54/10 94/10 124/ 0.3 83/79.7	5.5	Replace Every 5 Years
20001-02-07-01	80	710.64	0.95	54/10 94/10 124/ 0.3 83/79.7	15.96	Replace Every 15 Years

For Description see Attached Sheet # 2. 7

TABLE 3.1
EQUIPMENT SUMMARY

F&M Tag Number	Customer I.D. Number	Description
20001-01-01-01	C735-E6/C735-E7	Instrument Gas Compressor
20001-02-01-01	5/15, C735-6002	A-B Relay
20001-02-02-01	C735-6004	ATC Cam Timer
20001-02-03-01	9, C735-6002	ITE Gould Circuit Breaker
20001-02-04-01	11, C735-6002	Micro Switch Pushbutton
20001-02-05-01	13, C735-6002	Micro Switch Pilot Light
20001-02-05-02	N/A	Micro Switch Pilot Light
20001-02-06-01	30, C735-6002	Panametric Dew Point Meter
20001-02-06-02	31, C735-6002	Remote Meter
20001-02-06-03	N/A	Panametric Probe
20001-02-06-04	N/A	Burndy Cable
20001-02-07-01	N/A	GE Elapsed Time Meter

Prepared by R.H. Haugly/I. Nag Date 10/10/85

Reviewed by C.M. [illegible] Date 10/10/85

074

SHT. NO: M048-PS-003
REV. NO: 1
DATE: 8/23/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET

ASCO PRESSURE SWITCH

(1) SYSTEM CONT GAS COMPRESSOR

(2) TAG NO.
SEE ATTACHED SHEET

(3) COMPONENT
PRESS SWITCH

(4) MANUFACTURER
ASCO

(5) MODEL NO.
SEE ATTACHED SHEET

(6) FUNCTION
SEE ATTACHED SHEET

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
RM.4412 & 4413

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. B
NO ___

(11) SURVEILLANCE REQD.
YES X REF. B
NO ___ APP.C

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	100 days	A, Pg.46, 81	B, Table 5.1 Pg.34; C	Test and Analysis	None	Adequate	Justified by ARRH calc. Ref.C
TEMP. (°F)	148	195 (max)	"	B, Table 5.1 Pg.34	Type test and Analysis	None	Adequate	Note #2
PRESSURE (PSIA)	0	2	"	"	Type Test	None	2	
RELATIVE HUMIDITY (%)	100-30 min then 95	Saturated steam	"	B, ¶4.2.3 Pg.20	"	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	2.8E4 RG 1.1E6 RB	17E6 RG Note #1	A Pg.46, 81	B, Table 5.1 Pg.34	Type Test	None	16.97E6 RG	
AGING	40 yrs 80°F	10 yrs 104°F	A Pg.46	B, Table 5.1 Pg. 34 and App.C	Type Test and Analysis	None	Not req'd	
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. DITS 10855-D7.5, Rev.2

B. 10855-M048(Q)-103-2, Attachment F AQR 101083, Rev.0

C. CVI letter CCN#281877, dt. 4/26/85 with ARRH. calculation

D. Technical Specification 10855-M048(Q) Rev. 6, Appendix-F

NOTES

1. The Qualified Radiation Level encompasses specified G and B Doses.
2. Justified by ARRH. calc., Ref.C. Specified temp. 148°F includes 15°F margin as per Ref. D, Item F., Pg. F-2. and CCN # 0261608 dt. 3/28/84.

074

ATTACHMENT TO EESS NO. M048-PS-003

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-KL-PSL-5130A	Rm # 4413	Pressure switch senses instrument gas receiver pressure and provides control signal to compressor	2a	M59-1, Model #SA11AR/TG10 32R
1-KL-PSL-5130B	Rm # 4412	"	"	"
L-PSLL-5132A	Rm # 4413	"	"	"
1-KL-PSLL-5132B	Rm # 4412	"	"	"
1-KL-PSH-5140A	Rm # 4413	Pressure switch high, senses pressure at inlet to after-cooler moisture separator and provides signal for alarm and control of compressor	"	"
1-KL-PSH-5140B	Rm # 4412	"	"	"
1-KL-PSL-5142A	Rm # 4413	Pressure switch, senses compressor pressure and provides signal for alarm and control of compressor.	"	M59-1, Model #SA21AR/TE20A32R
1-KL-PSL-5142B	Rm # 4412	"	"	"
1-KL-PSL-5145A	Rm # 4413	Pressure switch, senses cooling water pressure and provides signal for alarm and control of cooling water valve.	"	"
1-KL-PSL-5145B	Rm # 4412	"	"	"
1-KL-PSL-5158A	Rm # 4413	Pressure switch, senses pressure at compressor inlet and provides signal for alarm and control of compressor.	"	M59-1, Model #SA31AR/TV34A32R
1-KL-PSL-5158B	Rm # 4412	"	"	"
1-KL-PSH-5131A	Rm #4413	Pressure switch, senses instrument gas receiver pressure and provides control signal to compressor.	"	M59-1, Model SA11AR/TG10A32R
1-KL-PSH-5131B	Rm #4412	"	"	"

Prepared by N.K. Ganguly / I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/18/85

075

SHT. NO: M048-IS-004
REV. NO: I
DATE: 8/6/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
ASCO TEMPERATURE SWITCH

(1) SYSTEM CONT GAS COMPRESSOR
(2) TAG NO.
SEE ATTACHED SHEET
(3) COMPONENT
TEMP. SWITCH
(4) MANUFACTURER
ASCO
(5) MODEL NO.
SA11AKR-QD11A4R
(6) FUNCTION
SEE ATTACHED SHEET
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION
RM. 4412 & 4413
(9) ABOVE FLOOD LEVEL
YES X NO ___
(10) SEISMICALLY TESTED
YES X REF. B
NO ___
(11) SURVEILLANCE REQD.
YES X REF. B
NO ___ APP.C

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	100 days	A, Pg.46, 81	B¶4.2.3, Table 5.1; C	Test and Analysis	None	Adequate	Justified by ARRH. Calc. Ref.C
TEMP. (°F)	148	195 (max)	"	B, Table 5.1, Pg.27	"	None	Adequate	Note #2
PRESSURE (PSIA)	0	2 (peak)	"	"	Type Test	None	2	
RELATIVE HUMIDITY (%)	100-30 min then 95	Saturated steam	"	B¶4.2.3 Pg.18	"	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	2.8E4 RG 1.1E6 RB	5.4E6 RG Note #1	A, Pg.45, 81	B, Table 5.1 Pg.27	Type Test	None	5.37E6 RG	
AGING	40 yrs 880°F	104°F 10 yrs	A, Pg.46	B, Table 5.1 Pg.27, App.C	Type Test and Analysis	None	Not req'd	
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. DITS 10855-D7.5, Rev.2

B. 10855M048(Q) 103-2 Attachment G AQR-020184, Rev.0

C. CVI letter CCN#281877 dt. 4/26/85 with ARRH. calculations

D. Technical Spec. 10855-M048(Q), Rev.6, Appendix F

NOTES

1. The Qualified Radiation Level encompasses specified G and B doses.
2. Justified by ARRH. Calc., Ref.C. Specified temp. 148°F includes 15°F margin as per Ref.D, Item F, Pg. F-2 and CCN#021608, Dt. 3/28/84.

075

ATTACHMENT TO EESS NO. M048-TS-004

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-KL-TSH-5221A	Rm# 4413	Temperature switch, senses compressor temperature and provides signal for alarm and control of compressor	2a	M59-1
1-KL-TSH-5221B	4412	"	"	"
1-KL-TSH-5223A	4413	"	"	"
1 _-TSH-5223B	4412	"	"	"
1-KL-TSH-5141A	4413	Temperature switch, senses compressor outlet temperature and provides a signal for alarm and control of compressor	"	"
1-KL-TSH-5141B	4412	"	"	"
1-KL-TSH-5143A	4413	Temperature switch, senses compressor temperature and provides signal for alarm and control of cooling water valve.	"	"
1-KL-TSH-5143B	4412	"	"	"
1-KL-TSH-5144A	4413	Temperature switch high, senses compressor temperature and provides signal for alarm and control of compressor	"	"
1-KL-TSH-5144B	4412	"	"	"
1-KL-TSH-5159A	4413	Temperature switch, senses inlet temperature to compressor and provides signal for alarm and control of compressor	"	"
1-KL-TSH-5159B	4412	"	"	"

Prepared by N.P. Ganguly / I.D. Nag Date 10/10/85

Reviewed by C.D. [illegible] Date 10/12/85

076

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET

VALCOR SOLENOID VALVE

SHT. NO: M048-SV-005
REV. NO: 1
DATE: 10/10/85

(1) SYSTEM CONT. GAS COMPRESSOR
(2) TAG NO.
SEE ATTACHED SHEET
(3) COMPONENT
SOLENOID VALVE
(4) MANUFACTURER
VALCOR
(5) MODEL NO.
V52600-515
(6) FUNCTION
SEE ATTACHED SHEET
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION
RM. 4412 & 4413
(9) ABOVE FLOOD LEVEL
YES X NO ___
(10) SEISMICALLY TESTED
YES X REF. B
NO ___
(11) SURVEILLANCE REQD.
YES ___ REF. ___
NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	251 days	A, Pg.46, 81	B, Pg.31	Type Test and Analysis	None	151	Note #2
TEMP. (°F)	148	346 (max) Note #2	A, "	B, Pg.64	"	None	Adequate	Second DBE transient provides acceptable margin
PRESSURE (PSIA)	0	113 (peak)	A, "	B, Pg.64	"	None	113	
RELATIVE HUMIDITY (%)	100-30 min then 95%	100	A, "	B, Pg.57	"	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	2.8E4 RG 1.1E6 RB	2E8 RG Note #3	A, Pg.46 81	B, App.3 Pg.3-1	Type Test and Analysis	None	2E8 RG	
AGING	40 yrs @60°F	40 yrs @120°F	A, Pg.46	B, Pg.15	Type Test and Analysis	None	Not req'd	
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. DITS 10855-D7.5, REv.2

B. 10855M048(Q)103-2
Attachment J, Appendix XII
QR52600-515, REv.0

C. Technical Spec. 10855-M48(Q), Rev.6, App.F.

NOTES

1. Equipment at HCGS is qualified by similarity to tested Model V52600-515. Report is in Appendix XII of Similarity report QR52600-5940-2 filed as Attachment J of 10855M048(Q)103-2.
2. Specified temperature 148°F includes margin as per Ref.C, Item F, Pg.F-2, and CCN#261608 Dt. 3/28/84. The margin is 15°F.
3. Qualified Radiation Level encompasses specified Gamma and Beta doses.

076

ATTACHMENT TO EESS NO. M048-SV-005

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-KL-SV-5157A	Rm #4413	Solenoid valve, controls cooling water flow to compressor intercooler/moisture separator	2a	M59-1
1-KL-SV-5157B	Rm #4412	"	"	"
1-KL-SV-5164A	Rm #4413	Solenoid valve, control valve in compressor bypass line.	"	"
1-KL-SV-5164B	Rm #4412	"	"	"

Prepared by P.P. Gangoly / I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/18/85

077

EQUIPMENT EVALUATION SUMMARY SHEET

HOPE CREEK GENERATING STATION

ANACONDA PANEL WIRE

SHT. NO: M048-CABL-006
REV. NO: 1
DATE: 8/6/85

(1) SYSTEM CONTAINMENT GAS COMPRESSOR
(2) TAG NO. N/A
(3) COMPONENT PANEL WIRE
(4) MANUFACTURER ANACONDA
(5) MODEL NO. TYPE FR-EP
(6) FUNCTION NOTE #3
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION Rm.4412 & 4413
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. E NO ___
(11) SURVEILLANCE REQD. YES ___ REF. ___ NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	101 days	A, Pg.46, 81	C, Fig.1A	Test	None	1 day	Excess temp. & press. Provides acceptable margin.
TEMP. (°F)	148	385 (max) 214-85 days	"	"	"	None	66	Note #2
PRESSURE (PSIG)	0	66 (peak)	"	"	"	None	66	
RELATIVE HUMIDITY (%)	100-30 min then 95	100	"	C, Fig.1A B, Pg.4-1	"	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A		None	Not req'd	
RADIATION (RADS)	2.8E4 RG 1.1E6 RB	2E8 RG Note #1	A, Pg.46, 81	B, App. B	Test	None	2E8 RG	
AGING	40 yrs @80°F	40 yrs @194°F	A, Pg.46	D	Test and Analysis	None	Not req'd	
SPRAY	N/A	Chemical Spray	N/A	C, Fig.1A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. DITS 10855-D7.5, REv.2

B. 10855-M-48(Q)103-2, Attachment B (Franklin Report F-C4836-4)

C. 10855-M48(Q)103-2, Attachment E (Report 80282), Pg.4-3

D. 10855-M48(Q)103-2, Attachment D (AT-1 to F-C4969-1) curve.

E. 10855-M48(Q)103-2 Attachment K (Franklin Report F-C4969-1)

NOTES

1. The Qualified Radiation Level encompasses specified G and B doses.
2. Specified temp. 148°F includes 15°F margin as per Ref.D item F, Pg.F-2 and CCN#0261608 dt. 3/28/84.
3. Supplies power to safety related equipment within Panel (1A-C213 and 1B-C213), NUREG 0588, Category 2a.

Prepared by T. Nagarajan, I. Nag Date 10/10/8.

Reviewed by C.W. Date 10/18/85

078

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
BUCHANAN TERMINAL AND FUSE BLOCK

SHT. NO: M048-TFB-007
REV. NO: 1
DATE: 8/6/85

(1) SYSTEM R.B. HVAC

(2) TAG NO. N/A

(3) COMPONENT TERMINAL AND FUSE BLOCK

(4) MANUFACTURER BUCHANAN

(5) MODEL NO. NBQ 112

(6) FUNCTION NOTE #3

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION Rm.4112 & 4113

(9) ABOVE FLOOD LEVEL YES X NO ___

(10) SEISMICALLY TESTED YES X REF. B NO ___

(11) SURVEILLANCE REQD. YES ___ REF. ___ NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	7 days(Test) 160.4 days (equiv.)	A, Pg.46, 81	D1	Test and Analysis	None	60.4 days	
TEMP. (°F)	148	163 Note #1	"	D2	"	"	30° Note #5	
PRESSURE (PSIG)	0 (Peak)	113 Peak Note #1	"	B,Pg.5-14	Test	"	113	
RELATIVE HUMIDITY (%)	100-30 min then 95	Steam	"	B, Pg.5-15 ¶5.10	"	"	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	"	"	
RADIATION (RADS)	2.8E4 RG 1.1E6 RB	2.08E8 RG Note #2	A, Pg.46, 81	B, Pg.5-7 ¶5.5	Test	"	2.08E8 RG	
AGING	40 yrs @ 80°F	>40 yrs @ 122°F	A, Pg.46	Note #4	Test and Analysis	"	Not req'd	
SPRAY	N/A	N/A	N/A	N/A	N/A	"	"	

DOCUMENTATION REFERENCE:

A. DITS 10855-D7.5, Rev.2

B. FRC Report F-C5143 Dt.7/17/80 (F37917(Q)-1-1F, M048-103-2, Attach.C)

C. FRC Project C5143 dt. 7/27/79 (F37917(Q)-1-1F, M048-103-2, Attach.C)

D1. Doc. No. F37917-ARRH-001, Rev.0 (5/24/85)

D2. Doc. No. F37917-ARRH-002, Rev.0 (5/24/85)

E. Tech. Spec. 10855-M048(Q), Rev.6, App.F.

NOTES

1. For Temp. and Pressure Profile see Ref.B, Pg.5-14.
2. The Qualified Radiation Dose encompasses specified G and B Doses.
3. Provides connection for safety related equipment. Category 2a.
4. Ref.C, Pg.A5,A6 and A6a, Ref.B. Pg.5-3, ¶5.3.
5. Specified temp. 148°F includes 15°F margin as per Ref.E, Item F, Pg.F-2 and CCN#0261608 dt. 3/28/84. The total margin is (163-148)+15=30°F.

Prepared by R.P. Tungely/I. Nag Date 10/10/85

Reviewed by C.W. Kirk Date 11/18/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
AMERACE (AGASTAT) ETR TIME DELAY RELAY

SHT. NO: M048-REL-008
REV. NO: 2
DATE: 10/10/85

EQUIPMENT DESCRIPTION

(1) SYSTEM CONT GAS COMPRESSOR
(2) TAG NO. N/A, Mounted on 1AC213(4413) 1BC213(4412)
(3) COMPONENT ETR TIME DELAY RELAY
(4) MANUFACTURER AMERACE CONTROL PRODUCTS
(5) MODEL NO. ETR AGASTAT
(6) FUNCTION NOTE #3
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION PANELS-B&A (B. Rm.4413 & (A)4412
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. E (5.4.3) NO ___
(11) SURVEILLANCE REQD. YES X REF. B, Pg.16 NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	100 days	A, Pg.46, 81	B¶4.2.3, Table 5.1;C	Test and Analysis	None	Adequate	Justified by ARRH. Calc. Ref. C
TEMP. (°F)	148	156 (max)	"	B,Sec.3.1.1, Pg.2 of 17	"	None	Adequate	Note #2
PRESSURE (PSIG)	0	0	"	B, Sec.5.3.1 Pg.9 of 17	"	None	N/A	
RELATIVE HUMIDITY (%)	100-30 min then 95	95	"	"	"	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	2.8E4 RG 1.1E6 RB	2.0E5 RG Note #1	A, Pg.46, 81	B, Sec.5.3.1 Pg.9 of 17,E	Test and Analysis	None	1.72E5 RG	
AGING	40 yrs @80°F	104°F 10 yrs or 25,000 operations	A, Pg.46	B, Sec.3.1.1 Pg.2 & 3 of 17	Test and Analysis	None	Not req'd	
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. DITS 10855-D7.5, Rev.2

B. 10855M048(Q) 103-2 Attachment I ETR/C735-9956, REv.A, Att.I

C. CVI letter CCN#281877 dt. 4/26/85 with ARRH. calculations

D. Technical Spec. 10855-M048(Q), REv.6, Appendix F

E. Bechtel Beta Qualification Report

NOTES

1. For Beta Qualification see Ref.E.
2. Justified by ARRH. Calc., Ref.C. Specified temp. 148°F includes 15°F margin as per Ref.D, Item F, Pg. F-2 (also see CCN#261608 dt. 3/28/84).
3. Provides control and interlock for safety devices. NUREG 0588 Cat. 2a.

Prepared by P.P. Ganguly / I. Nag Date 10/10/85

Reviewed by C.M. [illegible] Date 10/18/85

080

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
WESTINGHOUSE MOTOR

SHT. NO: M082-MOT-001
REV. NO: 3
DATE: 8/6/85

(1) SYSTEM ECCS AND FUEL POOL-Sheet Attch
(2) TAG NO. SEE SHEET ATTACHED
(COMPONENT MOTOR
(4) MANUFACTURER WESTINGHOUSE
(5) MODEL NO. M82-59 (1A/BP-211)
(6) FUNCTION SEE SHEET ATTACHED
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION REACTOR BLDG-SEE SH. ATTCH.
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES ___ REF. C NO X Analysis Part 4
(11) SURVEILLANCE REQD. YES X REF. C NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	313 days	Ref.A,Pg81 Table 6	Ref.B ¶2.10.7.1 & Fig. 3	Motorette Test	None	213 days	
TEMP. (°F)	300°F-30min 148°F-100da	410°F	Ref.A Pg.42	"	"	None	110°F	Note #2
PRESSURE (PSIA)	2.9psig-30 min ATM-100days	ATMOS	"	"	"	None	None	"
RELATIVE HUMIDITY (%)	100-6hr then 95	100% Moist. Exp. 672 hrs	"	Ref.B ¶2.10.7	"	None	Not req'd	"
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	3.06E6 RG 1.1E6 RB	2E8 RG Note #1	Ref.A Pg.42	Ref.B ¶1A.1.2 Note #1	Motorette Test	None	1.97E8 RG	Note #2
AGING	40yrs 100°F 6yr O/H interval	40 yrs @130°C (266°F)	Ref.A Pg.49	Ref.B ¶1A.1.2 and Figure 3	Motorette Test and Analysis	None	Not req'd	Periodic Maintenance req'd per Ref.C ¶1.4 Note #2
SPRAY	N/A	Moisture	N/A	Ref.B ¶2.10.7	Motorette Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Environmental Design Criteria 10855-D7.5, Rev.2 (10/84)

B. Westinghouse Qualification documentation MM-9112, Rev. Date 1/15/82 (10855-M082(Q)-153-1

C. Westinghouse Qualification documentation MM-9112 Dt. 1/15/82 (10855-M082(Q)-153-1)

NOTES

1. B Radiation Qualification Report (BLP 15923, dt. 5/16/84 i.e. CCN 0264399, dt. 5/13/84)

2. For specified values worst environment condition to which the components will be exposed has been considered.

080

ATTACHMENT TO EESS NO. M082-MOT-001

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1B-P-228	RB.54' Rm.#4110	Jockey pump motor provides drive force to maintain water and pressure in lines to minimize water hammer during startup.	2b	M-50-1, M/R Item #7
1C-P-228	RB.54' Rm.#4114	Jockey pump motor required for makeup water and to maintain the ECCS pump discharge line full and above pressure.	"	M-51-1, M/R Item #5
1D-P-228	RB.54' Rm.#4107	"	"	M-51-1, M/R Item #5
1A-P-211	RB.162' Rm.#4625	Fuel pool cooling pump removes decay heat by circulating water from spent fuel storage pool through the heat exchangers.	2a	M-53-1, M/R Item #1
1B-P-211	RB.162' Rm.#4626	"	"	M-53-1, M/R Item #1
1A-P-228	RB.54' Rm.#4111	Jockey pump motor provides drive force to keep HPCI piping filled and pressurized to minimize water hammer.	2b	M-56-1, M/R Item #7

081

Prepared by P.P. Ganguly / I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/18/85

EQUIPMENT EVALUATION SUMMARY SHEET

RELIANCE MOTOR

HOPE CREEK GENERATING STATION

SHT. NO: M711-MOT-001
REV. NO: 3
DATE: 10/10/85

(1) SYSTEM
REACTOR BLDG. SUPPLY

(2) TAG NO.
SEE SHEET ATTACHED

(COMPONENT
MOTOR

(4) MANUFACTURER
RELIANCE

(5) MODEL NO.
GENERIC

(6) FUNCTION
VANEAXIAL FAN DRIVE

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
SEE SHEET ATTACHED

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES ___ REF. B&C
NO X ANALYSIS

.) SURVEILLANCE REQD.
YES X REF. B
NO ___ Pg.17,20

PARAMETERS	ENVIRONMENT		DOCUMENTATION REFERENCE		QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
	SPECIFIED	QUALFIIED	SPECIFIED	QUALIFIED				
OPERATING TIME	100 days	100 days	Ref.A	Ref.D	Test and Analysis	None	Adequate	Adequate margin provided in temp.
TEMP. (°F)	115°F	345°F	"	Ref.B Pg.21	"	"	230°F	
PRESSURE (PSIA)	ATM	ATM	"	"	"	"	Adequate	
RELATIVE HUMIDITY (%)	100-30min then 95	100%-48hrs then 95	"	Ref.B Pg.6 & Ref.D	"	"	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	"	"	
RADIATION (RADS)	5E6 RG 1.1E6 RB	2.04×10^8 RG	Ref.A, Ref.E,Pg.81	Ref.B,P14	Test and Analysis	"	1.99E8 RG	Note #1
AGING	40 yrs @94°F	135 yrs @311°F	Ref.E Pg.44	Ref.B Pg.21	Analysis of insulation sys-(Motorette)	"	Not req'd	For maint. follow Reliance Electric Instruction Manual, particularly for bearing and lubricants.
SPRAY	N/A	N/A	N/A	N/A	N/A	"	"	

DOCUMENTATION REFERENCE:

A. Technical Spec. M711(Q), Rev.13, App.S (10/17/84)

B. Reliance Electric Report NUC-9, Dtd. July 2, 1978 (M711(Q)-157-3)

C. AAF Seismic Report NESE-315, Rev.4, 10/80 (M711(Q)-132-5)

D. Letters #283477, dtd. 5/30/85 of AAF & #280061 dtd. 3/20/85 of AAF

NOTES

1. Qualified Radiation Level encompasses specified Gamma and Beta Radiation.

081

ATTACHMENT TO EESS NO. M711-MOT-001

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1AVH211	Rm. 4118	CSS Pump Room Unit Coolers, provides supplementary cooling to pump rooms to relieve equipment heat gain.	2a	M83-1
1BVH211,1FVH211	Rm. 4104	"	"	"
1CVH211, 1GVH211	Rm. 4116	"	"	"
1EVH211	Rm. 4118	"	"	"
1HVH211 1DVH211	Rm. 4105	"	"	"
1CVH210,1GVH210	Rm. 4114		"	"
1HVH210	Rm. 4107	RHR Pump Rm. Unit Coolers, provides supplementary cooling to pump rooms to relieve equipment heat gain.	"	"
1DVH210	Rm. 4107	"	"	"
1BVH210	Rm. 4109	RHR Pmp & Hx. Rm. Unit Coolers, provides supplementary cooling to pump rooms to relieve equipment heat gain.	"	"
1AVH210	Rm. 4113	"	"	"
1AVH208,1BVH208	Rm. 4110	RCIC Pump Rm. Unit Coolers, provides supplementary cooling to pump rooms to relieve equipment heat gain.	"	"
1AVH209,1BVH209	Rm. 4111	HPCI Pump Rm. Unit Coolers, provides supplementary cooling to to pump rooms to relieve equipment heat gain.	"	"
1EVH210,1FVH210	Rm. 4214, 4208	RHR Hx. Rm. Unit Coolers, provides supplementary cooling to pump rooms to relieve equipment heat gain.	"	"
1AVH214,1CVH214	Rm. 4309	SACS Pmp. & Hx. Rm. Unit Coolers, provides supplementary cooling to pump rooms to relieve equipment heat gain.	"	"
1BVH214,1DVH214	Rm. 4307	"	"	"

Prepared by P.K. Ganguly / I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/18/85

083

SHT. NO: M713-MOT-001
REV. NO: 3
DATE: 8/6/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
WESTINGHOUSE MOTOR

(1) SYSTEM REACTOR BLDG. HVAC AND FRVS
(2) TAG NO. See Sheet Attached
(3) COMPONENT FAN MOTOR
(4) MANUFACTURER WESTINGHOUSE
(5) MODEL NO. 284T/445T
(6) FUNCTION See Sheet Attached
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION See Sheet Attached
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES ___ REF. C ___ NO X Analysis Part 4
(11) SURVEILLANCE REQD. YES X REF. C ___ NO ___ (App.F) App.M

M-83-1 M-84-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	313 days	Ref. B Table 6	Ref.C App.H,Fig.1 & Appendix C	Motorette Test	None	133 days	Based on motorette testing per IEEE-334-1974 Section 5
TEMP. (°F)	150°F	410°F	Ref.A App.C	↓	↓	None	260°F	
PRESSURE (PSI)	Atmos.	Atmos.	Ref.B Table 6	↓	↓	None	None	
RELATIVE HUMIDITY (%)	100%-1hr 90%-100days	100%,moist. exposure 672 hrs	Ref.A App.C	Ref.C Appendix C ¶2.10.7	↓	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	2.03E6R G	2E8R G	Ref.B Table 6	Ref.C,App.C ¶1A.1.2, Note #1	Motorette Test		1.98E8R G	
AGING	40 years @100°F	40 yrs @ 266°F 266°F	Ref. B Pg.47 Rm.4511, 4512	Ref.C Appendix C ¶1A.1.1 & Appendix M	Motorette Test and Analysis	None	Not req'd	Periodic Maintenance req'd per REF. C Appendix F
SPRAY	N/A	Moisture Exposure 672 hrs	N/A	Ref.C Appendix C ¶2.10.7	Motorette Test	None	Not req'd	

DOCUMENTATION REFERENCE:
A. Technical Specification 10855-M713(Q) Rev.10 (8/83)
B. DITS 7.5 Rev. 2 (10/84)
C. Buffalo Forge Qualification Report DO-146F Rev.AA (1/83) (10855-M713(Q)-75-4)

NOTES
1. Beta radiation qualification Report. CCN#0271897, dt. 10/8/84.

083

ATTACHMENT TO EESS NO. M713-MOT-001

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1AV206	RB.145' Rm.#4511	FRVS Vent System, Exhaust Fan to Charcoal/HEPA Vent Filters	2a	M-84-1, M/R Item #1
1BV206	RB.145' Rm.#4512	FRVS Vent System, Exhaust Fan to Charcoal/HEPA Vent Filters	2a	M-84-1, M/R Item #1
1AV213	RB.132' Rm.#4410	Fan, recirculates Reactor Building air to filter and cool the air following a LOCA or other radioactivity accident.	2a	M-83-1, M/R Item #2
1BV213	RB.178' Rm.#4617			M-83-1, M/R Item #2
1CV213	RB.132' Rm.#4411	" " " " " " " "	2a	M-83-1, M/R Item #2
1DV213	RB.162' Rm.#4615	" " " " " " " "	2a	M-83-1. M/R Item #2
1EV213	RB.162' Rm.#4614	" " " " " " " "	2a	M-83-1, M/R Item #2
1FV213	RB.178' Rm.#4616	" " " " " " " "	2a	M-83-1, M/R Item #2

Prepared by T.P. Langely / I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/18/85

084

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET

ITT ELECTRO-HYDRAULIC ACTUATOR

SHT. NO: M713-ACT-002
REV. NO: 1
DATE: 8/6/85

(1) SYSTEM FRVS

(2) TAG NO.
SEE ATTACHED SHEET

(3) COMPONENT
FRVS FAN ACTUATOR

(4) MANUFACTURER
ITT GENERAL CONTROLS

(5) MODEL NO.
NH 93 Note #2
(NH 90 SERIES)

(6) FUNCTION
SEE ATTACHED SHEET

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION REACTOR BLDG., SEE ATTACHED SH.

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. B
NO ___

(11) SURVEILLANCE REQD.
YES X REF. B
NO ___

PARAMETERS	ENVIRONMENT		DOCUMENTATION REFERENCE		QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
	SPECIFIED	QUALIFIED	SPECIFIED	QUALIFIED				
OPERATING TIME	100 days	126 days	Ref.C, Table #6	Ref. B, 53 Ref.D	Test and Analysis	None	26 days	Arrhenius calculations used to extend DBE 25day Test time, Ref.D.
TEMP. (°F)	148	200	"	Ref.B, App.A Pg.6-1,8-46	Test	None	52	
PRESSURE (PSIG)	0	6	"	Ref.B App.A, 6-1	Test	None	6	
RELATIVE HUMIDITY (%)	100-30 min 95-100 days	100	"	Ref.B App.A, 6-1	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	2.03E6 RG 1.1E6 RB	1E7 RG	Ref.C Table #6	Ref.B App.A, 4-5 Note #4	Test	None	.8E7 RG	Note #2
AGING	40 years @100°F	15.25 yrs @104°F	Ref.A Pg.7 and Ref.C Table #6	Ref.B Pg.33 and Figure 10	Test and Analysis	None	Not req'd	See Note #1
SPRAY	N/A	Demineral. Water spray	N/A	Ref.B App.B, Pg.13	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-M-713(Q), REv.10 Dt. 8/83

B. ITT General Controls, Engineering Report #730.1.140, Rev.1 Dtd. 8/84 (10855-M-713(Q)-118-1) Note #2

C. Environmental Design Criteria 10855-D7.5, Rev.2, Dtd. 10/84

D. Ahhrenius calculations for Do. No. M713-ARRH-001, Rev.0 Dtd. 6/11/85

NOTES

1. Viton seals are being retrofit on site actuators as required by Ref.B (Ref. PSE&G ltr. file 401.1, SE.85.03.25.00 (dated 5/9/85).
2. Ref.B establishes similarity for NH-40 series actuators. Qualification Data for test Unit #2 used which includes Viton seals and is used for intermittant service. (FRVS operates during LOCA).
3. Actuators located in various reactor building rooms. The worst environmental conditions from Ref.C have been shown in the "SPECIFIED" column.
4. Qualified Radiation Level encompasses specified Gamma and Beta doses.

084

ATTACHMENT TO EESS NO. M713-ACT-002

TAC NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GU-FD-9426A	RB 145' Rm#4511	Damper actuator for FRVS vent system exhaust fan to charcoal/ HEPA vent filters	2a	M-84-1, M/R Item #1
1-GU-FD-9426B	RB 145' Rm#4512	"	"	"
1-GR-FD-9377A	RB 132' Rm#4410	Damper actuator for FRVS vent system recicurlation fan. Recirculates reactor building air to filter and cool it following a LOCA or radioactivity accident.	"	M-83-1, M/R Item #2
B	RB 178' Rm#4617	"	"	"
C	RB 132' Rm#4411	"	"	"
D	RB 162' Rm#4615	"	"	"
E	RB 162' Rm#4614	"	"	"
F	RB 178' Rm#4616	"	"	"

085

Prepared by V.P. Rangely / I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/16/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
ASCO ELECTROMAGNETIC ACTUATOR

SHT. NO: M717-ACT 001
REV. NO: 3
DATE: 10/10/85

(1) SYSTEM FRVS FILT.,RECIRC. & VENT.
(2) TAG NO. SEE SHEET ATTACHED
COMPONENT ELECTRO-MAGNETIC ACTUATOR
(4) MANUFACTURER ASCO
(5) MODEL NO. X8018A4 SEE NOTE #4
(6) FUNCTION SEE SHEET ATTACHED
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION REACTOR BUILDING SEE SH.ATTACH
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. B NO ___ (App.E,F,G)
11) SURVEILLANCE REQD. YES X REF. B NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	240 days	Ref.C Appendix A	Ref.B,P4-21 Ref.D	Test and Analysis	None	140 days	Arrhenius Methodology used to extend 30 day test time to encompass DBE, Ref.D.
TEMP. (°F)	299°F/½hr 148°F/100da	346°F (Max) Note #1	Ref.E Note #2	Ref.B Pg.4-21	Test	None	52°F	
PRESSURE (PSIA)	1.3 psig 30 min Atmos.	100psig Note #1 (Peak)	"		Test	None	8.7 psig	
RELATIVE HUMIDITY (%)	100-6 hrs then 95	100% Steam & Spray	"		Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	6.3E6 RG note #3	2.01E8 RG Note #3	Ref.E Note #2	Ref.B Appendix D	Test	None	1.9E8 RG	
AGING	40 yrs @104°F	10 yrs @ 140°F 40K cycles	Ref.E Note #2	Ref.B Supplement No.3	Test and Analysis	None	Not req'd	Periodic Maint. Req'd. replacement parts per ASCO catalog NP-1, Ref.B
SPRAY	N/A	Chem. spray @PH-10 for 30 days	N/A	Ref.B Pg.4.4	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-M717(Q), Rev.17 (4/84)

B. ASCO Qualification report AQS 21678/TR, Rev.A (7/79) (10855-M717(Q)-65-3) and Supplement No.3 Dtd. 3/83 (10855-M717(Q)-65-4)

C. Technical Specification 10855-M718(Q), Rev.13 (12/83)

D. Arrhenius calcs. M728(Q)-41(4)-1

E. Environmental Design Criteria 10855-D7.5, Rev.2 (10/84)

NOTES

1. DBE Test Values
346°F/110 psig - 6 hrs
320°F/75 psig - 3 hrs
250°F/15 psig - 3 days,13 hrs
200°F/10 psig - 26 days

DBE test data shown are conservative. For actual qualified temp. and pressure profile see Ref.B,Pg.4-21.

2. Specified environmental conditions are the worst conditions to which the component(s) in attached sheet will be exposed as derived from Ref.E, Table 6.

3. Beta qualification report CCN#0269772 dt. 8/20/84.

4. Qualification extended by similarity AWV Report 90191-171, Rev. D, dt. 1/15/85/(M717Q-AC).

085

ATTACHMENT TO EESS NO. M717-ACT-001 Sh. 1 of 2

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1GU-PD-9428-A1,A2 ,B1,B2	RB.102' Rm.#4317 RB.132, Rm.#4411	Actuator controls steam tunnel isolation damper.	2a	M/R Item #23
1GU-PD-9429-A1,A2	RB.145' Rm.#4504	Actuator controls NRHER isolation dampers.	2a	M/R Item #24
1GU-PD-9432-A1,A2 B1,B2	RB.77' Rm.#4215 RB.54' Rm.#4112	Actuator controls RHR, Rm.4118 isolation dampers.	2a	M/R Item #26 M/R Item #26
1GU-PD-9433-A1,A2 B1,B2	RB.54' Rm.#4108 RB.77' Rm.#4205	Actuator controls RHR Rm.4109 isolation dampers.	2a	M/R Item #26 M/R Item #26
1GU-PD-9434-A1,A2 B1,B2	RB.54' Rm.#4112 RB.77' Rm.#4211	Actuator controls HPCi pump room isolation dampers.	2a	M/R Item #27 M/R Item #27
1GU-PD-9435-A1,A2 B1,B2	RB 54' Rm.#4108 RB.77' Rm.#4209	Actuator controls RCIC Rm.4110 isolation dampers	2a	M/R Item #26 M/R Item #26
1GU-PD-9436-A1,A2 B1,B2	RB.77' Rm.#4201 RB.77' Rm.#4215	Actuator controls Torus area Rm.4102 isolation dampers	2a	M/R Item #31 M/R Item #31
1GU-PD-9437-A1,A2 B1,B2	RB.102' Rm.#4328 RB.102' Rm.#4326	Actuator controls HPCI pipe chase Rm.4327 iso. dampers	2a	M/R Item #28 M/R Item #28
1GU-PD-9438-A1,A2 B1,B2,C1,C2 D1,D2 E1,E2,F1,F2 G1,G2,H1,H2	RB.145' Rm.#4512 RB.102' Rm.#4320 RB.102' Rm.#4401 RB.132' Rm.#4404 RB.162' Rm.#4503	Actuator controls various pipe chase isolation dampers	2a	M/R Item #30 M/R Item #28 and #29. M/R Item #29 M/R Item #25 M/R Item #441
1GU-PD-9439-A1,A2,B1,B2	RB.102' Rm.#4328	Actuator controls pipe chase Rm.4329 isolation damper	2a	M/R Item #28

085

ATTACHMENT TO EESS NO. M717-ACT-001 Sh. 2 of 2

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GU-PD-9457A1	Rm #4504	Actuator controls operation of Holiday Rooms 4502 and 4503 isolation dampers.	2a	M84-1
1-GU-PD-9457A2	Rm #4504	"	"	"

Prepared by [illegible] / I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/18/85

.086

SHT. NO: M717-ZS-002
REV. NO: 3
DATE: 8/7/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
NAMCO LIMIT SWITCH

(1) SYSTEM (GT)&(GU) DRYWELL HVAC & FVRS

(2) TAG NO.
SEE SHEET ATTACHED

COMPONENT
LIMIT SWITCH

(4) MANUFACTURER
NAMCO

(5) MODEL NO.
EA 180

(6) FUNCTION
SEE SHEET ATTACHED

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
SEE SHEET ATTACHED

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. B
NO ___ (P.72)

11) SURVEILLANCE REQD.
YES X REF. B
NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	134 day	Ref.A Appendix A Data Sheets	Ref.B Pg.65 Ref.C	Test and Analysis	None	34 days	30 day test extended by analysis. Ref.C
TEMP. (°F)	340°F-1hr 150°F-100da	340°F-5 3/4hr 200°F-25days	"	Ref.B Pg.65	Test	None	None	2nd Transient during DBE provides accept. margin
PRESSURE (PSIA)	18psig-1hr 0.3psig-100 day	80psig-5 3/4h 10psig-25days	"	"	Test	None	57psig	
RELATIVE HUMIDITY (%)	100%-1hr 90%-100days	100%	"	Ref.B Pgs.25 & 26	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	3E7R8 RG	2.04E8 RG	Ref.D Table 6 Note #1	Ref.B Pg.25 & 26 Note #2	Test	None	2.01E8 RG	
AGING	40yrs @ 104°F	5 yrs 131°F 100K cycles	"	Ref.B Pgs.28 & 33	Test and Analysis	None	Not req'd	Periodic Maint. Req'd NAMCO procedure EA189-90051,Rev.B Pgs.22 thru 24
SPRAY	N/A	Water spray 29 days	N/A	Ref.B Pg.65	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-M717(Q), Rev.17 (4/84)

B. AWV Qualification Report 90192-201, Rev.A (1/81) & add. 3/81, including NAMCO report QTR 105, Rev.1 (8/80) (10855-M717(Q)-183-3).

C. Arrhenius calc. used for extending DBE test time. EQPM #421 part 4 of 4 dtd.6/1/82.

D. Environmental Design Criteria 10855-D7.5, Rev.2 (10/84).

NOTES

1. The specified values are the worst environment conditions to which the components shown in attached sheet will be exposed, as derived from Ref.D, Table #6.

2. Beta radiation qualification Report CCN#0269772 dt. 8/20/84.

086

ATTACHMENT TO EESS NO. M717-ZS-002 Sh.1 of 3

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GT-ZS-9372A	RB.145' Rm.4410	Operates open/close damper status lights (R.G.1.97)	2a	M-83-1, M/R Item #1
1-GT-ZS-9372C	RB.162' Rm.4615	"	"	M-83-1, M/R Item #2
1-GU-ZS-9395A	RB.178' Rm.4616	Operates open/close damper status lights	On 1E bus	M-83-1, M/R Item #458
1-GU-ZS-9395B	RB.178' Rm.4616	"	"	M-83-1, M/R Item #458
1-GU-ZS-9428A1, A2	RB.102' Rm.4317	Indication of steam tunnel isolation dmpr. pos.	On 1E bus	M-84-1, M/R Item #23
1-GU-ZS-9428B1, B2	RB.145' Rm. 4411	"	"	M-84-1, M/R Item #23
1-GU-ZS-9429A1, A2	RB.145' Rm. 4504	Provides indication of NRHER isolation dmpr. pos.	On 1E bus	M-84-1, M/R Item #24
1-GU-ZS-9432-A1,A2,B1,B2	A1,RB.77' Rm.4214 A2,RB.77' Rm.4215 B1,RB.54' Rm.4113 B2,RB.54' Rm.4113	Provides indication of RHR (Rm.4118) iso. valve pos.	On 1E bus	M-84-1, M/R Item #26
1-GU-ZS-9433-A1,A2,B1,B2	A1,A2,RB.54' Rm.4108 B1,B2,RB.77' Rm.4205	Provides indication of RHR (Rm.4109) iso. valve position	On 1E bus	M-84-1, M/R Item #26
1-GU-ZS-9434-A1,A2,B1,B2	A1,A2,RB.54' Rm.4113 B1,B2,RB.77' Rm.4211	Provides indication of HPCI pump room iso. valve position	On 1E bus	M-84-1, M/R Item #27
1-GU-ZS-9435-A1,A2,B1,B2	A1,A2,RB.54' Rm.4108 B1,B2,RB.77' Rm.4209	Provides Indication of RCIC (Rm.4110) iso. valve position	On 1E bus	M-84-1, M/R Item #26

086

ATTACHMENT TO EESS NO. M717-ZS-002 Sh. 2 of 3

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GU-ZS-9436-A1,A2,B1,B2	A1,A2,RB.77' Rm.4201 B1,B2,RB.77' Rm.4215	Provides indication of Torus area Rm.4102 iso. valve pos.	On 1E bus	M-84-1, M/R Item #31
1-GU-ZS-9437-A1,A2,B1,B2	A1,A2,RB.102' Rm.4328 B1,B2,RB.102' Rm.4326	Provides indication of HPCI pipe chase Rm.4327 iso. vlv. pos.	On 1E bus	M-84-1, M/R Item #28
1-GU-ZS-9438-A1,A2,B1,B2, C1,C2,D1,D2, E1,E2,F1,F2, G1,G2,H1,H2	A1,RB.145' Rm A2,RB.145' Rm B1,RB.102' Rm.4320 B2,RB.102' Rm.4321 C1,RB.102' Rm.4320 C2,RB.102' Rm.4320 D1,RB.102' Rm.4401 D2,RB.102' Rm.4401 E1,RB.102' Rm.4404 E2,RB.132' Rm.4404 F1,RB.132' Rm.4405 F2,RB.132' Rm.4405 G1,RB.162' H1,RB.162' H2,RB.162'	Provides indication of various pipe chase isolation valve positions	On 1E bus	M-84-1, M/R Item #28, 411,29

086

ATTACHMENT TO EESS NO. M717-ZS-002 Sh. 3 of 3

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GU-ZS-9439A1, A2,B1,B2	A1-4328 A2-4328 B1-4328 B2-4328	Provides indication of Pipe Chase Room 4329 isolation valve position.	Addl. info to operator and supplied from 1E bus	M84-1
1-GU-ZS-9457 A1 & A2	A1-4504 A2-4504	Limit switch provides indication of Holding Pump Rooms 4502 and 4503 isolation valve position.	"	M84-1

Prepared by P.K. Ganguly/T. Nag Date 10/9/85

Reviewed by [illegible] Date 10/18/85

087

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
ITT ELECTRO-HYDRAULIC ACTUATORS

SHT. NO: M717-ACT-003
REV. NO: T
DATE: 10/9/85

(1) SYSTEM FRVS

(2) TAG NO.
SEE ATTACHED SHEET

(3) COMPONENT
DAMPER ACTUATOR

(4) MANUFACTURER
ITT GENERAL CONTROLS

(5) MODEL NO.
NH-95 and NH-91
(NH-90 SERIES) Note #2

(6) FUNCTION
SEE ATTACHED SHEET

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION Note #3
SEE ATTACHED SHEET

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. B
NO ___

(11) SURVEILLANCE REQD.
YES X REF. B
NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEM	MARGIN	REMARKS
OPERATING TIME	100 days	126 days	Ref.C Table #6	Ref.B, 53 Ref.D	Test and Analysis	None	days	Arrhenius calculations used to extend DBE 25 day test time. Ref.D.
TEMP. (°F)	148	200	"	Ref.B,App.A Pgs.6-1,8-46	Test	None	52	Note #3
PRESSURE (PSIG)	0	6	"	"	Test	None	6	"
RELATIVE HUMIDITY (%)	100-30 min 95-100 days	100	"	"	Test	None	Not req'd	"
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	2.03E6 RG 1.1E6 RB	1E7 RG	Ref.C Table #6	Ref.B,App.A Pg.4-5 Note #4	Test	None	.8E7 RG	Note #2
AGING	40 years @90°F	15.25 years @104°F	Ref.A, Pg9 & Ref.C Table #6	Ref.B,Pg.33 & Figure 10	Test and Analysis	None	Not req'd	
SPRAY	N/A	Demineral Water spray	N/A	Ref.B App.B, Pg.13	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-M-718(Q), REv.13, Dtd. 12/83

B. ITT General Controls, Engineering Report #730.1.140, Rev.1, Dtd.4/84 (10855-M-717(Q)-98-7) (Note #2)

C. Environmental Design Criteria 10855-D7.5, Rev.2, 10/84

D. Arrhenius calculations for Doc. No. M717-ACRH-001, Rev.0, Dtd.6/11/85

NOTES

1. Viton seals are being retrofit on site actuators as required by Ref.B (PSE&G ltr. file 401.1, SE.85.03.25.8, Dtd.5/4/85).

2. Ref.B establishes similarity for NH-90 series actuators. Qualification data for Test Unit #2 is used because it includes Viton seals and was tested for intermittant service. (FRVS during LOCA).

3. Actuators located in various reactor building rooms. The worst environmental conditions from Ref.C (Table #6) have been shown in the "SPECIFIED" column.

4. Qualified Radiation Level encompasses specified Gamma and Beta doses.

087

ATTACHMENT TO EESS NO. M717(Q)-3

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GU-HD-9377-A1 thru F1	A1,RB.132',Rm4410 B1,RB.178' Rm4617 C1,RB.132' Rm4411 D1,RB.162' Rm4615 E1,RB.162' Rm4614 F1,RB.162' Rm4614	Hand damper actuator, controls inlet damper to FRVS recirculation fan	2a	P&ID M-83-1, M/R Item #3 (Model NH-95)
1-GU-HD-9377-A2 thru F2	A2,RB.145' Rm4411 B2,RB.178' Rm4617 C2,RB 145' Rm4411 D2,RB.162' Rm4615 E2,RB.162' Rm4614 F2,RB.178' Rm4616	Hand damper actuator, controls outlet damper to FRVS recirculation fan.	2a	P&ID M-83-1, M/R Item #4 (Model NH-95)
1-GU-HD-9425-A1 and B1	A1,RB.162' Rm4615 B1,RB.162' Rm4615	Actuator provides operation of FRVS vent system inlet damper	2a	P&ID M-84-1, M/R Item #11 (Model NH-95)
A2 and B2	A2,RB.145' Rm4511 B2,RB.145' Rm4512	Actuator provides operation of FRVS vent system outlet damper	2a	P&ID M-84-1, M/R Item #12 (Model NH-95)
1-GU-FD-9425-A3 and B3	A3,RB.145' Rm4511 B3,RB.145' Rm4512	Actuator provides operation of FRVS vent system exhaust flow to atmosphere damper to maintain required reactor building negative pressure.	2a	P&ID M-84-1, M/R Item #102 (Model NH-91)
A5 and B5	A5,RB.145' Rm4511 B5,RB.148' Rm4512	Actuator provides operation of FRVS vent system exhaust flow to recirculation damper to maintain required reactor building negative pressure.	2a	P&ID M-84-1, M/R Item #104 (Model NH-91)

Prepared by R.P. Tangedy/I. Nag Date 10/10/85

Reviewed by C.M. Kinlaw Date 10/18/85

088

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
ASCO SOLENOID VALVE

SHT. NO: M728-SV-001
REV. NO: 3
DATE: 8/6/85

EQUIPMENT DESCRIPTION

(1) SYSTEM REACTOR BLDG. EXH. CONTROL
(2) TAG NO.
SEE SHEET ATTACHED
(3) COMPONENT
SOLENOID VALVE
(4) MANUFACTURER
ASCO
(5) MODEL NO.
NP8316E34E
NP831654E
(6) FUNCTION
See Sheet ATTACHED
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION REACTOR BUILDING 4617,4323
(9) ABOVE FLOOD LEVEL
YES X NO ___
(Not specified)
(10) SEISMICALLY TESTED
YES X REF. B
NO ___ (App.E,F,G)
(11) SURVEILLANCE REQD.
YES X REF. D
NO ___
M-83-1
M-84-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	240 days	Ref.A Appendix A	Ref.B,P4-21 Ref.C	Test and Analysis	None	140 days	Arrhenius methodology used to extend 30 day test time to encompass DBE.
TEMP. (°F)	150°F	346°F(Max) Note #1	↓	Ref.B Pg.4-21	Test	None	50°F	
PRESSURE (PSIA)	0.3 psig (1hr) 0. 0psig (100days)	100psig(Peak) Note #1	↓	↓	Test	None	10psig	
RELATIVE HUMIDITY (%)	100%-1hr 90%-100days	100% Steam & Spray	↓	↓	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A		Not req'd	
RADIATION (RADS)	1.7E5R G 1.1E6 RG	2.01E8 Rads G	Ref.A Appendix A Ref.E,Pg.81	Ref.B Appendix D Note #3	Test	None	2E8R G	
AGING	40 yrs @ 84°F	10 yrs @ 140°F 40K Cycles	Ref.E Note #4	Ref.D	Test and Analysis	None	Not req'd	Periodic Maint Req'd parts per ASCO Catalog NP-1, Ref.D
SPRAY	N/A	Chemical Spray @PH-10 for 30 days	N/A	Ref.B Pg.4.4	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-M728(Q),Rev.B (7/13/82)
B. ASCO Qualification Report AQS 21678/TR Rev.A dated July 1979 (10855-M728(Q)-41-1)
C. Arrhenius Analysis for extending test data (M728(Q)-41(4)-1)
D. ASCO AQS21678 Supp.3 (J605(Q)-69-2)
E. DITS 10855-D7.5, Rev.2

NOTES

1. DBE Test Profile (Actual):
   346°F/110 psig - 6 hrs
   320°F/75 psig - 3 hrs
   250°F/15 psig - 3 days, 13 hrs
   200°F/10 psig - 26 days

   DBE Test data shown are conservative. For actual temp. and pressure profile see Ref.B, Pg.4-21.
2. Drawing P-9147-1 shows solenoids located "outside" of ducts (for Ref.A Spec. Conditions).
3. Qualified Radiation Dose encompasses specified B&G doses.
4. Worst maximum temp.(Rm 4323), Ref.E, Pg.45

088

ATTACHMENT TO EESS NO. M728-SV-001 Sh. 1 of 1.

TAG NO. (Item 2)	LOCATION (Item 3)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1GU-SV-9450A 1GU-SV-9450B	Reactor Bldg. El. 102' Rm.#4323	Provides for operation of equipment air lock isolation damper actuators.	Supplied from 1E bus	M-84-1
1GU-SV-9370B	Reactor Bldg. El. 178' Rm.#4617	Isolation valve operates isolation damper. Closes on high radiation or LVL 2 isolation or refueling floor high radiation.	2a	"
1GU-SV-9414A &B	Reactor Bldg. El. 178' Rm.#4617	Provides control and isolation signal to RBVS outboard supply damper from the reactor building vent duct.	2a	"

Prepared By M. Rangaly Date 10/10/85

Reviewed By I. Nag Date 10/18/85

089

SHT. NO: M728-ZS-002
REV. NO: 3
DATE: 10/10/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
NAMCO LIMIT SWITCH

(1) SYSTEM (GU) FRVS SYSTEM
(2) TAG NO. See Sheet Attached
(3) COMPONENT LIMIT SWITCH
(4) MANUFACTURER NAMCO
(5) MODEL NO. EA740-20100
(6) FUNCTION See Sheet Attached
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION See Sheet Attached
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. B NO ___ (Pg. 10-102)
(11) SURVEILLANCE REQD. YES X REF. B NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	153 days	Ref.A Appendix A A-3 & A-5	Ref.B Ref.C	Test and Analysis	None	53 days	33 day test extended by analysis. Ref.C.
TEMP. (°F)	150°F	340°F-3hr 200°F-33days		Ref.B,Pg.10-35/10-44	Test	None	50°F	Note #3
PRESSURE (PSIA)	0.3psig	180psig-3hr 10psig-33day			Test	None	9.7psig	Note #3
RELATIVE HUMIDITY (%)	100%-1hr 90%-100days	100% (Spray)			Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	1.7E5R G 1.1 E6 R B	2.04E8R G	Ref.A Appendix A A-3 & A-5	Ref.B Appendix B Pg.10-73	Test	None	2.03E8R G	Note #2
AGING	40 years @ 84°F	5 yrs @131°F 4 yrs @104°F	Ref.A ¶5.1.4 and Ref.D	Ref.B Figure 11 & & Pg.4-18 Note #1	Test and Analysis	None	Note reqd.	Periodic Maint. Req'd NAMCO instructions EA749-20010 & -20011 (Ref.B)
SPRAY	N/A	Caustic & Water Spray	N/A	Ref.B ¶4.6	N/A	N/A	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-M728(Q), Rev.8 (7/82)

B. NAMCO Qualification Report QTR III, Rev.0 (10/81) (10855-M728(Q)-60(1)-1)

C. Arrhenius calculation used to extend DBE test time, EQPM 199 (part 5 of 5) Dtd. 3/16/82.

D. DITS 7.5, Rev.2, 10/84, Pg.48 (Rm.#4323).

NOTES

1. Qualified Life:
   . Switches with silicone gasket 5 years @55°C.
   . Switches with NBR gasket 4 years @40°C.

2. The Qualified Radiation dose encompasses specified G & B doses.

3. The qualified data shown is conservative. For actual profile see Ref.B, 10-35 thru 10-44.

089

ATTACHMENT TO EESS NO. W28-ZS-002 Sh.1 of 1

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GU-ZS-9370B	RB.178' Rm.4617	Operates open/close damper status lights (R.G. 1.97)	2a	M-63-1, M/R Item #1
1-GU-ZS-9450A 1-GU-ZS-9450B	RB.102' Rm.4323 "	Provides indication of equip. air lock iso. dmpr. pos.	On 1E bus "	M-84-1, M/R Item #2
1-GU-ZS-9414A	RB.178' Rm.4617	Provides open/close status indication in control room for RBVS outboard supply damper R.G. 1.97 parameter	2a	M-84-1, M/R Item #1

Prepared by Y. Narang, I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/16/85

090

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
ASCO SOLENOID VALVE

SHT. NO: M780-SV-001
REV. NO: 3
DATE: 8/14/85

(1) SYSTEM FRVS FILT., RECIRC. & VENT.
(2) TAG NO. See Sheet Attached
(3) COMPONENT SOLENOID VALVE
(4) MANUFACTURER ASCO
(5) MODEL NO. K-HVA-206-380-3G
(6) FUNCTION See Sheet Attached
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION REACTOR Bldg.4603, 4616
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. B NO ___ (¶4.1.6)
(11) SURVEILLANCE REQD. YES X REF. B NO ___ (App.C)

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	> 2000 days	Ref.A Appendix B B-9	Ref.B Figure 4.1 Ref.C	Test and Analysis	None	>2000 days	30 day test extended by analysis, Ref. C.
TEMP. (°F)	148°F	345°F-3 hrs 265°F-30days		Ref.B Fig.4.1	Test	None	117°F	Note #2
PRESSURE (PSIA)	0 psig	30psig-5days 24psig-30day			Test	None	24 psig	Note #2
RELATIVE HUMIDITY (%)	100%	100% Steam &Spray 29 days		Ref.B Figure 4.1 ¶4.2.3	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	2E6R G 1.1E6R B	2.05E8R G	Ref.A Pg.B-9	Ref.B ¶4.1.4&4.2.2 Appendix D	Test	None	2.03E8R G	See Note #1
AGING	40 years 104°F Note #3	8 years @140°F	Ref.D Pg.48	Ref.B Appendix C & ¶4.1.1	Test and Analysis	None	Not req'd	Periodic Maint. Req'd of the Ref.B. Report Provides Maint. Guidelines.
SPRAY	N/A	Water Spray 29 days	N/A	Ref.B Figure 4.1	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-M-780(Q), Rev.11 (7/84)

B. ASCO Qualification Report AQR-67368, Rev.0 (3/82) (10855-M780(Q)-194-1).

C. Arrhenius calculations for extending DBE test duration, EQPM #335, ORD. 5/3/82.

D. Environmental Design Criteria -10855-D7.5, Rev.2 (10/84).

NOTES

1. Beta radiation qualification report CCN#0274809, dt.11/28/84 indicates ASCO solenoid valves are beta qualified.
2. The qualified data shown for temp.and pressure is conservative. For actual qualified Temperature and Pressure Profile see Ref.B, Fig.4.1.
3. Worst service temp. (Rm.4603) considered.

090

ATTACHMENT TO EESS NO. M780-SV-001 Sh. 1 of 1

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1GU-SV-9372A 1GU-SV-9372C	R.B. El. 162' Rm. #4603	Same as below (CPSC purge)	2a	M-83-1
1GU-SV-9395A	R.B. El. 178' Rm. #4616	Isolation valve, operates isolation damper. Closes on high radiation or LVL 2 isolation or refueling floor high radiation (FRVS recirc. damper).	2a	M-83-1
1-GU-SV-9395B		"	2a	M-83-1

Prepared by I. Nag / T. Narain Date 7/1/85

Reviewed by J.W. Poblenski Date 7/2/85

090A

SHT. NO: M780-AMP-002
REV. NO: 1
DATE: 6/14/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
AMP WIRE LUG

(1) SYSTEM
HVAC

(2) TAG NO.
N/A

(3) COMPONENT
WIRE LUG

(4) MANUFACTURER
AMP

(5) MODEL NO.
53423-1
53418-1

(6) FUNCTION
SEE NOTE #4

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
REACTOR BLDG.

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. A
NO ___

(11) SURVEILLANCE REQD.
YES ___ REF. ___
NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	365 days	B, App.B Pg.B-11	A, Pg.9 & 10 Ref. D	Type Test	None	265 days	30 day test extended by analysis, Ref. D, Note #1
TEMP. (°F)	340	400 Note #2	"	A,Pg.9 & 10	"	"	60	
PRESSURE (PSIG)	18	74 Note #2	"	A,Pg.10	"	"	56	
RELATIVE HUMIDITY (%)	100%	100%	"	A, Pg.9	"	"	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	"	Not req'd	
RADIATION (RADS)	3×10^7 R G 1.1×10^6 R B	259×10^6 R G	B,App.B Pg. B-11	A,Pg.8	Test	"	229×10^6 R G	Note #3
AGING	40 yrs @ 115°F	40 yrs @ 194°F	C, ¶VI A, Pg.15	A,Pg.6	Test & Analysis	"	Not req'd	
SPRAY	N/A	N/A	N/A	N/A	N/A	"	Not req'd	

DOCUMENTATION REFERENCE:

A. AMP Qual. Test Report 110-11004 2/2/82 (M780A(Q)-74-1,2,3

B. Spec. 10855-M780(Q)-Rev.9

C. DITS 10855-D7.5, Rev.2

D. AMP Ltr. dated 8/13/84 - See Note #1

NOTES

1. Approx. 365 days @200°F, See Ref.D, Item 1
2. For Temp. and Pressure Profile refer to Ref.B, Pg.9 & 10 respectively.
3. Qualified Radiation Dose encompasses Specified G & B Doses.
4. Provides connection to safety related equipment, Category 2a.

Prepared by I. Nagl / T. Narcam Date 7/1/85

Reviewed by J.W. Poblewski Date 7/2/85

091

SHT. NO: M780-TFB-003
REV. NO: 2
DATE: 6/14/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
BUCHANAN TERMINAL AND FUSE BLOCK

(1) SYSTEM R.B. HVAC

(2) TAG NO. N/A

(3) COMPONENT TERMINAL AND FUSE BLOCK

(4) MANUFACTURER BUCHANAN

(5) MODEL NO.
NQB 112
NQB 0361

(6) FUNCTION
NOTE #3

(7) ACCURACY
a) SPECIFIED N/A.
b) ACTUAL N/A

(8) LOCATION
NOTE #5

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. B
NO ___

(11) SURVEILLANCE REQD.
YES ___ REF. ___
NO X

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	160.4 days	A Pg.B-13	D1	Test and Analysis	None	60.4 days	7 day test extended by analysis, Ref D1.
TEMP. (°F)	148	163		D2	"	"	15	Note #1
PRESSURE (PSIG)	3 (Peak)	113 Peak		B,Pg.5-14	Test	"	110	Note #1
RELATIVE HUMIDITY (%)	100	Steam		B,Pg.5-15 §5.10	"	"	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	"	"	
RADIATION (RADS)	2.5E4 RG 1.1E6 RB	2.08E8 RG Note #2	A Pg.B-13	B Pg.5-7 §5.5	Test	"	2.08E8 RG	Note #2
AGING	40 yrs @ 97°F	>40 yrs @ 122°F		Note #4	Test and Analysis	"	Not req'd	
SPRAY	N/A	N/A	N/A	N/A	N/A	"	"	

DOCUMENTATION REFERENCE:

A. Tech Spec 10855-M-780(Q) Rev.13 Appendix B

B. FRC Report F-C5143 Dt.7/17/80 (10855-M780(Q)-193-1)

C. FRC Project C5143 dt.6/27/79 (10855-M780(Q)-193-1)

D1. Doc.No. F37917-ARRH-001 Rev.0 (5/24/85)

D2. Doc.No. F37917-ARRH-002 Rev.0 (5/24/85)

NOTES

1. For Temp. and Pressure Profile see Ref.B, Pg.5-14.
2. The Qualified Radiation Dose encompasses specified G and B Doses.
3. Provides connection for safety related equipment. Category 2a.
4. Ref.C, Pg.A5,A6 and A6a, Ref.B. Pg.5-3, §5.3.
5. Located in Panels 1AC/1BC/1CC/1DC-281, at Reactor Building El.102'.

Prepared by C. Narang, I. Nag Date 10/10/8-

Reviewed by [illegible] Date 10/18/85

092

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET

DWYER DIFFERENTIAL PRESSURE SWITCH

SHT. NO: M780-FSL-004
REV. NO: 2
DATE: 8/7/85

(1) SYSTEM
SEE ATTACHED SHEET

(2) TAG NO.
SEE ATTACHED SHEET

(3) COMPONENT
DIFF. PRESS. SW.

(4) MANUFACTURER
DWYER

(5) MODEL NO.
1950-00-2B

(6) FUNCTION
SEE ATTACHED SHEET

(7) ACCURACY
a) SPECIFIED ____
b) ACTUAL N/A

(8) LOCATION
SEE ATTACHED SHEET

(9) ABOVE FLOOD LEVEL
YES X NO ____

(10) SEISMICALLY TESTED
YES X REF. B
NO ____

(11) SURVEILLANCE REQD.
YES X REF. B
NO ____ APP. AB & AC

PARAMETERS	ENVIRONMENT		DOCUMENTATION REFERENCE		QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
	SPECIFIED	QUALIFIED	SPECIFIED	QUALIFIED				
OPERATING TIME	100 days	100 days	A	B, App.E ¶8.2, Pg. 8-7	Test	None	Adequate	Adequate margin provided in Temp.&Pressure.
TEMP. (°F)	340 (Max)	355 (Max)	A	Note #1		None	15	
PRESSURE (PSIG)	18 (Max)	19.8 (Max)	A			None	1.8	
RELATIVE HUMIDITY (%)	100	95-100	A			None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	3E7 RG 1.1E6 RB	3.69E7 RG	A	B App. D Ref. C	Test	None	.69E7 RG	Note #2
AGING	40 yrs @ 106°F	10 yrs @ 111°F	A	B, App.E ¶8.2, Pg. 8-7	Test and Analysis	None	Not req'd	Maintenance and Replacement Required.
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-M780 (Q), Rev.13 App. B, Pg. B-12

B. Acton Test Report 16923 (M-780 (Q)199-4)

C. ISOMEDIX letter dated 7/25/84.

NOTES

1. Ref. B, Para 8.11, Pg.8-42 and Fig.8,11d, Pg.8-46

2. Qualified Radiation Level encompasses specified G and B Radiation Doses.

092

ATTACHMENT TO EESS NO. M780-FSL-004 Sh.1 of 3

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GR-FSL-9381A1	4108	Senses unit cooler air flow and provide control signal to start standby cooler	2a	M 83-1
B1	4108	"	"	
9382A1	4112	"	"	
B1	4112	"	"	
9383A1	4113	"	"	
B1	4108	"	"	
C1	4114	"	"	
D1	4107	"	"	
E1	4214	"	"	
F1	4210	"	"	
G1	4114	"	"	
H1	4107	"	"	
9384A1	4118	"	"	
B1	4104	"	"	
C1	4116	"	"	
D1	4105	"	"	
E1	4118	"	"	
F1	4104	"	"	
G1	4116	"	"	
H1	4105	"	"	
9381A3	4108	Senses unit cooler air flow and provide signal to computer	NA, Addl oper. info	
B3	4108	"	"	
9382A3	4112	"	"	
B3	4112	"	"	
9383A3	4113	"	"	
B3	4108	"	"	
C3	4114	"	"	
D3	4107	"	"	
E3	4214	"	"	
F3	4210	"	"	
G3	4114	"	"	
H3	4107	"	"	

092

ATTACHMENT TO EESS NO. M780-FSL-004 Sh.2 of 3

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GR-FSL-9384A3	4118	Senses unit cooler air flow and provide signal to computer	NA, addl. oper info	M83-1
B3	4104	"	"	
C3	4116	"	"	
D3	4105	"	"	
E3	4118	"	"	
F3	4104	"	"	
G3	4116	"	"	
H3	4105	"	"	
9385A3	4309	"	"	
B3	4307	"	"	
C3	4309	"	"	
D3	4307	"	"	
A1	4309	Senses unit cooler air flow and provide control signal to stop chilled water circ. pump	2a	
B1	4307	"	"	
C1	4309	"	"	
D1	4307	"	"	
1-GU-FSL-9377AA	4410	Sense flow and provide start signal for FRVS fan	2a	
AB	4410	"	"	
BA	4617	"	"	
BB	4617	"	"	
CA	4411	"	"	
CB	4411	"	"	
DA	4615	"	"	
DB	4615	"	"	
9426A1	4511	Sense flow for control of FRVS system	"	M84-1
B1	4511	"	"	
A2	4512	"	"	
B2	4512	"	"	
1-GU-PDSH-9429-1	4504	Provides signal for closure of NRHER isolation damper	"	
2	4504	"	"	
9432-1	4113	Provides signal for closure of isolation damper	"	
2	4113	"	"	
9433-1	4108	"	"	
2	4108	"	"	

092

ATTACHMENT TO EESS NO. M780-FSL-004 Sh.3 of 3

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GU-PDSH-9434-1	4111	Provides signal for closure of isolation damper	2a	M 84-1
2	4111	"	"	
9435-1	4108	"	"	
2	4108	"	"	
9436-1	4201	"	"	
2	4201	"	"	
9437-1	4327	"	"	
2	4327	"	"	
9438-1	4321,4320	"	"	
2	4319,4320	"	"	
9439-1	4328	"	"	
2	4328	"	"	
9457-1	4502	"	"	
2	4503	"	"	
9428-1	4317	"	"	
2	4317	"	"	
9377A1	4410	Provide signal for alarm on high FRVS recirc. filter P	NA, addl oper info	M 83-1
B1	4617	"	"	
C1	4411	"	"	
D1	4615	"	"	
E1	4614	"	"	
F1	4616	"	"	

Prepared by T. Narang I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/18/85

093

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
WEED RTD (TEMPERATURE ELEMENT)

SHT. NO: M780-IE-005
REV. NO: 2
DATE: 8/7/85

(1) SYSTEM
SEE ATTACHED SHEET

(2) TAG NO.
SEE ATTACHED SHEET

(3) COMPONENT
RTD (TEMPERATURE ELEMENT)

(4) MANUFACTURER
WEED

(5) MODEL NO.
611-1 B-A-4-C-4-A2-0

(6) FUNCTION
SEE ATTACHED SHEET

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
SEE ATTACHED SHEET

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. B
NO ___

(11) SURVEILLANCE REQD.
YES ___ REF. B
NO X APP. AB & AC

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	100 days	A	B, App.E ¶8.2 Pg. 8-9	Test and Analysis	None	Adequate	Adequate margin provided in Temp. and Pressure.
TEMP. (°F)	340	355	A	Note #1	Test	"	15	
PRESSURE (PSIG)	16	19.8	A		"	"	1.8	
RELATIVE HUMIDITY (%)	100	95-100	A		"	"	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	"	Not req'd	Note #3
RADIATION (RADS)	3.0E7 RG 1.1E6 RB	3.69E7 RG	A	B, App. D Ref. C	Test	"	0.69E7 RG	Note #2
AGING	40 yrs @ 106°F	40 yrs @ 118°F	A	B, App.E ¶8.2, Pg. 8-9	Test and Analysis	"	Not req'd	
SPRAY	N/A	N/A	N/A	N/A	N/A	"	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-M780, Rev.13, App.B, Pg.B-11

B. Acton Test Report 16923, Rev.2 (M780(Q) 199-4)

C. ISOMEDIX letter dated 7/25/84

NOTES

1. Ref. B, Para 8.11, Pg.8-42 and Fig. 8.11d, Pg.8-46

2. Qualified Radiation Level encompasses specified G and B Radiation doses.

3. 1-GU-TE-9428-1 and 1-GU-TE-9428-2 located in steam tunnel area (Rm.#4316 and 4317) are provided with primary and back up 1E bus protective devices located in hazard free area.

093

ATTACHMENT TO EESS NO. M780-TE-005 Sh.1 of 2

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GR-TE-9384A	4118	Senses pump room temp and provides signal to computer	NA, Additional Operator Info.	M83-3
B	4104	"		
C	4116	"		
E	4118	"		
F	4104	"		
G	4116	"		
H	4105	"		
1-GR-TE-9383A	4113	"		
B	4109	"		
C	4114	"		
D	4107	"		
E	4214	"		
F	4208	"		
G	4114	"		
H	4107	"		
1-GR-TE-9381A	4110	"		
B	4110	"		
9382A	4111	"		
B	4111	"		
9385A	4309	"		
B	4307	"		
C	4309	"		
D	4307	"		
1-GU-TE-9377A	4410	Senses Temp of charcoal filters & provides signal for indicatn	Connected to IE Bus & provides addl info to oper.	
B	4617	"		
C	4411	"		
D	4615	"		
E	4614	"		
F	4616	"		

093

ATTACHMENT TO EESS NO. M780-TE-005 Sh.2 of 2

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GU-TE-9378A	4410	Senses FRVS recirculation outlet air temp and provide signal for indication	NA, Addl.Operator Info.	M83-1
B	4617	"		
C	4411	"		
D	4615	"		
E	4614	"		
F	4616	"		
J-TE-9425A	4511	Senses charcoal/HEPA filter temp & provide signal for indicatn	Connected to 1E Bus & provides addl.operator info	M84-1
B	4512	"		
1-GU-TE-9428-1	4316	Provides signal to close steam tunnel isolation dampers	2a	
-2	4317	"	2a	
9429-1	4506	Provides signal to close NRHER isolation damper	2a	
9429-2	4506	"	2a	
9432-1	4214	Provides signal to close RHR Rm.4118 isolation damper	2a	
-2	4214	"	2a	
9433-1	4208	Provides signal to close RHR Rm.4109 isolation damper	2a	
-2	4208	"	2a	
9434-1	4111	Provides signal to close HPCI pump room isolation damper	2a	
-2	4111	"	2a	
9435-1	4110	Provides signal to close RCIC Rm.4110 isolation damper	2a	
-2	4110	"	2a	
9436-1	4102	Provides signal to close Torus area isolation dampers	2a	
-2	4102	"	2a	
9437-1	4327	Provides signal to close HPCI pipe chase room isol. dampers	2a	
-2	4327	"	2a	
9438-1	4505	Provides signal to close various pipe chase isol. dampers	2a	
-2	4505	"	2a	
9439-1	4329	"	2a	
-2	4329	"	2a	
9457-1	4502	Provides signal to close holding pump room isol. damper	2a	
-2	4503	"	2a	

Prepared by T. Nazarag, I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/18/85

094

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET

PENN TEMP. SWITCH

SHT. NO: M730-TS-006
REV. NO: 2
DATE: 8/7/85

EQUIPMENT DESCRIPTION

(1) SYSTEM
SEE ATTACHED SHEET

(2) TAG NO.
SEE ATTACHED SHEET

(3) COMPONENT
TEMP SWITCH

(4) MANUFACTURER
PENN

(5) MODEL NO.
A19BAC-6

(6) FUNCTION
SEE ATTACHED SHEET

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
SEE ATTACHED SHEET

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. B
NO ___

(11) SURVEILLANCE REQD.
YES ___ REF. B
NO X APP. AB & AC

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	100 days	A	B, App.E ¶8.2, Pg. 8-8	Test and Analysis	None	Adequate	Adequate margin provided in Temp. and Pressure
TEMP. (°F)	148 (Max)	163 (Max)	A	Note #1	Test	"	15	
PRESSURE (PSIG)	3 (Max)	3.3 (Max)	A	↓	"	"	0.3	
RELATIVE HUMIDITY (%)	100	95-100	A	↓	"	"	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	"	"	
RADIATION (RADS)	2.5E4 RG 1.1E6 RB	1.5E5	A	B, App.D Note #2	Test	"	1.25E4 RG	Note #3
AGING	40 yrs @ 104°F	40 yrs @ 116°F	A	B, App.E ¶8.2, Pg. 8-8	Test and Analysis	None	Not req'd	
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-M780 (Q), Rev.13 App. B, Pg.B-8

B. Acton Test Report 16923, Rev.2 (M780A(Q) 199-4)

NOTES

1. Ref.B, Para 8.11, Pg.8-42 and Fig. 8.11e, Pg.8-47
2. ISOMEDIX letter dated 5/17/84
3. For Beta Radiation Qualification, refer to Bechtel Beta Radiation Qualification Report CCN #0274809, dated 11/28/84.

094

ATTACHMENT TO EESS NO. M780-TS-006

PENN TEMP. SWITCH

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GR-TS-9385A	4309	Senses pump room temp and starts room unit cooler	2a	M83-1
B	4307	"	2a	↓
C	4309	"	2a	↓
D	4307	"	2a	↓

Prepared by T. Nazong, I. Nag. Date 10/10/85

Reviewed by C. W. Yu Li Date 10/18/85

095

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET

UNITED ELECTRIC TEMP. CONTROLLER

SHT. NO: M780-TS-007
REV. NO: 2
DATE: 8/7/85

(1) SYSTEM REACTOR BLDG. HVAC

(2) TAG NO.
SEE ATTACHED SHEET

(3) COMPONENT
TEMP. CONTROLLER

(4) MANUFACTURER
UNITED ELECTRIC

(5) MODEL NO.
8302-103

(6) FUNCTION
SEE ATTACHED SHEET

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
SEE ATTACHED SHEET

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. B
NO ___

(11) SURVEILLANCE REQD.
YES X REF. B
NO ___ APP. AB & AC

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	100 days	A	B, App.E §8.2, Pg. 8-11	Test and Analysis	None	Adequate	Adequate margin provided in Temp. and Pressure.
TEMP. (°F)	340 (max)	355 (max)	A	Note #1	Test	None	15	
PRESSURE (PSIG)	5 (max)	19.8 (max)	A	↓	↓	None	14.8	
RELATIVE HUMIDITY (%)	100	95-100	A	↓	↓	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	5.02E6 RG 1.1E6RB	5.67E6, RG	A	B, App.D Ref. C	Test	None	0.47E6 RG	Note #2
AGING	40 yrs @ 104°F	10 yrs @ 111°F	A	B, App. E §8.2, Pg. 8-11	Test and Analysis	None	Not req'd	Maintenance and replacement required.
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855 M780(Q), Rev.13 App. B, Pg. B-5

B. Acton Test Report 16923(M780A(Q)199-4) Rev.2

C. ISOMEDIX letter dated 6/17/84

NOTES

1. Ref.B, Para 8.11, Pg.8-42 and Fig. 8.11d, Pg.8-46

2. For Beta Qualification refer to Bechtel Beta Qualification Report CCN #0274809, dated 11/28/84.

095

ATTACHMENT TO EESS NO. M780-TS-007

UNITED ELECTRIC TEMP. CONTROLLER

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1GR-TS-9381A	4110	Senses pump room temp and starts room unit cooler	2a	M-83-1
B	4110	"	"	
1GR-TS-9382A	4111	"	"	
B	4111	"	"	
1GR-TS-9383A	4113	"	"	
B	4109	"	"	
C	4114	"	"	
D	4107	"	"	
E	4214	"	"	
F	4208	"	"	
G	4114	"	"	
H	4107	"	"	
1GR-TS-9384A	4118	"	"	
B	4104	"	"	
C	4116	"	"	
D	4105	"	"	
E	4118	"	"	
F	4104	"	"	
G	4116	"	"	
H	4105	"	"	

Prepared by T. Narang, I. Nag Date 10/10/85

Reviewed by C.M. [illegible] Date 10/18/85

096

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
MICRO SWITCH SELECTOR SWITCH

SHT. NO: M780 -HS-008
REV. NO: 2
DATE: 6/14/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM RB HVAC (2) TAG NO. SEE ATTACHED SHEET (3) COMPONENT SELECTOR SWITCH (4) MANUFACTURER MICRO SWITCH (5) MODEL NO. PTS-J-K3-02-C (6) FUNCTION SEE ATTACHED SHEET (7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A (8) LOCATION SEE ATTACHED SHEET (9) ABOVE FLOOD LEVEL YES X NO ___ (10) SEISMICALLY TESTED YES X REF. B NO ___ (11) SURVEILLANCE REQD. YES X REF. B NO ___ APP. AB and AC.	OPERATING TIME	100 days	100 days	A	B, App.E ¶8.2, Pg. 8-9	Test and Analysis	None	Adequate	Adequate margin is provided in Temp. and Pressure
	TEMP. (°F)	148 (max)	163 (max)	A	Note #1	Test		15	
	PRESSURE (PSIG)	3 (max)	3.3 (max)	A				0.3	
	RELATIVE HUMIDITY (%)	100	95-100	A				Not req'd	
	FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A		Not req'd	
	RADIATION (RADS)	2.5E4 RG 1.1E6 RB	2.32E6 RG	A	B, App.D Ref. C	Test		2.295E6 RG	Note #2
	AGING	40 yrs @ 97°F	20 yrs @ 107°F	A	B, App.E ¶ 8.2 Pg.8-9	Test and Analysis		Not req'd	
	SPRAY	N/A	N/A	N/A	N/A	N/A		Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-M780(Q), Rev.13 App. B, Pg. B-13

B. Acton Test Report 16923, Rev.2 (M780(Q) 199-4)

C. ISOMEDIX letter dated 5/17/84

NOTES

1. Ref.B, Para 8.11, Pg.8-42 and Fig.8.11e, Pg.8-47

2. Qualified Radiation Level encompasses specified G and B doses. For further information, refer to Bechtel Beta Radiation Qualification Report CCN #0274809, dated 11/28/84.

096

ATTACHMENT TO EESS NO. M780 -HS-008 Sh.1 of 2

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GR-HS-9382A	4309 (Panel AC281)	Provides control for cooling of pump room coolers	2a	M-83
B		"	2a	
1-GR-HS-9383A		"	2a	
1-GR-HS-9383E		"	2a	
1-GR-HS-9384A		"	2a	
E		"	2a	
1-GU-HS-9428-1		Provides manual control of steam tunnel isol. dampers	2a	M-84
9432-1		Provides manual control of RHR Rm.4118 isol. dampers	2a	
9437-1		HPCI Rm.4327 isol. dampers	2a	
9439-1		pipe chase Rm.4329 isol. dampers	2a	
9434-1		HPCI rm isol. damper	2a	
9438-1		various pipe chase isol. dampers	2a	
9429-1	4303 (Panel BC281)	NRHER isol. damper	2a	
9433-1		RHR Rm.4109 isol. dampers	2a	
9435-1		RCIC Rm.4110 isol. dampers	2a	
9436-1		Torus Area Rm.4102 isol. damper	2a	
9457-1		Rm.4502 & 4503 isol. damper	2a	
1-GR-HS-9381A		Provides control for cooling of pump room coolers	2a	M-83
B		"	2a	
9383B		"	2a	
9383F		"	2a	
9384B		"	2a	
9384F		"	2a	
1-GR-HS-9383C	4310 (Panel CC281)	"	2a	
G		"	2a	
1-GR-HS-9384C		"	2a	
9384G		"	2a	
9385A		"	2a	
B		"	2a	
1-GU-HS-9428-2		Provide manual control of steam tunnel isol. damper	2a	M-84
1-GU-HS-9432-2		RHR Rm.4118 isol. dampers	2a	
9437-2		HPCI Rm. 4327 isol. dampers	2a	

096

ATTACHMENT TO EESS NO. M780 -HS-008 Sh.2 of 2

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GU-HS-9439-2	4310	Provides manual control of pipe chase Rm.4329 isol. dampers	2a	M-84
9434-2	(Panel CC281)	HPCI rm isol. dampers	2a	
9438-2		various pipe chase isol. dampers	2a	
1-GR-HS-9383D	4307	Provides control for cooling of pump room coolers	2a	M-83
9383H	(Panel DC281)	"	2a	
1-GR-HS-9384D		"	2a	
9384H		"	2a	
9385C		"	2a	
9385D		"	2a	
1-GU-HS-9429-2		Provides manual control of NRHER isol. damper	2a	M-84
9433-2		RHR Rm.4109 isol. damper	2a	
9435-2		RCIC Rm.4110 isol. dampers	2a	
9436-2		Torus area Rm.4102 isol. dampers	2a	
9457-2		Rm.4502 & 4503 isol. dampers	2a	

Prepared by Z. Andreeva, I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/18/85

097

EQUIPMENT EVALUATION SUMMARY SHEET

SHT. NO: M780-TRNS-009
REV. NO: 2
DATE: 8/7/85

HOPE CREEK GENERATING STATION

HEVI-DUTY TRANSFORMER

(1) SYSTEM HVAC

(2) TAG NO. N/A

(3) COMPONENT TRANSFORMER

(4) MANUFACTURER HEVI-DUTY

(5) MODEL NO. SBW-250E

(6) FUNCTION REDUCE 120V to 24V

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL

(8) LOCATION Note #3

(9) ABOVE FLOOD LEVEL YES X NO

(10) SEISMICALLY TESTED YES X REF. B NO

(11) SURVEILLANCE REQD. YES X REF. B NO APP. AB

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	180 days	A	B, App.E ¶8.2 Pg. 8-10	Test and Analysis	None	80 days	
TEMP. (°F)	148 (Max)	163 (Max)	A		Test	None	15	
PRESSURE (PSIG)	3 (Max)	3.3 (Max)	A			None	0.3	
RELATIVE HUMIDITY (%)	100	95-100	A			None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	2.5E4 RG 1.1E6 RB	1.5E5 RG	A	B, App.D Ref. C	Test	None	1.25 RG	Note #2
AGING	40 years @196°F	10 years @ 197°F	Note #4	B, App.E ¶8.2, Pg. 8-10	Test and Analysis	None	Not req'd	
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855 M780(Q), Rev.13 App. B, Pg.B-13

B. Acton Test Report 16923 (M-780A(Q)-199-1)

C. ISOMEDIX letter dated 6/1/84 (Pg. 508 of 688)

NOTES

1. Ref.B, Para 8.11, Pg.8-42 , Fig.8.11e, Pg.8-47

2. For Beta Qualification refer to Bechtel Beta Qualification Report.

3. Located in Panel 1AC281-Rm 4309, 1BC281-Rm 4303 1CC281-Rm 4310, 1DC281-Rm 4307

4. Ref.A - Max. ambient 97°F and Ref. B, App.A, App.A, Pg.A-15- 55°C, Temp. rise.

Prepared by E. Nag / [illegible] Date 10/10/85

Reviewed by C.W. [illegible] Date 10/21/85

100

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET

REMOTE CONTROL PANELS & THERMOCOUPLE

SHT. NO: M/86-PNL-001
REV. NO: 2
DATE: 10/10/85

(1) SYSTEM REACTOR BLDG. SUPPLY & EXHAUST
(2) TAG NO.
SEE ATTACHED SHEET

(3) COMPONENT
REMOTE CONTROL PANELS AND THERMOCOUPLE
(4) MANUFACTURER

NUTHERM, INC.
(5) MODEL NO.
DWG #1023-55172-33
DWG #1023-55170-33
(6) FUNCTION
SEE ATTACHED SHEET

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
SEE ATTACHED SHEET
(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. B
NO ___ (Pg.66)

(11) SURVEILLANCE REQD.
YES X REF. B
NO ___ (Pg.109)

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	198 days	Ref.C Table #6	Ref.B, Pg.65, 68, App.VII & Table 4B	Test and Analysis	None	98 days	Arrhenius calculations used to extend test data (Ref A, Appendix VII).
TEMP. (°F)	148°F	>177°F	Ref.B App.M	"	Test	None	>29°F	
PRESSURE (PSIA)	+1.0"wg. -0.25"wg.	0	"	"	Test	None	Adequate	Adequate margin provided in temperature and operating time.
RELATIVE HUMIDITY (%)	100%	100%	"	Ref.B Pgs.14-17 App.VII	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	1.8E5 RG 1.1E6 RB	>1.1E6 RG	Ref.C, Table 6 Ref.D	Ref B,Pg.63, 64, App.III & Table 1	Test	None	>.92E6 RG	Note #2
AGING	40 yrs @104°F	11.3-40 yrs @119°F Note #1	Ref.A Pg.7	Ref.B, Pgs. 64,74-84 & Table 4A	Test and Analysis	None	Not req'd	Periodic maintenance and replacement req'd (Ref A, Pg.109)
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-M-786(Q), Rev.9, Dtd. 8/84

B. Nutherm International Report No. N-160-00R, Rev.4, dated 5/85 (10855-M786Q - 284 (1&2)-4,(3)-2 & (4)-1)

C. Environmental Design Criteria 10855-07.5, Rev.2, dtd. 10/84.

D. Bechtel memo dated 5/14/84 (Gamma dose as specific panel locations)

NOTES

1. Individual control and power supply components listed in Table 4A vary in qualified life from 11.3 to 40 years.

2. Beta Qualification Report M/86(Q).

ATTACHMENT TO EFSS NO. M786-PNL-001

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1AC-043	RB 132' RM#4410	Remote control panel for FRVS recirculation air filter heater 1AVH-213.	Fed from Class 1E Power Supply	M-83-1, M/R Item #1
1BC-043	RB 178' RM#4617	Remote control panel for FRVS recirculation air filter heater 1BVH-213.	"	"
1CC-043	RB 132' RM#4411	Remote control panel for FRVS recirculation air filter heater 1CVH-213.	"	"
1DC-043	RB 162' Rm#4615	Remote control panel for FRVS recirculation air filter heater 1DVH-213.	"	"
1AC-044	RB 162' Rm#4614	Remote control panel for FRVS recirculation air filter heater 1EVH-213.	"	"
1BC-044	RB 178' Rm#4616	Remote control panel for FRVS recirculation air filter heater 1FVH-213.	"	"
1AC-045	RB 145' Rm#4511	Remote control panel for FRVS vent air filter heater 1AVH-206.	"	M-84-1, M/R Item #2
1BC-045	RB 145' Rm#4512	Remote control panel for FRVS vent air filter heater 1BVH-206.	"	"

ATTACHMENT TO EESS NO. M786-PNL-001

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1Gu-MY-9379A	Rm#4410	Power controllers for heater control.	Fed from 1E-Power Supply	M-83-1
1Gu-MY-9379B	Rm#4617	Power controllers for heater control.	"	"
1Gu-MY-9379C	Rm#4411	Power controllers for heater control.	"	"
1Gu-MY-9379D	Rm#4615	Power controllers for heater control.	"	"
1Gu-MY-9379E	Rm#4614	Power controllers for heater control.	"	"
1Gu-MY-9379A	Rm#4616	Power controllers for heater control.	"	"
1GU-MY-9425A	Rm#4511	Power controllers for heater control.	"	"
1GU-MY-9425B	Rm#4512	Power controller for heater control.	"	

Prepared by R.K. Mangaly / I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/21/85

101

EQUIPMENT EVALUATION SUMMARY SHEET

ELECTRIC HEATERS AND POWER CONTROLLER

HOPE CREEK GENERATING STATION

SHT. NO: M786-HTR 002
REV. NO: 2
DATE: 10/10/85

EQUIPMENT DESCRIPTION

(1) SYSTEM REACTOR BUILDING EXHAUST
(2) TAG NO.
SEE ATTACHED SHEET

(3) COMPONENT
ELECTRIC AIR HEATERS AND CONTROL PANELS
(4) MANUFACTURER
NUTHERM, INC.

(5) MODEL NO.
DWG. #1023-52060-33
DWG. #1023-52555-33
DWG. #1023-52556-33
(6) FUNCTION
SEE ATTACHED SHEET

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
SEE ATTACHED LIST
(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. B
NO ___ (pg. 44)

(11) SURVEILLANCE REQD.
YES X REF. B
NO ___ (pg. 118)

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	198 days	Ref.C Table #6	Ref.B,AppVII Pg.46, & Table #4B	Test and Analysis	None	98 days	Arrhenius calculation used to extend test data (Ref.A, App. VII)
TEMP. (°F)	148°F	>177°F	Ref.A App.M	"	Test	None	·29°F	
PRESSURE (PSIA)	+1.0"WG -.25"WG	0	"	"	Test	None	Adequate	Adequate margin provided in temperature & operating time
RELATIVE HUMIDITY (%)	100%	>100%	"	Ref.B Pgs.14-18 & App. VII	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	(Note 3) 7.0E5 RG 1.1E6 RB	·7.69E5 RG	Ref.A,AppM Ref.C, Table #6	Ref.B,Pgs.39, 40,Table #1, & App.III	Test	None	·.69E5 RG	Note #2
AGING	40 yrs @ 104°F	2.8-40 Yrs @119°F Note #1	Ref.A,Pg.7 & Ref.C Table #6	Ref.B Table 4A & Pg.55,& 41	Test and Analysis	None	Not req'd	Periodic maintenance & replacement req'd (Ref.A, Pg.118)
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-M-786(Q), Rev.9, dtd.8/84

B. Nutherm Report No. 51122R, Rev.4 dtd. 5/85 (10855-M-786(Q)-287 (1&2)-3 and (3&4)-2

C. Environmental Design Criteria 10855-G7.5, REv.2, dtd.10/84

NOTES

1. Individual control and power supply components listed in Table 4 vary in qualified life from 2.8 to 40 years.

2. Beta Qualification Report M786(Q).

3. These duct heaters are included in Table 3.11-6. Due to the reactor building temperature increases during a DBA, these duct heaters will not function due to the temperature control settings, which is below DBA building temperature. The heater circuits are protected by primary and backup IE breakers.

ATTACHMENT TO EESS NO. M786-HTR-002

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1GU-TE-9434	Rm#4111	Thermostats for control of heaters (remote).	Fed From Class 1E Power Supply	M-84-1
1GU-TY-9434	Rm#4110	SCR - Controllers for the control of heaters for room temperature control.	"	"
1GU-TE-9435	Rm#4606	Thermostats for heater control.	"	"
1GU-TY-9435	Rm#4606	SCR - Power controller for heater control.	"	"
1GU-TE-9436	Rm#4102	Thermostats for heater control.	"	"
1GU-TY-9436	____	SCR-Power controller for heater control.	"	"
1GU-TE-9438	Rm#4605	Thermostats for heater control.	"	"
1GU-TY-9438	____	SCR-Power controller for heater control.	"	"

Prepared by R. D. Trapp / I. Nag Date 7/30/85

Reviewed by J. W. Schlesinger Date 7/30/85

102

EQUIPMENT EVALUATION SUMMARY SHEET

SHT. NO. M001-XV-001
REV. NO: 3
DATE: 7/17/85

HOPE CREEK GENERATING STATION BOOK S11, CONAX SLC EXPLOSIVE VALVE

(1) SYSTEM (BH) STANDBY LIQUID CONTROL
(2) TAG NO. 1-BH-XV-F004A, 1-BH-XV-F004B
(3) COMPONENT SLC EXPLOSIVE VALVE
(4) MANUFACTURER CONAX CORP.
(5) MODEL NO. 1832-162-01(VLV), 1532-162-01(KIT)
(6) FUNCTION SEE NOTE #1
(7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A
(8) LOCATION REACTOR BLDG. El.162', Rm.#4606
(9) ABOVE FLOOD LEVEL YES X NO ___ (REF.A Pg.7)
(10) SEISMICALLY TESTED YES X NO ___ REF. A (App.H)
(11) SURVEILLANCE REQD. YES X NO ___ REF. A (Pg.19)

M-48-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	1hr ATWS	11½hr Equiv.	Ref.A,Pg A-38	Ref.A, Pgs. J-135&J-136 Ref.B,Item4B	Test and Analysis	None None	10½ hr	34 Min. DBE test duration extended by Arrhenius methodology
TEMP. (°F)	148°F	200°F	Ref.A Pg.A3-3	Ref.A,Pgs.J-135,136,29,30	Test	None	52°F	
PRESSURE (PSIA)	0 psig	16.5 psig	"	"	Test	None	16.5 psig	
RELATIVE HUMIDITY (%)	100% Max.	100%	"	"	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	Note #5	1.35E6R G 4.17E5R G	Ref.A Pg.A3-5	Ref.A Pgs.J27 J28,J-57	Test	None	>1000%	Note #3 Note #4
AGING GROUP I	40yrs@101°F 2yr storage 3yr oper.	40yrs@101°F 2yr storage 3yr oper.	Ref.A,Pgs. A-7,A3-3 A3-9 & 10	Ref.A Pg.J26,27	Test and Analysis	None	Not req'd	Note #2
AGING GROUP II								
SPRAY	N/A	Water 1.1 gpm/pt 5min.periodic	Ref.A Pg.A3.3	Ref.A Pg.J-135	Test	None	Not req'd	Storage and replacement criteria req'd per Ref.A

DOCUMENTATION REFERENCE:

A. NSSS Book S-11, GE NEDC-30804 Dtd. Nov.11,1984

B. GE Co. ltr Ser. GP-85-42 Dtd. 3/7/85 (comment resolutions)

NOTES

1. Explosive actuated valve operated to release boron solution into reactor. Category 2a item per NUREG-0588, Appendix E.
2. Group I is valve, Group II is replacement kit.
3. ATWS considered as 10% of DBE for radiation (Ref.A, Pg.3-5)
4. Qualified radiation levels of gamma include beta equivalence.
5. GROUP I 886R G / 190R B; GROUP II 72.8R G / 190R B

Prepared by V.P. Langely / I. Nag Date 10/10/85

Reviewed by C.H. [illegible] Date 10/18/85

103

EQUIPMENT EVALUATION SUMMARY SHEET

SHT. NO: M001-RE-002
REV. NO: 2
DATE: 8/8/85

HOPE CREEK GENERATING STATION BOOK C24

GE IRM DETECTOR

(1) SYSTEM (SE) NEUTRON MONITORING
(2) TAG NO. 1-SE-RE-N002A - H
(3) COMPONENT INTERMEDIATE RANGE MONITOR (IRM) DETECTOR
(4) MANUFACTURER GENERAL ELECTRIC
(5) MODEL NO. 112C3144G008
(6) FUNCTION SEE NOTE #2
(7) ACCURACY
a) SPECIFIED (Ref.A)
b) ACTUAL (Pg.A3-1)
(8) LOCATION REACTOR LEVEL 121.(INCORE/DRYWELL)
(9) ABOVE FLOOD LEVEL YES X NO ___ Ref.A, Pg.A4-17
(10) SEISMICALLY TESTED YES X REF. A NO ___ (App.F)
(11) SURVEILLANCE REQD. YES X REF. A NO ___ Pg.10

M-42-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	12hrs.Small HELB,4sec.-CR Drop	Operating Experience	Ref.A Pg.G-6 H-5	Ref.A App.C	Experience	None	N/A	Note #1
TEMP. (°F)	546°F Norm. 583°F Upset	Operating Experience	Ref.A Pg.I-5,9	Ref.A App.C	Experience	None	N/A	
PRESSURE (PSIA)	62 psig (Max) Drywell	475 psi (Analysis)	Ref.A Pg.I-9 and A2-1	Ref,A Pg.A4-13 Pg.8	Operating Experience	None	413 psi by Analysis	
RELATIVE HUMIDITY (%)	100% (Steam)	Analysis See remarks	Ref.A Pg.A2-1	Ref.A Pg.9 A4-16	Analysis of Actual Condition	None	Not req'd	Analysis (Ref.A,Pg.A4.16) indicates during HELB humidity will be 7.2%<<Norm.environ.
FLOODING/ FROTH	N/A	Above floor level	N/A	Ref.A Pg.A4-17	N/A	None	Not req'd	
RADIATION (RADS)	8E8R/hr 1.5x10^{13}NV Max	Prior Use	Ref.A Pg.A2-10 Pg.6	Ref.A App.C	Experience	None	N/A	
AGING	40 yrs cyclic-70°F to 552°F	15 yrs (MITF)	Ref.A Pg.H-5	Ref.A App.C	Analysis of operating experience	None	Not req'd	Periodic main. req'd inspection & cleaning of electrical connectors every 5 yrs (Ref.A, Pg.10)
SPRAY	Steam	Steam Environment Analyized	Ref.A Pg.A2-1	Ref.A Pg.A4-16	Analysis	None	Not req'd	

DOCUMENTATION REFERENCE:

A. GE Qualification Report (Book C24) NEDC-30438 Rev.2, dtd. 6/13/85

NOTES

1. Qualification is by Operating Experience (IEEE 323-1974,6.4) and analysis (operating data from 22 BWR's used as basis for experience).
2. IRM ion chamber provides signals of core neutron flux levels used to initiate rod block and reactor scram when the flux exceeds preset limits. R.G. 1.97 Parameter. Category 2a item of NUREG-0588, Appendix E.

Prepared by P. Raghavan/I. Nag Date 10/10/85

Reviewed by C.D. Yule Date 10/18/85

104

EQUIPMENT EVALUATION SUMMARY SHEET

HOPE CREEK GENERATING STATION BOOK S10 GE SLC MOTOR

SHT. NO: M001-MOT-003(30817)
REV. NO: 3
DATE: 8/8/85

EQUIPMENT DESCRIPTION

(1) SYSTEM (BH)
STANDBY LIQUID CONTROL

(2) TAG NO.
1A-P-208
1B-P-208

(3) COMPONENT
SLC MOTOR

(4) MANUFACTURER
GENERAL ELECTRIC CO.

(5) MODEL NO.
5K324AK2120

(6) FUNCTION
SEE NOTE #1

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION REACTOR BLDG. El.162' Rm#4606

(9) ABOVE FLOOD LEVEL
YES X NO ___
(Ref.A, Pg.B8)

(10) SEISMICALLY TESTED
YES X REF. A
NO ___ App.C

(11) SURVEILLANCE REQD.
YES X REF. A
NO ___ Pgs.B-5 and 16

M-48-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	2hrs. (Note #2)	36hrs.motor 9hrs.motorette	Ref.A Pg.A2-3	Ref.A Pg.A3-29 and C-70	Test	None	7 hrs.	Motor DBE inccluded two (2) transients to max. conditions, 0-5hrs and 5hrs-12days
TEMP. (°F)	148°F	200°F (Max)	Ref.A Pg.A2-7	Ref.A Pg.A3-27	↓	None	52°F	
PRESSURE (PSIA)	Atmos.	16.5 psig (Max)	↓	Ref.A Pg.A3-27	↓	None	16.5 psig	
RELATIVE HUMIDITY (%)	100%	100%	↓	Ref.A Pg.A3-27	↓	None	Not req'd	
FLOODING/ FROTH	Not specified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RADIATION (RADS)	1.13E5R G	3.9E7R G	Ref.A Pg.B8	Ref.A Pg.A3-8	Test	None	3.89E7R G	Beta equivalent gamma included in specified value (ATWS 10% of DBE).
AGING	40 yrs @101°F	40 yrs @101°F	Ref.A Pg.A2-7	Ref.A Pgs.A4-3 and C-63	Test and Analysis	None	Not req'd	138 yrs of margin based on motorette testing.
SPRAY	During & after 8 hrs of spray	Demineralized water 7 hrs	Ref.A Pg.A2-3	Ref.A Pg.A4-27	Test	None	Not req'd	138 yrs of margin based on Motorette testing.

DOCUMENTATION REFERENCE:

A. GE Envir. Qual. Report Book S10, NEDC-30817, Rev.0, Dtd. 11/84

GE Test Report NEDE-30790, Rev.0, Dtd. 9/84 } Appendix C

GE Test Report 5430-6958, Rev.0, Dtd. 1/28/77 }

NOTES

1. Pump motor provides drive force to inject boron solution into reactor to backup Scram. Category 2a item of NUREG-0588 Appendix E.
2. Ref.A, Pg. A2-3 specifies that "only the first (2hr) injection of boron solution is a documented safety requirement."

Prepared by I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/18/85

EQUIPMENT EVALUATION SUMMARY SHEET
PYCO TEMPERATURE ELEMENT

HOPE CREEK GENERATING STATION BOOK C03

SHT. NO: M001-TE-004
REV. NO: 2
DATE: 10/10/85

EQUIPMENT DESCRIPTION

(1) SYSTEM (SK)
PLANT LEAK DETEC.
(2) TAG NO.
SEE ATTACHED SHEET
(3) COMPONENT
TEMPERATURE ELEMENTS
(4) MANUFACTURER
PYCO
(5) MODEL NO.
145C3224-P001
(Catalog #102-9039-11,08
(6) FUNCTION
AIR TEMPERATURE MONITOR ING. SEE ATTACH. SHEET
(7) ACCURACY
a) SPECIFIED ±3.1°F
b) ACTUAL ±3.1°F
(Ref.A Pg.55 and 243)
(8) LOCATION
SEE ATTACHED SHEET
(9) ABOVE FLOOD LEVEL
YES ___ NO X
(10) SEISMICALLY TESTED
YES X REF. A
NO ___ (Pg.506)
(11) SURVEILLANCE REQD.
YES X REF. A&B
NO ___ (Pg.12)

M-25-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	12 hrs.	30 hrs.	Ref.A,App. B (FPR Table 2)	Ref.A Pgs. 249 & 448	Type Test	None	18 hrs	DBE Test profile included two (2) transients
TEMP. (°F)	315°F-30min 148°F-100da	350°F-1hr 200°F-30hrs	Ref.A,App. E,&Pg.32	"	"	"	35°F	Test data indicates temp.>315°F for 3½ hrs.
PRESSURE (PSIA)	16.3psig-30m 0psig-100da	20psig-1hr. 0psig-29hr.	"	"	"	"	3.7psig	
RELATIVE HUMIDITY (%)	100%(6hr) 95% (1000D)	100%	"	"	"	"	Not req'd	
FLOODING/ FROTH	Feedwater Line Break	N/A	Ref.A Pg.032&056	N/A	N/A	"	"	Note #3
RADIATION (RADS)	3.33E7R G 1.1E6R B	2.8E8R G	Ref.A Pg.032	Ref.A Pg.244	Test	"	2.47E8R G	Beta Radiation encompassed by gamma qualified dose.
AGING	40 yrs,1750 Thermal cyc. 40°F to 150°F	>>40 yrs.	Ref.A Pg.224	Ref.A Pg.040,019, 018	Test and Analysis	"	Not req'd	Replacement of terminal housing gasket req'd each time housing is opened. See Ref.B
SPRAY	N/A	Water Spray for 1 hr.	N/A	Ref.A Pg.249	Test	"	Not req'd	

DOCUMENTATION REFERENCE:

A. GE Co. (NSSS) Qualification Report NEDC-30428, Dtd. 10/84 book C03 temp. elements.

B. GE Co. comment resolutions PIR 85-070 dtd 3/26/85.

NOTES

1. Worse case conditions from all NPL's listed.
2. Temperature element terminal housing is NEMA 4 and 6 rated per Reference B.
3. 1-SK-TE-No16, No12A, No12B, No12C, No12D, No10A, No10B, No10C & No10D. The only items subjected to submergence caused by a feedwater line break in the steam tunnel.

105

ATTACHMENT TO EESS NO. M001-TE-004

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-SK-TE-N016-A,D, AA,DD,E,H,J,M, T,W,N,S	A,D-RB132' Rm#4403 E,H-RB132' Rm#4405 N,S-RB132' Rm#4505 T,W-RB132' Rm#4402 AA,DD-RB145' Rm#4506 J,M-RB145' Rm#4506	Monitors the RWCU system ambient temperature. Used for isolation of the system and for annunciation.	2a	MPL G33, M-25-1
1-SK-TE-N022-A,D, AA,DD,E,H,J,M, N,S,T,W	A,D-RB132' Rm#4403 AA,DD-RB145' Rm#4506 J,M-RB145' Rm#4506 E,H-RB132' Rm#4405 N,S,T,W Rm#4402	Monitors the RWCU system area vent air inlet temperature. Used to isolate the system and for annunciation.	2a	MPL G33, M-25-1
1-SK-TE-N023-A,D, AA,DD,E,H,J,M, N,S,T,W	A,D-RB132' Rm#4403 E,H-RB132' Rm#4405 N,S,T,W RB145' Rm#4505 AA,DD-RB145' Rm#4506 J,N-RB145' Rm#4506	Monitors the RWCU system area vent air outlet dif. temp. Used to isolate the system and for annunciation.	2a	MPL G33, M-25-1
1-SK-TE-N010-A thru D	RB.102' Rm#4316	Monitors main steam line pipe tunnel ambient temp. and provide signals for annunciation and leak detection system isolation trips.	2a	MPL B21, M-25-1
1-SK-TE-N011-A thru D	RB.132' Rm#4316	"	"	MPL B21, M-25-1
1-SK-TE-N012-A thru D	RB.102' Rm#4316	"	"	MPL B21. M-25-1
1-SK-TE-N013-A thru D	RB.132' Rm.#4316	"	"	MPL B21, M-25-1

105

ATTACHMENT TO EESS NO. M001-TE-004 Sh. 2 of 3

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-SK-TE-N014	RB.132' Rm#4316	Monitors the main steam line (MSL) pipe tunnel area ambient temp., provides main control room annunciation	Add'l Operator Info and Fed from Class1E Bus.	MPL B21, M-25-1
1-SK-TE-N016	RB.132' Rm#4316	Monitors main steam line pipe tunnel temperature, vent air inlet temp. for annunciation of steam leak detection system.		MPL B21, M-25-1
1-SK-TE-N017	RB.132' Rm#4316	Monitors main steam line pipe tunnel temperature vent air outlet temp. for annunciation of steam leak detection system.		MPL B21, M-25-1
1-SK-TE-N009-A and B	A-RB.77',Rm#4214 B-RB.77',Rm#4208	Monitors RHR system emergency area cooler ambient temp., provides steam leak detection system annunciation.	2a	MPL E11, M-25-1
1-SK-TE-N029-A and B	A-RB.54',Rm#4113 B-RB.54',Rm#4109	Monitors RHR steam vent air inlet temp., provides steam leak detection system annunciation.	2a	MPL E11, M-25-1
1-SK-TE-N030-A and B	A-RB.77',Rm#4214 B-RB.77'Rm#4208	Monitors RHR system vent air outlet temp., provides steam leak detection system annunciation.	2a	MPL E11, M-25-1
1-SK-TE-N024	RB.54' Rm#4111	Monitors HPCI equipment area ambient temp., provides steam leak detection system annunciation.	Add'l oper. Info. and Fed from Class1E Bus.	MPL E41, M-25-1
1-SK-TE-N025-A,C,E,G,J,L,N,R	A,C-RB102' Rm#4327 E,G,J,L,N,R-Rm#4102	Monitors the HPCI pipe area ambient temp., provides steam leak detection system annunciation	2a	
1-SK-TE-N028-A and C	RB.54' Rm#4111	Monitors the HPCI equipment area vent air inlet temp. Used to isolate steam supply piping area and for annunciation.	2a	MPL E41, M-25-1
1-SK-TE-N029-A and C	RB.54' Rm#4111	Monitors the HPCI equipment area vent air outlet temperature. Used to isolate steam supply piping area and for annunciation.	2a	MPL E41, M-25-1
1-SK-TE-N030-A and C	RB.54' Rm#4111	Monitors the HPCI equipment area (emergency area cooler) ambient temp. Used to close steam supply line iso. valve and for annunciation.	2a	MPL E41, M-25-1
1-SK-TE-N011	RB.54' Rm#4110	Monitors the RCIC system area ambient temp. and used for annunciation.	Add'l oper. Info. and Fed from Class1E Bus	MPL E51, M-25-1

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-SK-TE-N021-B and D	RB.54' Rm#4110	Monitors the RCIC equipment area vent air inlet temperature. Used for area isolation and for annunciation.	2a	MPL G33, M-25-1
1-SK-TE-N022-B	RB.54' Rm#4110	Monitors the RCIC equipment area vent air outlet temperature. Used for area isolation and for annunciation.	2a	MPL G33, M-25-1
1-SK-TE-N023-B	RB.54' Rm#4110	Monitors the RCIC system area emergency area ambient temp. Used to isolate the RCIC system and for annunciation.	2a	MPL E51, M-25-1
1-SK-TE-N025-B,D,F,H,K,M,P,S	F,H,K,M,P,S-Room#4102 B,D-RB.102' Room#4319	Monitors the RCIC system pipe area ambient temperature. Used to isolate the steam supply piping area and for annunciation.	2a	MPL E51, M-25-1
1-FC-TE-N022D	RB.54' Rm#4110	Monitors the RCIC system area vent air outlet temperature. Used to isolate the RCIC system equipment area and for annunciation.	2a	MPL E51, M-25-1
1-FC-TE-N023D	RB.54' Rm#4110	Monitors the RCIC system equipment area cooler ambient temperature. Used to isolate the RCIC system and for annunciation.	2a	MPL E51, M-25-1

106

Prepared by I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/15/85

EQUIPMENT EVALUATION SUMMARY SHEET

HOPE CREEK GENERATING STATION NSSS BOOK C13 ROSEMOUNT PRESSURE TRANSMITTER

SHT. NO: M001-PT-005
REV. NO: 2
DATE: 10/10/85

(1) SYSTEM
SEE SHEET ATTACHED
(2) TAG NO.
SEE SHEET ATTACHED
(3) COMPONENT
PRESSURE TRANSMITTERS
(4) MANUFACTURER
ROSEMOUNT
(5) MODEL NO.
TYPE 1151
(6) FUNCTION
SEE SHEET
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(PRESSURE BOUNDARY)
(8) LOCATION
SEE SHEET ATTACHED
(9) ABOVE FLOOD LEVEL
YES X NO ___
(10) SEISMICALLY TESTED
YES ___ REF. A
NO X (ANALYSIS)
(11) SURVEILLANCE REQD.
YES X REF. A
NO ___ (Pg.9)

PARAMETERS	ENVIRONMENT		DOCUMENTATION REFERENCE		QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
	SPECIFIED	QUALIFIED	SPECIFIED	QUALIFIED				
OPERATING TIME	100 days	>110 days	Ref.A App.B	Ref.A Attach.6 Pg.A6-4	Analysis and Supporting Test Data	None	Adequate Margin Exists.	See Note #2
TEMP. (°F)	340°F-30min 148°F-180da	392°F Peak	Ref.A Pg.A4-1	Ref.A Pg.A6-3	"	None	52°F	
PRESSURE (PSIA)	5psig-30min 0psig-180da	425 psi (Min.)	"	Ref.A Attach.6 & Attach.8	"	None	Adequate Margin Exists	Hydrostatic Test
RELATIVE HUMIDITY (%)	100%	100%	"	Ref.A Attach.6	"	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	Pressure boundary integrity only required
RADIATION (RADS)	1.23E7R G 3E6R B	1.35E7R G	Ref.A ¶4.4.2-2 &Pg.A6-20	Ref.A ¶4.4.2.2	Analysis and Supporting Test Data	None	.3E7R G	O-ring shielded from beta radiation effects by housing.
AGING	40 yrs @ 97°F	15 yrs	"	Ref.A ¶4.4.2 and Pg.A6-14	"	None	Not req'd	Replacement of Viton O-rings req'd at 15 year intervals.
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:
A. GE Co Qualification Report (Book C13) NEDS-30435, Rev.1, dtd. 6/85

NOTES

1. Transmitters are safety-related only because they form a part of the pressure boundary; No electrical function is required.
2. Viton O-rings are the only age sensitive (non metalic) material used.

ATTACHMENT TO EESS NO. M001-PT-005(30435)

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BJ-PT-N052	RB 54' Rm#4112	Provides signal of HPCI pump suction pressure for ~~annuncia-tion~~ indication and alarm. I. Nag 11/26/85	Supplied from Class 1E Bus. ~~II~~ I Nag.	
1-BC-FT-N013	RB 102' Rm#4320	Flow transmitter provides RHR containment spray cooling mode flow signal for control room indication	" 11/26.	E41,M-56-1 E11, M-51-1
1-BC-PT-N053 A thru D	A-RB 54' Rm#4112 B-RB 54' Rm#4108 C-RB 54' Rm#4114 D-RB 54' Rm$4107	Provides RHR pump discharge pressure ~~signal for trip~~ alarm Signal in Control room. I. Nag 11/26.	"	E11,M-51-1
1-BC-PT-N057	RB 77' Rm#4216	Provides RHR shutdown cooling suction pressure ~~signal for trip~~. alarm signal in control room. I. Nag 11/26.	"	E11, M-51-1
1-FD-PT-N013	RB 54' Rm#4112	Provides HPCI turbine inlet steam pressure signal for ~~annunciator~~ indication. I. Nag 11/26	"	E41, M-55-1
1-FC-PT-N007	RB 54' Rm#	Provides RCIC turbine inlet steam pressure for ~~annunciation~~ Signal for indication. I. Nag 11/26	"	E51, M-49-1
1-BC-PDT-N060 A and B	A-RB 77' Rm#4216 B-RB 77' Rm#4203	Pressure differential transmitter senses diff. pressure across LPCI injection lines providing alarm signal.	"	E11, M-51-1

Prepared by I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/18/85

107

EQUIPMENT EVALUATION SUMMARY SHEET

HOPE CREEK GENERATING STATION BOOK C50 GE POWER RANGE DETECTORS

SHT. NO: M001-RE-006
REV. NO: 2
DATE: 8/9/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM (BB) NUCLEAR BOILER & REACTOR RECIRC (2) TAG NO. SEE SHEET ATTACHED (3) COMPONENT POWER RANGE DETECTORS (PRD's) (4) MANUFACTURER GENERAL ELECTRIC CO. (5) MODEL NO. NA 200 (6) FUNCTION SEE SHEET ATTACHED (7) ACCURACY a) SPECIFIED 4.8E18±20% b) ACTUAL REF.A. APP.E (8) LOCATION SEE SHEET ATTACHED (9) ABOVE FLOOD LEVEL YES X NO ___ (10) SEISMICALLY TESTED YES X REF. NO ___ (APP.B&C & ATTACH.3) (11) SURVEILLANCE REQD. YES ___ REF. A NO X (Pg.8) M-42-1	OPERATING TIME	0 (Zero) See Note #1	0 (Zero) See Note #1	Ref.A Pg.G-3 and G-28	Ref.A App.E	Operating Experience and analysis	None	N/A	Note #1
	TEMP. (°F)	583°F	608°F	Ref.A Pg.G-41	Ref.A Pg.G-46	"	None	25°F	
	PRESSURE (PSIA)	1375 psia @583°F	1422 psia @600°F	Ref.A Pg.G-41	Ref.A Pg.A2-7	Analysis	None	47 psia	
	RELATIVE HUMIDITY (%)	Reflects Drywell Conditions	Exterior is all metal in the drywl	Ref.A Pg.G-42	Ref.A Pg.A2-12	"	None	Not req'd	
	FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
	RADIATION (RADS)	Lifetime NeutronFlux 2.02E14 NV	7.5yrs @ full power	Ref.A Pg.G-42	Ref.A App.E Attach.4	Operating experience and analysis	None	N/A	All materials are non-organic
	AGING	40 years No maintenance	7.5 full power years	Ref.A Pg.G-41 and G-5	Ref.A Pgs.A2-8	Operating experience and analysis	None	Not req'd	No maintenance req'd during installed life
	SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. GE Co Environmental Qualification Report NEDC-30442, Rev 1, dtd. 6/10/85

NOTES:

1. Operating times are zero for LOCA/HELB, since the PRD must function only until reactor trip is initiated and scram is complete.

ATTACHMENT TO EESS NO. M001-RE-006 (30442) Sh.1 of 2

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BB-RE-12D193	Reactor vsl area El.120'	Neutron detector (power range detector) to measure neutron flux levels providing level signal to the PRM for rod block or SCRAM. R.G. 1.97 Parameter.	2a	M-42-1
1-BB-RE-13D193	"	"		
1-BB-RE-14D193	"	"		"
1-BB-RE-15D193	"	"		"
1-BB-RE-16D193	"	"		"
1-BB-RE-21D193	"	"		"
1-BB-RE-22D193	"	"		"
1-BB-RE-23D193	"	"		"
1-BB-RE-24D193	"	"		"
1-BB-RE-25D193	"	"		"
1-BB-RE-26D193	"	"		"
1-BB-RE-27D193	"	"		"
1-BB-RE-31D193	"	"		"
1-BB-RE-32D193	"	"		"
1-BB-RE-33D193	"	"		"
1-BB-RE-34D193	"	"		"
1-BB-RE-35D193	"	"		"
1-BB-RE-36D193	"	"		"
1-BB-RE-37D193	"	"		"
1-BB-RE-41D193	"	"		"
1-BB-RE-42D193	"	"		"
1-BB-RE-43D193	"	"		"
1-BB-RE-44D193	"	"		"
1-BB-RE-45D193	"	"		"
1-BB-RE-46D193	"	"		"
1-BB-RE-47D193	"	"		"
1-BB-RE-51D193	"	"		"
1-BB-RE-52D193	"	"		"
1-BB-RE-53D193	"	"		"
1-BB-RE-54D193	"	"		"
1-BB-RE-55D193	"	"		"

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BB-RE-56D193	Reactor vls area El.120'	Neutron detector (power range detector) to measure neutron flux levels providing level signals to the PRM for rod block or SCRAM. R.G. 1.97 Parameter.	2a	M-42-1
1-BB-RE-57D193	"	"	↓	"
1-BB-RE-61D193	"	"	↓	"
1-BB-RE-62D193	"	"	↓	"
BB-RE-63D193	"	"	↓	"
1-BB-RE-64D193	"	"	↓	"
1-BB-RE-65D193	"	"	↓	"
1-BB-RE-66D193	"	"	↓	"
1-BB-RE-72D193	"	"	↓	"
1-BB-RE-73D193	"	"	↓	"
1-BB-RE-74D193	"	"	↓	"
1-BB-RE-75D193	"	"	↓	"

Prepared by I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/11/85

EQUIPMENT EVALUATION SUMMARY SHEET

HOPE CREEK GENERATING STATION

VALCOR SOLENOID VALVE

SHT. NO: M001-SV-007
REV. NO: 2
DATE: 10/10/85

(1) SYSTEM CONTROL ROD DRIVE HYDRAULIC
(2) TAG NO. 1-BF-SV-F182A,B
(3) COMPONENT SOLENOID VALVE
(4) MANUFACTURER VALCOR
(5) MODEL NO. V70900-45, V70900-45-1
(6) FUNCTION CONTROLS AIR FLOW TO SDV ISOLATION VALVES
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION REACTOR BLDG. EL 102', Rm. 4322
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. A NO ___
(11) SURVEILLANCE REQD. YES X REF. A NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	Note 1	Note 2	Ref. A A-3,8	Ref. A A8-17,19,21, 23	Test and Analysis	None	SBA-1hr LOCA-2.5 hrs	
TEMP. (°F)	148	215	Ref. B		Test		+67°F	
PRESSURE (PSIA)	0 (psig)	(psig) 17.05					(psig) +17.05	
RELATIVE HUMIDITY (%)	100%	100%		Ref. A A8-19 A8-23			Not req'd	
FLOODING/ FROTH	N/A	Note 3		Ref. A A8-21 A8-23			Not req'd	
RADIATION (RADS)	4.1E5 RG 3.0E5 RB	3.9×10^7 RADS G		Ref. A A7-7			$+3.8 \times 10^7$ RADS G	Qualified Gamma Radiation Dose Encompasses Beta
AGING	O-rings 5yr All other parts 40yrs @83°F	O-rings 5yrs All other parts 40yrs @105°F	Ref. A A2-3 A2-8	Ref. A A7-4	Test and Analysis		Not req'd	
SPRAY	N/A	3hrs spray during LOCA	Ref. B	A8-21, A8-23 } Ref A	Test		Not req'd	

DOCUMENTATION REFERENCE:

A. NEDE - 30514

B. Hope Creek Environmental Conditions Data Sheet No. ATWS-A-1, dt. 4/26/82

NOTES

1. Functional 12 hrs after SBA or 30 min. after LOCA. After SBA & LOCA: must not change from de-energized state for 180 days.
2. Functionally tested for 13 hrs at SBA conditions and for 3 hrs at LOCA conditions. Analysed to show that because of valve design it cannot change position without being energized.
3. Submerged valve for 5 seconds before 1st and 2nd LOCA test and after LOCA test for a total of 15 sec. submerged.

Prepared by I. Nag Date 10/10/85

Reviewed by C.M. [illegible] Date 10/11/85

109

EQUIPMENT EVALUATION SUMMARY SHEET

HOPE CREEK GENERATING STATION

VALCOR SOLENOID VALVE

SHT. NO: M001-SV-008
REV. NO: 2
DATE: 10/10/85

(1) SYSTEM ALTERNATE ROD INSERTION
(2) TAG NO. SEE NOTE 3
(3) COMPONENT SOLENOID VALVE
(4) MANUFACTURER VALCOR
(5) MODEL NO. V70900-43, V70900-46
(6) FUNCTION CONTROLS AIR FLOW TO SDV VENT & DRAIN
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION SEE NOTE 2
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. B NO ___
(11) SURVEILLANCE REQD. YES X REF. A NO ___

M-47-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	Note 1	100 days	Ref. A Pg.9	Ref. B 5-3	Test	None	+99 days	
TEMP. (°F)	148	215	Ref. D				+67°F	
PRESSURE (PSIA)	0 (psig)	psig 17.05					psig +17.05	
RELATIVE HUMIDITY (%)	100%	100%					Not req'd	
FLOODING/ FROTH	N/A	Submerged for 5 sec		Ref. B 5-1			Not req'd	
RADIATION (RADS)	4.1E5 RG 3.0E5 RB	3.9×10^7 RADS G		Ref. A Pg.81			$+3.8 \times 10^7$ RADS G	Qualified Gamma Radiation Dose encompasses Beta
AGING	40 yrs @ 82°F	O-rings 5yrs All other parts 40yrs @105°F	Ref. A Pg.12	Ref. A Pg.54	Test and Analysis		Not req'd	
SPRAY	N/A	Spray for 12 days PH 5.3-8.6	Ref. D	Ref. B 5-1	Test		Not req'd	

DOCUMENTATION REFERENCE:

A. QR-70900-43

B. 58856-1

C. QP-70900-43

D. Hope Creek Environmental Conditions Data Sheet No. ATWS-A-1, dt. 4/26/82

NOTES

1. The valve must function 30 seconds after the start of the ATWS event. Valve pressure indicator must function for the first 60 sec. of the ATWS event. Following the initial 60 sec. the valve and indicator must maintain passive electrical integrity.

2. LOCATION: REACTOR BUILDING ELEC. 102'
   1-BF-SV-F160A,B - Room 4317
   1-BF-SV-F162A,B - Room 4320
   1-BF-SV-F162C,D - Room 4328
   1-BF-SV-F163A,B - Room 4322

3. 1-BF-SV-F160A,B,
   1-BF-SV-F162A,B,C,D
   1-BF-SV-F163A,B

Prepared by I. Nag Date 10/10/85

Reviewed by [illegible] Date [illegible]

EQUIPMENT EVALUATION SUMMARY SHEET

HOPE CREEK GENERATING STATION

ROSEMOUNT PRESSURE TRANSMITTER

SHT. NO: M001-PT-009
REV. NO: 2
DATE: 10/10/85

(1) SYSTEM
NUCLEAR BOILER

(2) TAG NO.
1-BB-PT-N403A,B,E,F

(3) COMPONENT
PRESS. TRANSMITTER

(4) MANUFACTURER
ROSEMOUNT

(5) MODEL NO.
1153GB9

(6) FUNCTION MEASURES REACTOR STM DOME PRESS & PROVIDES TRIP SIGNAL

(7) ACCURACY
a) SPECIFIED ±2% c.s
b) ACTUAL 1.95% c.s.

(8) LOCATION REACTOR BLDG. El.77',Rm.4203, 4215

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. A
NO ___

(11) SURVEILLANCE REQD.
YES X REF. A
NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	2 Min. Note 1	417 hrs Note 2	Ref. A A8-1 A9-2	Ref. A A7-1,2,3,7 8,9 A7-122	Test	None	+416.5 hrs.	
TEMP. (°F)	148	318	Ref. B	A7-1,2,3 A7-122			+170	
PRESSURE (PSIA)	0 (psig)	87.7		A7-1,2 A7-122			+87.7	
RELATIVE HUMIDITY (%)	100%	100%		A7-1,2,4 A7-122			Not req'd	
FLOODING/ FROTH	N/A	N/A		N/A	N/A		Not req'd	
RADIATION (RADS)	3.0E6 RG 3.0E5 RB	2.44E7 RG RADS Gamma		A7-5,6 A5-5 Ref A	Test		$+2.1\times10^7$ RADS Gamma	Qualified gamma radiation dose encompasses beta
AGING	40 yrs @ 77°F	20 yrs @ 106°F	Ref. A A3-1,2	A5-3 A7-157 A7-158	Test and Analysis		Not req'd	
SPRAY	N/A	Demineralized water for 24 hrs	Ref. B	A7-1,2 App.C			Not req'd	

DOCUMENTATION REFERENCE:

A. DRF #A00-01406-A1

B. Hope Creek Environmental Conditions Data Sheet No. ATWS-C, dated 4/26/82

NOTES

1. Transmitter must be functional for 2 minutes after event begins. During the accident and for 100 days following accident and for 100 days following the accident, the transmitter must not fail in a manner detrimental to safety and must maintain pressure integrity.

2. Leak test performed after DBE to confirm pressure integrity. Failure modes and effects analysis performed to show no detrimental effects will occur.

3. Location

1-BB-PT-N403A-RM#4215 1-BB-PT-N403E-RM#4215
1-BB-PT-N403B-RM#4203 1-BB-PT-N403F-RM#4203

Prepared by I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/19/85

111

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET

MAGNETROL INDICATING SWITCH

SHT. NO: M001-LS-010
REV. NO: 2
DATE: 10/10/85

(1) SY 1.M SDIV

(2) TAG NO. 1-BF-LS-N013G,H

(3) COMPONENT INDICATING SWITCH

(4) MANUFACTURER MAGNETROL

(5) MODEL NO. 751

(6) FUNCTION MEASURE WATER LEVEL

(7) ACCURACY
a) SPECIFIED ±2.0water
b) ACTUAL .625" water

(8) LOCATION REACTOR BLDG. EL.102,Rm.4328

(9) ABOVE FLOOD LEVEL YES X NO ___

(10) SEISMICALLY TESTED YES X REF. A NO ___

(11) SURVEILLANCE REQD. YES X REF. A NO ___

M-47-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	12 hrs Note 1	144 hrs	Ref. A A3-5	Ref. A A8-9,13	Test	None	+132 hrs	
TEMP. (°F)	148°F	430°F	Ref. B	A8-9			+282°F	
PRESSURE (PSIA)	0(psig)	90					+90	
RELATIVE HUMIDITY (%)	100%	100%					Not req'd	
FLOODING/ FROTH	N/A	Analysis for froth		A6-14	Analysis		Not req'd	
RADIATION (RADS)	4.1E6 RG 3.0E5 RB	2.2×10^8 RADS G		A8-5,6,9 A6-13	Test		$+2.1 \times 10^8$ RADS G	Qualified gamma radiation dose encompasses beta
AGING	40 yrs @ 82°F	>40 yrs @ 93°F	Ref. A A6-11	A8-3 A9-1,2	Test and Analysis		Not req'd	
SPRAY	N/A	Chem. Spray 23.5 hrs	Ref. B	A8-9	Test		Not req'd	

DOCUMENTATION REFERENCE:
A. DRF No.ADO-01406-AI2
B. Hope Creek Environmental Conditions Data Sheet ATWS-A-2, dt. 4/26/82

NOTES
1. Level switch must be functional for 12 hrs. after event begins.

Prepared by R. D'Orazio/I. Nag Date 7/1/85

Reviewed by [illegible] Date 7/2/85

112

SHT. NO: M001-LT-011
REV. NO: 1
DATE: 6/19/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET

GOULD DIFFERENTIAL PRESSURE TRANSMITTER

(1) SYSTEM CONT. ROD DR SCRAM DISCH. INST. VOL.
(2) TAG NO. 1-BF-LT-N012A-D
(3) COMPONENT IFF. PRESS. TRANS.
(4) MANUFACTURER GOULD
(5) MODEL NO. PD3218-100
(6) FUNCTION SENSES SCRAM DISCH. VOL. LEVEL
(7) ACCURACY
a) SPECIFIED ±7" WC
b) ACTUAL ±7% C.S.
1% C.S. = 1" WC
(8) LOCATION REACTOR BLDG. El. 102 RM 4330 4328
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. A&B NO ___
(11) SURVEILLANCE REQD. YES X REF. A NO ___

M-47-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	12 hrs. Note 1	7 days Note 2	Ref. A A3-11	Ref. A A8-5	Test	None	+156 hrs	
TEMP. (°F)	148	260	Ref. C	A8-10			+112°F	
PRESSURE (PSIA)	0 (psig)	Psig 17.6		A8-10			psig +17.6	
RELATIVE HUMIDITY (%)	100%	100%		A8-10			Not req'd	
FLOODING/ FROTH	N/A	Qualified for froth		A6-21	Test and Analysis		Not req'd	
RADIATION (RADS)	4.1E6 RG 3.0E5 RB	3.3×10^7 RADS G		A8-7	Test		$+3.2 \times 10^7$ RADS	Qualified gamma radiation dose encompasses beta
AGING	40 yrs @ 82°F	19 yrs @ 93°F	Ref. A A6-9 A8-5	A6-9 A8-5	Test and Analysis		Not req'd	
SPRAY	N/A	Demineralized water for 30 hrs	Ref. C	A8-10	Test		Not req'd	

DOCUMENTATION REFERENCE:

A. Test Report DRF #A00-01406-A2

B. NTS Report No. 528-0994-1

C. Hope Creek Environmental Conditions Data Sheet No. ATWS A-2, dt. 4/26/82

NOTES

1. Transmitter must function for 12 hours after event begins. Must maintain pressure integrity for 180 days.
2. Following the 7 day DBE test a pressure integrity test was performed.

Prepared by I. Nag Date 10/14/85

Reviewed by C.W. K.L.A. Date 10/14/85

EQUIPMENT EVALUATION SUMMARY SHEET

HOPE CREEK GENERATING STATION

GOULD DIFFERENTIAL PRESSURE TRANSMITTER

SHT. NO: M001-LI-012
REV. NO: 2
DATE: 10/9/85

(1) SYSTEM (BH) STANDBY LIQUID CONTROL (SLCS)
(2) TAG NO. 1-BH-LT-N010A,E,B,F
(3) COMPONENT DIFF. PRESS. TRANS.
(4) MANUFACTURER GOULD
(5) MODEL NO. PD 3218-100
(6) FUNCTION SEE NOTE #3
(7) ACCURACY
a) SPECIFIED 2.3" C.S.
b) ACTUAL 2.3" C.S.
(8) LOCATION REACTOR BLDG. EL.162', Rms4606
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. A&B NO ___
(11) SURVEILLANCE REQD. YES X REF. A NO ___

M-48-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	2 hrs Note 1	1215 hrs Note 2	Ref. A A9-4 A3-6	Ref. A A8-5,31, 37,38	Test	None	+1213 hrs	
TEMP. (°F)	148	260	Ref. C	A8-38,43, 45,48			+112°F	
PRESSURE (PSIA)	0 (psig)	psig 17.6		A8-38			psig +17.6	
RELATIVE HUMIDITY (%)	100%	100%		A8-43			Not req'd	
FLOODING/ FROTH	N/A	N/A		N/A	N/A		Not req'd	
RADIATION (RADS)	6.0E3 RG 3.0E5 RB	5.35E7 RG		A8-12,13, 14	Test		$+5.35\times10^7$ RADS G	Qualified gamma radiation dose encompasses beta
AGING	40 yrs @ 91°F	19 yrs @ 93°F	Ref. A A4-1	Ref. D A6-9 A8-5	Test and Analysis		Not req'd	
SPRAY	N/A	Demineralized water for 30 hrs	Ref. C	Ref. A A8-38,44	Test		Not req'd	

DOCUMENTATION REFERENCE:

A. Generic ATWS Book 2

B. NTS Report No. 528-0994

C. Hope Creek Environmental Conditions Data Sheet No. ATWS-B, dt. 4/26/82

D. DRF #A00-01406-A2

NOTES

1. Transmitter must be functional for 2 hours after DBE begins. During and after this period the transmitter must not fail in a manner detrimental to safety, including the requirement to maintain pressure integrity for 100 days.
2. Tested for 50 days and 15 hrs. Accelerated test envelopes the 100 day requirement. A pressure integrity test (2000 psi) was performed after DBE.

Prepared by I. Nag Date 10/14/85

Reviewed by [illegible] Date 10/19/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
ROSEMOUNT DIFF. PRESS. TRANSMITTER

SHT. NO: M001-LT-013
REV. NO: 2
DATE: 10/10/85

EQUIPMENT DESCRIPTION

(1) SYSTEM
NUCLEAR BOILER

(2) TAG NO.
1-BB-LT-N402A,B,E,F

(3) COMPONENT
DIFF. PRESS. TRANS.

(4) MANUFACTURER
ROSEMOUNT

(5) MODEL NO.
1153DB5

(6) FUNCTION MEASURES REACTOR VESSEL WATER LEVEL & PROVIDES TRIP SIGNAL

(7) ACCURACY
a) SPECIFIED 5.2% C.S.
b) ACTUAL 4.9% C.S.

(8) LOCATION REACTOR
Note 3

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. A
NO ___

(11) SURVEILLANCE REQD.
YES X REF. A
NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	Note 1	417 hrs Note 2	Ref. A A8-1, A9-2	Ref. A A7-1,2,3,7, 8,9 A7-122	Test	None	>416.5 hrs	
TEMP. (°F)	148	318	Ref. B	A7-1,2,3 A7-122 of Ref A			>170	
PRESSURE (PSIA)	0 (psig)	87.7		A7-1,2 A7-122			>87.7	
RELATIVE HUMIDITY (%)	100%	100%		A7-1,2,4 A7-122			Not req'd	
FLOODING/ FROTH	N/A	N/A		N/A	N/A		Not req'd	
RADIATION (RADS)	3E6 RG 3E5 RB	2.44E7 RG		A7-5,6 A5-5	Test		>2.1E7 RADS	Qualified gamma radiation dose encompasses beta
AGING	40 yrs @ 77°F	20 yrs @ 106°F	Ref. A A3-1,2	A5-3 A7-157 A7-158	Test and Analysis		Not req'd	
SPRAY	N/A	Demineralized water for 24 hrs	Ref. B	A7-1,2 Appendix C				

DOCUMENTATION REFERENCE:

A. DRF #A00-01406-A1

B. Hope Creek Environmental Conditions Data Sheet No. ATWS-C, dated 4/26/82

NOTES

1. Transmitter must be functional for 0.5 hrs after event begins. During the accident and for 100 days following the accident, the transmitter must not fail in a manner detrimental to safety and must maintain pressure integrity.

2. Lead test performed after DBE to confirm pressure integrity. Failure modes and effects analysis performed to show no detrimental effects will occur.

3. Location: 1-BB-LT-N402A-Rm#4215, 1-BB-LT-N402E-RM#4215, 1-BB-LT-N402B-Rm#4203, 1-BB-LT-N402F-Rm#4203

Prepared by R. D'Ugo/I.Neg Date 7/1/85

Reviewed by J.W. Poblenski Date 7/2/85

115

SHT. NO: M001-PT-014
REV. NO: 1
DATE: 6/19/85

EQUIPMENT EVALUATION SUMMARY SHEET
ROSEMOUNT PRESSURE TRANSMITTER

HOPE CREEK GENERATING STATION

(1) SYSTEM STANDBY LIQUID CONTROL
(2) TAG NO. 1-BH-PT-N004A,B
(3) COMPONENT PRESS. TRANSMITTER
(4) MANUFACTURER ROSEMOUNT
(5) MODEL NO. 1153GB9
(6) FUNCTION PRESS. INTEGRITY ONLY
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION REACTOR BLDG. EL.162', Rm.4606
(9) ABOVE FLOOD LEVEL YES I NO ___
(10) SEISMICALLY TESTED YES I REF. A NO ___
(11) SURVEILLANCE REQD. YES I REF. B NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	Note 1	417 hrs Note 2	Ref. A A8-1, A9-2	Ref. A A7-1,2,3,7, 8,9 A7-122	Test	None	+1000 psi	Process
TEMP. (°F)	148	318	Ref. B	A7-1,2,3 A7-122			+170	
PRESSURE (PSIA)	0 (psig)	Note 2 87.7		A7-1,2 A7-122			+1000 psi	Process
RELATIVE HUMIDITY (%)	100%	100%		A7-1,2,4 A7-122			Not req'd	
FLOODING/ FROTH	N/A	N/A			N/A		Not req'd	
RADIATION (RADS)	6E3 RG 3E5 RB	2.44E7 RG		A7-5,6 A5-5	Test		$+2.1 \times 10^7$ RADS	Qualified gamma radiation dose encompasses beta
AGING	40 yrs @ 91°F	20 yrs @ 106°F	Ref. A A3-1,2	A5-3 A7-157 A7-158 of Ref. A	Test and Analysis		Not req'd	
SPRAY	N/A	Demineralized water for 24 hrs	Ref. B	A7-1,2 Appendix C			Not req'd	

DOCUMENTATION REFERENCE:

A. DRF #A00-01406-A1

B. Hope Creek environmental conditions Data Sheet No. ATWS-B, dated 4/26/82

NOTES

1. Transmitter must maintain (2000 psig) pressure integrity for 100 days following the accident.
2. Leak test at 3000 psig was performed after DBE to confirm pressure integrity.

Prepared by I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/14/85

116

EQUIPMENT EVALUATION SUMMARY SHEET

HOPE CREEK GENERATING STATION BOOK 501 ECCS MOTORS

SHT. NO: M001-MTR-015
REV. NO: 2
DATE: 8/9/85

(1) SYSTEM
RHR & CS
(2) TAG NO.
SEE SHEET ATTACHED
(3) COMPONENT
PUMP MOTOR
(4) MANUFACTURER
GENERAL ELECTRIC CO.
(5) MODEL NO.
RHR 5K6348X C54A
CS 5K6339X C118 A&B
(6) FUNCTION
SEE SHEET ATTACHED
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION
SEE SHEET ATTACHED
(9) ABOVE FLOOD LEVEL
YES X NO ___
(10) SEISMICALLY TESTED
YES X REF. A
NO ___
(11) SURVEILLANCE REQD.
YES X REF. A
NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	216 hrs Test 100 day + Margin	Ref.A Pgs.A2-3 A2-9	Ref.A Pg.A3-1 Pg.A4-3	Test and Analysis	None	20%	Analysis of Attach.4 extends test data
TEMP. (°F)	148°F	212°F	Ref.A,Pgs. A2-11,A2-13	"	Test	None	64°F	
PRESSURE (PSIA)	Atmos	Atmos	Ref.A Pgs. A2-13 A2-12	"	Test	None	N/A	
RELATIVE HUMIDITY (%)	100%	100%	"	"	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	6.6E6RG	5.7E6RG Test 4.7E7RG Anal	Ref.A Pg.A2-32	Ref.A Pg.D-22(Test) & Pg.A4-4	Test and Analysis	None	3.94E7RG Ref.A Pg.A2-32	Beta included as equivalent in specified gamma dose
AGING	40 yrs @ 84°F	40 yrs @ 84°F	Ref.A Pgs. A2-11	Ref.A Attac	Test and Analysis	None	Not req'd	
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. GE Co. Environmental Qualification Report NEDC-30737, Dtd. 9/84

NOTES

116

ATTACHMENT TO EESS NO. M001-MTR-015

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1A-P-206 1B-P-206 1C-P-206 1D-P-206	RB 54' Rm.#4118 RB 54' Rm.#4104 RB 54' Rm.#4116 RB 54' Rm.#4105	CS pumps-provide make-up water in the event of a loss or reactor coolant in order to prevent fuel damage should the core be uncovered	2a	M-52-1
1A-P-202 1B-P-202 1C-P-202 1D-P-202	RB 54' Rm.#4113 RB 54' Rm.#4109 RB 54' Rm.#4114 RB 54' Rm.#4107	RHR pump- In addition to the above, it is required for cooling of the fuel pool, and for removal of residual heat generated by the core under normal and abnormal shutdown conditions.	2a	M-51-1

Prepared by I. Nag Date 10/19/85

Reviewed by C. W. [illegible] Date 10/19/85

EQUIPMENT EVALUATION SUMMARY SHEET

VALCOR SOLENOID VALVE

HOPE CREEK GENERATING STATION (BOOK S16A)

SHT. NO: M001-SV-016
REV. NO: 2
DATE: 10/9/85

EQUIPMENT DESCRIPTION

(1) SYSTEM CONTROL ROD DRIVE - HYDRAULIC
(2) TAG NO. 1-BF-SV-F009A&B
(3) COMPONENT SDV SOLENOID VALVE
(4) MANUFACTURER VALCOR
(5) MODEL NO. V70900-45
(6) FUNCTION SEE NOTE #1
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION REACTOR BLDG., RM.#4322
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES A REF. A NO ___ (APP.3)
(11) SURVEILLANCE REQD. YES X REF. A NO ___ (Pg.25)

M-47-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS (Note #3)
OPERATING TIME	12 hr. SBA ½ hr. LOCA	14 hr. SBA 3 hr. LOCA	Ref.A Pg.A10-7 and A-5	Ref.A,Pg.A8-57 to A8-66, A8-72,A8-98, A8-84	Test	None	2hr SBA 2½hr LOCA	Two (2) SBA transients Two (2) LOCA transients
TEMP. (°F)	14[illegible]°F	215°F	Ref.A Pg.A4-3	"	Test	None	67°F	
PRESSURE (PSIA)	[illegible] psig	17.05 psig	"	Ref.A,Pg.C-326,A8-57 to A8-66,A8-72, A8-98,A8-84	Test	None	17.05psig	
RELATIVE HUMIDITY (%)	100%	100%	"	Ref.A,Pg.G-324 & G-326	Test	None	Not req'd	
FLOODING/ FROTH	N/A	Submerged (5 sec. of each LOCA)	N/A	Ref.A Pg.G-324	Test	None	Not req'd	Watertight connector, supplied by A/E, is required
RADIATION (RADS)	2.5E4 RG 1.1E6 RB	3.9E7 R Note #2	Ref.A Pg.A4-3 Ref.B,P.81	Ref.A Pg.F-93	Test	None	3.79E7	
AGING	40 yrs @ 93°F 420 cycles	40 yrs VLV 5 yrs O-ring @105°F 550 cycles	Ref.A Pgs.A-5 & A-6 & Att.10	Ref.A, Pgs. F-56 - F-60 Ref.A Pg.F-87	Test and Analysis	None	Not req'd	Periodic maintenance req'd Replace O-rings at 5 year intervals.
SPRAY	N/A	Spray during LOCA S	N/A	Ref.A Pg.G-324	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. G.E. Co. Environmental Qualification Report NEDC-30850, dated 3/85.

B. Environmental Design Criteria for HCGS. 10855-D7.5, Rev.2.

NOTES

1. Normally energized supplies air to hold open the SDV isolation valve. Upon receipt of a SCRAM signal from the RPS system, the solenoid is de-energized to shut off air to the SDV air header. Category 2a item per NUREG 0588, App.E.
2. Qualified Radiation Dose encompasses specified gamma and beta doses.
3. Design modification for reinforcement of leadwire (FDI. No.108-79450) required for Hope Creek (Ref. A, Pg.24).

Prepared by I. Nag Date 10/9/85

Reviewed by [illegible] Date 10/19/85

EQUIPMENT EVALUATION SUMMARY SHEET
VALCOR SOLENOID VALVE

HOPE CREEK GENERATING STATION (BOOK 516B)

SHT. NO: M001-SV-017
REV. NO: 2
DATE: 10/9/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM CONTROL ROD DRIVE HYDRAULIC-B (BF) (2) TAG NO. 1-BF-SV-F110 A&B (3) COMPONENT SOLENOID VALVE (4) MANUFACTURER VALCOR (5) MODEL NO. V70900-43 (6) FUNCTION SEE ATTACHED SHEET (7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A (8) LOCATION SEE ATTACHED SHEET (9) ABOVE FLOOD LEVEL YES X NO ___ (10) SEISMICALLY TESTED YES X REF. A NO ___ (11) SURVEILLANCE REQD. YES X REF. A NO ___ Pg.25 M-47-1	OPERATING TIME	12 hr. small break 40 sec-LOCA	100 days	Ref.A Attach.3 Pg.A3-12	Ref.A,Att.8 Pg.A8-94 to A8-113	Test	None	Adequate	
	TEMP. (°F)	148°F	Note 1	Ref.A Attach.4 Pg.A4-3	"	Test	None	+15°F	
	PRESSURE (PSIA)	0 psig	7.7-16.72 psig	Ref.A Attach.4 Pg.A4-3	"	Test	None	+16.72 psig	
	RELATIVE HUMIDITY (%)	100%	100%	Ref.A Attach.4 Pg.A4-3	"	Test	None	Not req.	
	FLOODING/ FROTH	N/A	Valve sub. for 5 sec before 1&2 DBE	N/A	Ref.A Attach.8 Pg.A8-92	Test	None	Not req.	
	RADIATION (RADS)	2.6E4 RG 1.1E6 RB	3.94E7 RG Note #2	Ref.A Attach.4 Pg.A4-3	Ref.A, Att.5 Pg.A7-15to A7-18 Ref.B,Pg.81	Test	None	3.9E7 RG	
	AGING	5yr(O-ring) 40yr(all other parts @105°F	5yr(O-rings) 40yr(all other parts)	Ref.A Attach.3 Pg.A3-1	Ref.A,Att.9 Pg.A9-6,A7-9 to A7-12,A7-14,A8-12	Test and Analysis	None	Not req'd	Maintenance and replacement req'd
	SPRAY	N/A	1gpm/ft² for 12 day DBE	N/A	Ref.A Attach.8 Pg.A8-92	Test	None	Not req.	

DOCUMENTATION REFERENCE:

A. GE (9 (NSSS) Qualification Report, NEDC 30691, 3/85, Book 516B. CRD Backup SCRAM pilot solenoid valves

B. Environmental Design Criteria for HCGS 10855-D7.5, Rev.2

NOTES

1. Temperature qualification as follows

0-10 sec	108-205°F
10 sec-1 min	295°F
1 min-1 hr	205-215°F
1 hr-30 hr	215°F
30 hr-55 hr	215°F-197°F
55 hr-100 hr	197°F
100 hr-120 hr	197-163°F
120 hr-100 day	163°F

2. Qualified Radiation Dose encompasses specified Gamma and Beta Doses.

ATTACHMENT TO EESS NO. M001-SV-017

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
I-BF-BV-F110A&B	Reactor Building 102 Ev., Rm4322	Shuts off air pressure to SCRAM valve and SDV valve pilot headers and exhausts air pressure from SCRAM valve and SDV pilot headers	2b	M47-1

Prepared by I. Nag Date 10/14/85

Reviewed by C.W. [illegible] Date 10/19/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET

NAMCO LIMIT SWITCH

SHT. NO: M001-ZS-018
REV. NO: 2
DATE: 10/9/85

(1) SYSTEM
SB REACTOR PROTECTION

(2) TAG NO.
SB-ZS-N006A-D

(3) COMPONENT
LIMIT SWITCH

(4) MANUFACTURER
NAMCO

(5) MODEL NO.
EA170-51101

(6) FUNCTION INITIATES SCRAM ON MSV CLOSURE & TRIPS RECIRC. PUMPS

(7) ACCURACY
a) SPECIFIED 2%
b) ACTUAL 1.3% (REF.C)

(8) LOCATION TURBINE
Rm #1112

(9) ABOVE FLOOD LEVEL
YES N/A NO ____
(REF.A, Pg:19)

(10) SEISMICALLY TESTED
YES X REF. A
NO ____ App.D

(11) SURVEILLANCE REQD.
YES ____ REF. A
NO X (Pg.9)

M-01-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	12 hrs	408 hrs	Ref.A Pg.76	Ref.A D-127 Pgs.D-170	Test	None	396 hrs	Demonstrated during thermal aging (Ref.A, Pg.31)
TEMP. (°F)	120°F max	248°F	Ref.A Pgs.19&66	"	Test	None	128°F	
PRESSURE (PSIA)	14.70/ 14/74	Ambient	"	Ref.A, Pg.D-63	Test	None	Adequate	Note #3
RELATIVE HUMIDITY (%)	90%	NEMA 4 Hose Test 100%	"	Ref.A,Pgs. D-68,D-161 & D-190	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	Ref.A Pg.19	N/A	N/A	None	Not req'd	
RADIATION (RADS)	3.5E6 RG 2.0E1 RB	2E8 RG Note #2	Ref.A,Pgs. 19 & 66 Ref.B,Pg.81	Ref.A Pgs.D-127 &	Test	None	1.97E8 RG	
AGING	40 yrs @ 120°F 2200 cycles	7.9 yrs @ 120°F 100K cycles	Ref.A, Pg.74 & 19	Ref.A, Pg.30 Pg.30 Pgs.D-127 & D-170	Test and Analysis	None	Not req'd	No maintenance req'd during the 7.9 yr. qual. life. Replace entire limit switch at 7.9 years interval.
SPRAY	N/A	NEMA 4 Hose Test (5 min.)	Ref.A Pgs.19&66	Ref.A,Pgs. D-161 & D-190	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. G.E. Co. Environmental Qualification Report (NSSS-Book C26), NEDC-30439 Rev.1, Dated 4/9/85.

B. Environmental Design Criteria for HCGS. 10855-D7.5, Rev.2, Dated 10/84.

C. G.E. Co. letter S/N GP-85-76, Dated 4/26/85.

NOTES

1. Category 2D of NUREG-0588, Appendix E.
2. Qualified Radiation Dose encompasses specified G and B doses.
3. Switches performs function before any changes in normal conditions occur (Ref.A; Pg.19).

Prepared by I. Nag. Date 10/10/85

Reviewed by C.W. [illegible] Date 10/19/85

120

EQUIPMENT EVALUATION SUMMARY SHEET
GOULD LEVEL TRANSMITTER

HOPE CREEK GENERATING STATION BOOK C02

SHT. NO: M001-LT-019
REV. NO: 2
DATE: 8/9/85

(1) SYSTEM HPCI

(2) TAG NO. 1-BJ-LT-N062A&E

(3) COMPONENT LEVEL TRANSMITTER

(4) MANUFACTURER GOULD INC.

(5) MODEL NO. PD3218-100

(6) FUNCTION SEE NOTE #1

(7) ACCURACY (RADIATION
a) SPECIFIED 5% URL
b) ACTUAL <5% URL

(8) LOCATION REACTOR BLDG., RM.#4115

(9) ABOVE FLOOD LEVEL YES X NO ___

(10) SEISMICALLY TESTED YES X REF. A NO ___ (Pg.429)

(11) SURVEILLANCE REQD. YES X REF. A NO ___ (Pg.25)

M-55-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	12 hours. 100 days press. int.	50½ day test overpressure test@2000psig	Ref.A Pgs.314 & 315	Ref.A Pgs.432&218 Pgs.798 &799	Test and Analysis	None	50 days	LOCA "A" profile selected for reference
TEMP. (°F)	148°F	260°F-1hr 196°F-49days	Ref.A Pg.36	Ref.A Pgs. 432 & 218	Test	None	48°F	
PRESSURE (PSI @	Atmos.	17.6psig	"	"	Test	None	17.6psig	
RELATIVE HUMIDITY (%)	100%-30 min 95%-100days	100%	"	"	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	9.9E4 RG 1.1E6 RB	3.83E7 RG	Ref. A Pg. 36	Ref.A,Pgs. 708,709,99-109 & 286	Test	None	3.72E7 RG	Specified beta radiation enveloped by qualified gamma radiation dose
AGING	40 yrs @ 85°F 120 cycles	40 yrs @ 85°F 1000 cycles	Ref.A Pg.36 & Pg.30	Ref.A Attach.10 Pg.74 Pg.89	Test and Analysis	None	Not req'd	
SPRAY	N/A	Water Spray 30 hrs	Ref.A Pg.36	Ref.A Pgs.431 & 441	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. G.E. Environmental Qualification Report NEDC-30427, Rev.0 (3/85).

NOTES

1. These LT's sense water level in the suppression pool and provide a trip signal at predetermined high level to transfer the HPCS pump suction from the condensate storage tank to the suppression pool. Category 2a item of NUREG-0588, Appendix E.

Prepared by I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/19/85

EQUIPMENT EVALUATION SUMMARY SHEET

INSULATED DETECTOR

HOPE CREEK GENERATING STATION BOOK C05

SHT. NO: M001-RE-020
REV. NO: 2
DATE: 10/10/85

EQUIPMENT DESCRIPTION

(1) SYSTEM PROCESS RADIATION MONITORING

(2) TAG NO. RE-N006 A Thru'D

(3) COMPONENT INSULATED DETECTOR

(4) MANUFACTURER GE

(5) MODEL NO. 5467870G016

(6) FUNCTION GAMMA RAD. DET. (See Note 1)

(7) ACCURACY
a) **SPECIFIED** 3.7×10^{-10} ±10%
b) **ACTUAL** 4.4×10^{-10}

(8) LOCATION Rm. 4501

(9) ABOVE FLOOD LEVEL YES X NO ___

(10) SEISMICALLY TESTED YES X REF. A NO ___

(11) SURVEILLANCE REQD. YES ___ REF. A NO X

M-26-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	45 sec.	100 days	A, Pg.18 [A3.2]	Note #4	Test and Analysis	None	100 days	
TEMP. (°F)	340(max)-30m, Note#2	340(max)-3hr Note #3	A, Pg.22 [A4-3]		Test	None	None	Temp. applied for 3 hrs provides adequate margin
PRESSURE (PSIA)	18 (Peak) Note #2	60 (Peak) Note #3			Test	None	42	
RELATIVE HUMIDITY (%)	100%	100%			Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	1.03E8R G 3.0E9R B	2E8R G	A, Pg.22 [A4-2,3]	A, Pg.8,235 59[A8-16]	Test	None	0.97E8R G	Shielded from Beta Radiation (Pg.62)
AGING	40 yrs @ 97°F	40 yrs @ 97°F	A, Pg.22 [A4-1]	A, Pg.58 [A8-15], 62 [A9-1]	Test and Analysis	None	Not req'd	
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Hope Creek Environmental Qualification Report NEDC-30430 (was NEDC-30386) Dated March 1984.

NOTES

1. These ion chamber radiation detectors sense high radiation and provides logic input to the RPS for SCRAM and for closing the MSIV's. This is a Category 2a item of NUREG-0588, Appendix E.
2. For specified profile see Ref.A, Pg.22, [A4-5] for temperature and [A4-4] for pressure.
3. For Qualified Temp. & Press. Profile, see Ref.A, Pg.55 [A8-11], Pg.59 ¶3.4.
4. A-Pg.8 and 9, A-Pg.55 [A8-11], Pg.56 [A8-12], Pg.59¶3.4 and App. F.

Prepared by I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/19/85

EQUIPMENT EVALUATION SUMMARY SHEET

HOPE CREEK GENERATING STATION BOOK S12 SCRAM SOLENOID PILOT VALVE

SHT. NO: M001-SV-21
REV. NO: 2
DATE: 10/10/85

(1) SYSTEM (BF) CONTROL VALVE DRIVE-HYD
(2) TAG NO. 1-BF-SV-117 (185 UNITS)
(3) COMPONENT SCRAM SOLENOID PILOT VALVE (SSPV)
(4) MANUFACTURER ASCO
(5) MODEL NO. HVA 176-816-1(V)
(6) FUNCTION SEE NOTE #1
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION REACTOR BLDG. EL.102', Rm#4320 4328
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. A NO ___ (APP.E)
(11) SURVEILLANCE REQD. YES X REF. A NO ___ (Pg.31)

M-47-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	30sec-LOCA 12hr-SBA 60sec-ARI	2hr-LOCA 14hr-SBA 60sec-ARI	Ref.A Pg.A2-1 and A-4	Ref.A, Pgs. 24,25,12 & D-23	Test	None	2 hrs	Two (2) DBE transients provide additional margin
TEMP. (°F)	148°F	215°F-2hrs 215°F-14hrs	Ref.A Pg.A2-1	"	Test	None	67°F	
PRESSURE (PSIA)	0 psig	17 psig	"	"	Test	None	17 psig	
RELATIVE HUMIDITY (%)	100%-30 min 95%-100days	100%	"	"	Test	None	Not req'd	
FLOODING/ FROTH	N/A	Submergence 2 hrs	"	"	Test	None	Not req'd	
RADIATION (RADS)	9.2E4R G 1.1E6R B	4E6R G	Ref.A Pg.A2-1	Ref.A,Pgs. D-14,D-107 B-10	Test	None	2.81E6R G	Qualified gamma radiation dose envelopes specified beta dose
AGING	40 yrs @ 82°F 607 cycles	40 yrs/5 yrs @82°F 707 cycles	Ref.A Pg.A2-1 and A-4	Ref.A Pgs.13 and 14	Test and Analysis	None	Not req'd	Replacement of non-metalics with ASCO Kit FV-186-495 req'd at 5 year intervals
SPRAY	N/A	Submergence 2 hrs	Ref.A Pg.A2-1	Ref.A, Pgs. 24,25,12 and D-22	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. GE Environmental Qualification Report NEDC-30948, Dtd.4/85

B. Environmental Design Criteria 10855-D7.5, Rev.2, Dtd.10/84

NOTES

1. SCRAM Solenoid Pilot Valve (SSPV) is mounted on each of 185 Hydraulic Control Units (HCU). Upon receipt of a SCRAM signal from the Reactor Protection System (RPS), the SSPV is de-energized shutting off the source of air pressure to the Air Actuated SCRAM Valves and exhausting air from the SCRAM valve air dome. These are Category 2a items of NUREG-0588, Appendix E.

Prepared by I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/19/85

123

EQUIPMENT EVALUATION SUMMARY SHEET

SHT. NO: M001-HPCI-22
REV. NO: 1
DATE: 10/10/85

HOPE CREEK GENERATING STATION BOOK HPCI

HPCI TURBINE ASSEMBLY

(1) SYSTEM HIGH PRESSURE COOLANT INJECTION(HPCI)

(2) TAG NO.
SEE ATTACHED SHEET

(3) COMPONENT
HPCI TURBINE ASSEMBLY

(4) MANUFACTURER
TERRY CORPORATION

(5) MODEL NO.
CCS

(6) FUNCTION
SEE ATTACHED SHEET

(7) ACCURACY
a) SPECIFIED 3%(APP.A)
b) ACTUAL <3%

(8) LOCATION
SEE ATTACHED SHEET

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. A
NO ___

(11) SURVEILLANCE REQD.
YES X REF. A
NO ___

M-55-1, M-56-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	12 hrs	13½ hrs	Ref.A Pg.A1.2	Ref.A Pg.A3.27	Test	None	1½ hr	
TEMP. (°F)	117°F 148°F	165°F	Ref.B Ref.A,A1.2	"	Test Test	None None	17°F	Governor controls Other Components
PRESSURE (PSIA)	ATMOS .094 psig	7" Wg (.25 psig)	Ref.B Ref.A,A1.2	Ref.A Pg.A3.17	Test Test	None None	.156 psig	Governor controls Other components
RELATIVE HUMIDITY (%)	100%-30 min 100%	100%	Ref.B Ref.A,A1.2	"	Test Test	None None	Not req'd	Governor Controls Other components
FLOODING/ FROTH	N/A	N/A	Ref.A Pg.A1.2	N/A	N/A	None	Not req'd	
RADIATION (RADS)	8.8E2R G 8.85E5R G	1.0E4R G 1.1E6R G	Ref.B Ref.A Pg.A1.2	Ref.A Pgs.A3.3 thru A3.7	Test Test	None None	.91E4R G .22E6R G	Governor controls Other Components
AGING	40 yrs @ 78°F (max)	5 yrs 5-40 yrs	Ref.A Pg.A1.2	Ref.A Pgs.26 & 27 Note 1	Test	None	Not req'd	Governor controls Other components
SPRAY	N/A	N/A	Ref.A Pg.A1.2	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. GE Environmental Qualification Report NEDE-30122, Dtd. 3/83

B. Environmental Design Criteria 10855-D7.5, Rev.2, Dtd. 10/84.

NOTES

1. Qualification of the HPCI turbine assembly involved individual testing of a substantial number of turbine components. The electronic governor controls are located remotely (Rm.#4112) from the turbine and its associated components (see Ref.A, pages 26 and 27).

ATTACHMENT TO EESS NO. M601-HPCI-2

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
10-S-211	RB 54', Rm#4111 RB 54', Rm#4112 (Governor controls)	HPCI turbine assembly (Rm 4111) and governor control (Rm 4112) drives the HPCI pump	2a	MPL E41-C002, M-56-1
10-P-213	RB 54', Rm#4111	Motor for auxiliary oil pump-drives pump which pressurizes the lube oil and hydraulic system during start-up and shut-down transients	2a	"
10-P-215	RB 54', Rm#4111	Motor for condensate pump-drives the pump which removes water from the condensate drain tank.	2b	"
10-P-216	RB 54', Rm#4111	Motor for vacuum pump on the steam seal system. Provides a vacuum on the barometric condenser vacuum tank	2b	"
1-FD-LSL-4903	RB 54', Rm#4111	Level switch on the gland seal system barometric condenser vacuum tank. Provides alarm on low water level.	2b	"
1-FD-PSH-4905	RB 54', Rm#4111	Vacuum switch on the gland seal system baromatric condenser vacuum tank. Provides alarm on loss of gland seal vacuum.	2b	"
1-FD-ZS-4907	RB 54', Rm#4111	Limit switch provides signal that the turbine stop valve is open or partially open. Used to initiate the turbine control system speed ramp and to indicate valve position and "turbine trip" alarm.	2a	"
1-FD-PSL-4908	RB 54', Rm#4111	Pressure switch provides turbine bearing low oil pressure alarm	2b	"
1-FD-TS-4909	RB 54', Rm#4111	Temperature switch provides a high temperature (oil cooler outlet) signal for alarm.	2b	"
1-FD-PDSH-4910	RB 54', Rm#4111	Differential pressure switch provides a high differential pressure (across oil filter) alarm signal.	2b	"
1-FD-LSHL-4912	RB 54', Rm#4111	Level switch provides separate high and low oil tank level signals for alarm.	2b	"

ATTACHMENT TO EESS NO. M001-HPCI-22

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-FD-PS-4913	RB 54' Rm#4111	Pressure switch provides low oil pressure signal to motor starter to start auxiliary oil pump motor	2a	MPL E41-C002, M-56-1
1-FD-SE-4919	RB 54' Rm#4111	Turbine speed sensor (magnetic pickup) and speed sensor connector provide turbine speed input to the electronic governor control.	"	"

Prepared by R. Thungely/I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/19/85

124

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
ASCO SOLENOID VALVE

SHT. NO: P301-SV-001
REV. NO: 3
DATE: 10/10/85

(1) SYSTEM EC,EE,EG,KH See Sheet #2
(2) TAG NO. See Sheet #2
(3) COMPONENT SOLENOID VALVE
(4) MANUFACTURER ASCO
(5) MODEL NO. NP-8320A185V
(6) FUNCTION See Sheet #2
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION REACTOR BUILDING -Sheet #2
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. C NO ___ (¶4.1.6)
(11) SURVEILLANCE REQD. YES X REF. C NO ___ (App.C)

M-53-1,M-11,M-57-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	>2000 days	Ref.A&B Appendix 1 ¶1.8.2	Ref.C Figure 4.1 Ref.D,F	Test and Analysis	None	>2000 days	30 day test extended by analysis, Ref. D
TEMP. (°F)	340°F/1hr 150°F/100da	345°F-3hrs 265°F-30days	↓	↓	Test	None	Adequate	2nd transient during DBE provides adequate margin Note #4
PRESSURE (PSIA)	20psig/1hr 0.3psig/100 days	30psig-5days 24psig-30days	↓	↓	Test	None	10psig	Note #4
RELATIVE HUMIDITY (%)	100%-6hr 90%-100days	100% Steam&Spray 23days	↓	Ref.C Figure 4.1 ¶4.2.3	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	2E7R G (Rm.#4102) 1E7R G	2.0E7R G and 2.05E8R G Notes 1&2	Ref.E,Ref. A&B, App.1 ¶1.8.1	Ref.C ¶4.1.4&4.2.2 Appendix D	Test	None	See Note #3	Ref.E specifies 2E7R G in Rm.#4102 Note #3
AGING	40 years 104°F	8 years @140°F 20K cyc,es	Ref. E Note #5	Ref.C Appendix C & ¶4.1.1	Test and Analysis	None	Not req'd	Appendix C of the Ref.C Report. Provides Guidelines. Periodic Maint. Req'd.
SPRAY	N/A	Water spray 29 days	N/A	Ref.C Figure 4.1	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Design Specification 10855-P-301(Q),Rev.7 (11/81)

B. Technical Specification 10855-P-302(Q),Rev.4 (7/81)

C. ASCO Qualification Report AQR-67368/Rev.0 (3/82) (10855-P301(Q)-543-1 and 543(2)-1)

D. Arrhenius calculations for extension DBE test time, EQPM #364 dated 5/3/82.

E. Environmental Design criteria 10855-07.5, Rev.2 (10/84)

F. Biller Report #ER-ST-200-P [P301-543(2)-1]

NOTES

1. Beta Radiation Qualification Report
2. Viton elastomer is qualified to 2.0E7R G, ethylene propylene elastomer (EPDM) is qualified to 2.05ER G (see NRC in #85-08).
3. The Viton elastomer on ASCO valves in Rm.4102 (SV-4676A,4676B, 4678 and 4663) to be replaced with ethylene propylene per Bechtel letter 0272318 DTD. October 10, 1984 (BLP 16571).
4. The qualified data shown are conservative. For actual qualified Temp. and Pressure Profile see Ref.C , Fig.4.1.
5. Worst condition considered (Rm 4101).

ATTACHMENT TO EESS NO. P301-SV-001 Sh. 1 of 1

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1EC-SV-4676A&B	RB.77" Rm.#4102	Operates isolation valve for the filter demineralizer system.	2b	(EC) Fuel pool cooling and torus wtr. cleanup (EE) M-53-1
1EC-SV-4678	RB.77' Rm.#4102	Operates isolation valve for the filter demineralizer system.	2b	
1EE-SV-4655	RB.54' Rm.#4101	Operates inbd. reactor bldg. inlet isolation valve for filter demineralizer system.	2b	
1EF-SV-4656	RB.54' Rm.#4101	Operates outboard reactor bldg. inlet iso. valve for filter demineralizer system.	2b	
1EE-SV-4663	RB.77' Rm.#4102	Operates reactor bldg. outlet isolation vlv. for filter demineralizer system.	2b	M-53-1
1EG-SV-2290-A thru H	RB.54" and 77' A-4113, B-4109 C-4114, D-4107 E-4214, F-4208 G-4114, H-4107.	Supplies cooling water to the RHR pump room unit coolers.		(EG) Safety Auxiliary Cooling, M-11-1
1EG-SV-2292-A and B	RB.54' Rm.#4111	Supplies cooling water to HPCI pump room unit coolers.	2a	
1EG-SV-2302-A thru F	RB.132',162',178' A-4410, B-4617 C-4411, D-4615 E-4614, F-4616	Supplies cooling water to the FRVS cooling coils.	2a	
1EG-SV-2325-A thru H	RB.54' A-4118, B-4104 C-4116, D-4105 E-4118, F-4104 G-4116, H-4105	Operates valve supplying cooling water to core spray pump room cooler.	2a	
KH-SV-5035	RB.77' Rm.#4201	Closes isolation valve on high radiation or LVL 2 isolation signal.	2a	Containment atmos contrl M-53-1

Prepared by N. Ganguly / I. Nag Date 10/10/85

Reviewed by C. W. [illegible] Date 10/19/85

EQUIPMENT EVALUATION SUMMARY SHEET
NAMCO LIMIT SWITCH

HOPE CREEK GENERATING STATION

SHT. NO: P301-ZS-002
REV. NO: 3
DATE: 10/10/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM See Sheet Attached (2) TAG NO. See Sheet Attached (3) COMPONENT LIMIT SWITCH (4) MANUFACTURER NAMCO (5) MODEL NO. EA180-31302 EA180-32302 (6) FUNCTION See Sheet Attached (7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A (8) LOCATION See Sheet Attached (9) ABOVE FLOOD LEVEL YES X NO ___ (10) SEISMICALLY TESTED YES X REF.B ___ NO ___ (11) SURVEILLANCE REQD. YES X REF.B ___ NO ___	OPERATING TIME	100 days @200°F	134 Days	Ref.A Appendix 1 §1.8	Ref.B Fig.13 P.7-8 Ref.C	Test and Analysis	None	34days	30 day test extended by analysis, Ref. C.
	TEMP. (°F)	340 (Max) - 3 hrs Note #2	340 (Max) 5-3/4 hrs. Note #3	↓	Ref.B Fig.13 P.7-8	Test	None	Adequate	2nd transient during DBE provides accept. margin.
	PRESSURE ~~(PSIA)~~ (PSIG)	62-5 Min. Note #2	80-5 3/4 Hrs. Note #3	↓	↓	Test	None	18 (Peak)	
	RELATIVE HUMIDITY (%)	100%	100% (Water Spray)	↓	↓	Test	None	Not req'd	
	FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
	RADIATION (RADS)	5.1E7R G	2.04E8R G	DITS 7.5 Rev.2	Ref.B Pg4-4,10-15 Ref. D	Test	None	1.53E8R G	
	AGING	40 years @150°F	5 yrs 131°F 4 yrs 104°F	↓	Ref.B Pg. 4-7 Note #1	Test and Analysis	None	Not req'd	Periodic Maint. Req'd Maint. instructions EA189-90050 & 90051 of Ref.B provides maint. schedule
	SPRAY	N/A	Chemical and Water Spray	N/A	Ref.B Figure 13 Pg. 7-8	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Design Specification 10855-P301(Q), Rev.7 (11/81)

B. NAMCO Qualification Report QTR 105, Rev. 4, Dtd. 1/84 (10855-P301(Q)-228-2 &-196-7)

C. Arrhenius calculation to extend DBE test time to 100 days, EQPM #421 (Part 4 of 4) 6/1/82.

D. Bechtel Beta Qualification Report

NOTES

1. Qualified Life is 5 yrs @55°C for switches using silicone cover gaskets (Ref.B Figure 8) and EA189-90051. These are switch revision letters H and later. Earlier revisions use NBR cover gaskets (Accobest) and are qualified for 4 yrs @40°C per EQMSIS NO. MS-P301-VAR-H-ZS-003,Rev.0

2. The specified data is conservative. For specified temperature and pressure profile, see Ref. A, Appendix 1, §1.8.

3. The qualified data is conservative. For qualified temperature and pressure profile, see Ref. B, Fig. 13, Pg. 7-8.

ATTACHMENT TO EESS NO. P301-ZS-002

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1EC-ZS-4676A&B	RB 77' Rm#4102	Isolation valve position indication for the filter demineralizer system.	2b	(EC) Fuel pool cooling and torus wtr. cleanup (EE) M-53-1
1EC-ZS-4678	RB 77' Rm#4102	"	"	"
1EE-ZS-4655	RB 54' Rm#4101	Inbd. reactor bldg. inlet isolation valve position indication for filter demineralizer system.	"	"
1EE-ZS-4656	RB 54' Rm#4101	Outbd. reactor bldg. inlet iso. valve position indication for filter demineralizer system.	"	"
1EE-ZS-4663	RB 77' Rm#4102	Reactor Bldg. outlet isolation vlv. position indication for filter demineralizer system.	"	M-53-1
1EG-ZS-2290 A thru H	RB 54' and 77' A-4113, B-4109 C-4114, D-4107 E-4214, F-4208 G-4114, H 4107	Cooling water supply valve position indication for the RHR pump room unit coolers.		(EG) Safety Auxiliary Cooling, M-11-1
1EG-ZS-2292 A and B	RB 54' Rm#4111	Cooling water supply valve position indication for HPCI pump room unit coolers.	2a	"
1EG-ZS-2302 A thru F	RB 132',162',178' A-4410, B-4617 C-4411, D-4615 E-4614, F-4616	Cooling water supply valve position indication for the FRVS cooling coils.	"	"
1EG-ZS-2325 A thru H	RB 54' A-4118, B-4104 C-4116, D-4105 E-4118, F-4104 G-4116, H-4105	Cooling water supply valve position indication for core spray pump room cooler.	"	"
1KH-ZS-5035	RB 77' Rm#4201	Closes isolation valve on high radiation or LVL 2 isolation signal.	"	Containment atmos contrl. M-57-1

126

Prepared by P.K. Ganguly/I. Nag. Date 10/10/85

Reviewed by B.W. Yule Date 10/19/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET

LIMITORQUE D.C. VALVE ACTUATOR

SHT. NO: P301-HV-004
REV. NO: 2
DATE: 10/10/85

EQUIPMENT DESCRIPTION

(1) SYSTEM SEE ATTACHED SHEETS

(2) TAG NO. SEE ATTACHED SHEETS

(3) COMPONENT C. VALVE ACTUATOR

(4) MANUFACTURER LIMITORQUE

(5) MODEL NO. SMB SERIES

(6) FUNCTION SEE ATTACHED SHEETS

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION 4102, 4110, 4111

(9) ABOVE FLOOD LEVEL YES X NO ___

(10) SEISMICALLY TESTED YES X REF. B NO ___

(11) SURVEILLANCE REQD. YES X REF. B, NO ___ APP.A OF ADD. A & SMB-82B

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	24 hrs	24 hrs	A, App.1 Pg.1-3	B, Add.#A Fig.#1	Test	None	Adequate	Adequate margin provided in temperature and pressure
TEMP. (°F)	See Note 1	340 (Max.) Note #2		B, Add.#A Fig.#1 & C	Test	None	Adequate	Longer test temp. duration
PRESSURE (PSIA)	See Note 1	115 (Peak) Note #2		B, Add #A Fig. #1	Test	None	95psig	---
RELATIVE HUMIDITY (%)	100	100		B, Add.#A ¶4.5E, Pg.14	Test	None	Not req'd	---
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	$2x10^7$ RG	$2.0x10^8$ RG	E, Pg.42	Note #3 Ref. D	Analysis of AC Motor Test	None	$1.8x10^8$ RG	Considered Rm.4102 Radiation Dose.
AGING	40 yrs @ 88°F	46 yrs @ 140°F	A, Pg.6 & E, Pg.42	Note #4	Analysis of AC Motor Test	None	Not req'd	Considered Rm.4102 Average Temperature.
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Tech Spec P302(Q) Rev.4/Design Spec P301/P302(Q) Rev.7 (11/81)

B. Limitorque #B0009 Rev.C dt. 10/16/79 (Also #600376A& B0027) V/P:P303A(Q)61-2 /P301-134-5

C. Limitorque Report #B0119 7/82 (Term-Block)

D. Bechtel Beta Radiation Qualification

E. DITS 10855-D7.5 Rev.2

F. Limitorque letter dt.1/16/81 (Aging by 10°C Rule)

NOTES

	TIME	TEMP°F	PRESS.PSIG	HUMIDITY%
#1	0-1hr	340	20	100
	1-2hrs	340 to 212(Linear)	0.3	100
	2-6hrs	212	0.3	100
	6h-100days	150	0.3	90

#2 For Temp. & Press. Profile See Ref.B, Add.A, Fig.1

#3 Ref.B, Add.A, ¶4.3.2, Pg.8, & Ref.B Appendix 1.

#4 Ref.B, Add.A, ¶2.1.2, Pg.5 & Ref.F.

126

ATTACHMENT TO EESS NO. P301(Q)-HV-004

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-FC-HV-F059	4102	RCIC turbine exhaust isolation valve	2a	M-49
1-BD-HV-F010	4110	RCIC pump suction valve to cond. storage tank. Controls makeup water from CST to RCIC PP. Suction. Closes on CST low water level.	2a	"
1-BD-HV-F031	4102	RCIC pump suction valve to suppression pool. Automatically opens when CST water level is low.	2a	"
1-BJ-HV-F042	4102	HPCI pump suction valve to suppression pool. Isolation vlv. auto. open to provide suction from sup. chamb. instead of CS ton chamber HL or tank LL.	2a	M-55
1-BJ-HV-F004	4111	HPCI pump suction valve to cond. storage tank. Opens on HPCI initiation.	2a	"
1-FD-HV-F071	4102	HPCI turbine exhaust valve to suppression pool. Containment isolation.	2a	"
		NOTE: Qualification of the actuator constitutes qualification of the internal limit switches		

Prepared by [illegible] / I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/14/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
LIMITORQUE A.C. MOTOR OPERATOR

SMT. NO: P301-HV-005
REV. NO: 2
DATE: 10/10/85

(1) SYSTEM VARIOUS
See Attached Sheets
(2) TAG NO. SEE ATTACHED SHEETS
(3) COMPONENT AC MOTOR OPERATOR
(4) MANUFACTURER LIMITORQUE
(5) MODEL NO. (VARIOUS) SMB-SERIES
(6) FUNCTION SEE ATTACHED SHEETS
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION SEE ATTACHED LIST
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. B NO ___
(11) SURVEILLANCE REQD. YES X REF. B NO ___ SMB 82B

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	130 days	A, App.1 Pg.1-3	E, B-Pgs.3-6,3-7, 4-1	Test & Analysis	None	30 days	30 days DBE test extended by analysis, Ref.E
TEMP. (°F)	See Note #1	See Note #2		B-Pgs.3-5, 4-1,3-3,D	Test	"	Adequate	Second DBE transient provides accept.margin. Also see Ref.B, Sec.3.3, Pg.E.Q.-32, Ref. C &
PRESSURE (PSIA)	See Note #1	See Note #2		B-Pgs.3-5 4-1,3-3	"	"	43 psig peak	
RELATIVE HUMIDITY (%)	100%	100%		B-Pg.3-3	"	"	Not req'd	---
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	"	"	---
RADIATION (RADS)	5.1×10^7 RG	2.04×10^8 RG	A, App.1 Pg.1-4	B, App.D Pg.EQ-110 & 111, F	Test	"	1.5×10^8 RG	Note 3
AGING	40 yrs @ 150°F	40 yrs @ 150°F	A, App.1 Pg.1-3	B,Pg.3 and Addendum A Pg.5, E	Test & Analysis 10°C Rule	"	Not req'd	Periodic maintenance req'd per maintenance manual
SPRAY	YES	Demineralized Water	G Pg. 19, 21	B, 913.3 Pg. 5	Test	"	"	

DOCUMENTATION REFERENCE:

A. Tech Spec P302(Q) Rev.4/Design Spec. P301/P302(Q) Rev.7 (11/81)

B. Limitorque Report 600376A, Rev.B (P301 & P302(Q)-133-6)

C. Limit. Rpt.#B0119, 7/82, #B0058, 1/11/80. PS-300/P301(Q)-133(4)-1, P301(Q)-133(2)-1.

D. Limit. Rpt.#u0027, Rev.A 10/18/78 (Sec.4.0 Pg.6)

E. Limitor-ARRH-001, Rev.1 Dt. 8/12/85

F. Bechtel Beta Rad. Qualif. Report.

G. DITS 10855-D7.5-Rev.2

NOTES #1

TIME	TEMP °F	PRESS. PSIG
0-20 sec	340	0-62
20s-5 min	340	62
5m-3 hr	340	40
3h-6 hr	320	40
6h-24 hr	250	25
1da-4 days	200	25
4da-100 days	200	10

#2

TIME	TEMP °F	PRESS. PSIG
0-6 hrs	340	105
6-9 hrs	320	77
9h-99 hrs	250	15
4d-30 days	200	

3. Qualified Rad Dose encompasses total integrated gamma plus neutron doses (2.5×10^7 RA) See Ref.G. IVI B.1.b, Pg.19

ATTACHMENT TO EESS NO. P301-HV-005 Sh. 1 of 3

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-FD-HV-F079	4102	HPCI vacuum relief to suppression pool	2a	M-55
F075	4102	"	2a	↓
1-BE-HV-F031A	4102	Core spray pump minimum flow valve	2a	M-52
B	4104	"	2a	
F015A	4102	Core spray test bypass valve to suppression pool	2b	
B	4102	"	2b	
F001A	4102	Core spray pump suction valve	2a	
B	4102	"	2a	
C	4102	"	2a	
D	4102	"	2a	
1-GS-HV-5050A	4410	Hydrogen recombiner containment isolation valve	2a	M-58
B	4321	"	2a	
5052A	4410	"	2a	
B	4321	"	2a	
5053A	4102	"	2a	
B	4102	"	2a	
5054A	4102	"	2a	
B	4102	"	2a	
0-AP-HV-2073	4101	Reactor building isolation valve in condensate line	2a	M-8
2072	4101	"	2a	
0-BN-HV-2069	4101	Reactor building isolation valve in condensate line	2a	M-61
1-HB-HV-F004	4102	Radwaste isolation valve	2a	
F020	4102	"	2a	
F003	4220	"	2a	
F019	4220	"	2a	
1-HB-HV-5262	4102	Reactor building isolation valve	2a	M-61
5275	4102	"	2a	
1-BC-HV-F007A	4102	RHR minimum flow bypass valve	2a	M-51
B	4102	"	2a	
C	4102	"	2a	
D	4102	"	2a	
1-SC-HV-4689A	4625	Water cleanup filter demineralizer bypass valve	2a	M-53
B	4625	"	2a	↓

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-FC-HV-F062	4102	RCIC turbine exhaust line vacuum breaker isolation	2a	M-49
F084	4102	"	2a	
1-BC-HV-4439	4102	RHR to liquid radwaste isolation valve	2a	M-51
ED-HV-2553	4321	Recirc pump cooling isolation valve	2a	M-13
2555	4321	"	2a	
1-ED-HV-2554	4220	"	2a	
2556	4220	"	2a	
1-GB-HV-9531A-1	4321	Chilled water containment isolation valve	2a	M-87
A-2	4321	"	2a	
A-3	4329	"	2a	
A-4	4329	"	2a	
B-1	4220	"	2a	
B-2	4220	"	2a	
B-3	4220	"	2a	
B-4	4220	"	2a	
1-HC-HV-5551	4406	Reactor building isolation valve	2a	
1-BC-HV-F010A	4114	RHR pump test return valve	2a	M-6[illegible]
B	4107	"	2b	[illegible]-51
F024A	4102	RHR return valve to suppression pool	2b	
B	4102	"	2a	
F011A	4113	RHR heat exchanger outlet to suppression pool	2a	
B	4109	"	2a	
F026A	4113	RHR connection to alternate RCIC suction	2a	
B	4109	"	2a	
F016A	4329	RHR containment spray valve	2a	
B	4402	"	2a	
F021A	4329	RHR pump test return line valve	2a	
B	4402	"	2b	
F075	4102	RHR to service water isolation valve	2b	
4420A	4102	RHR heat exchanger vacuum relief valve to suppression pool	2a	
B	4102	"	2a	
F049	4102	RHR disch. to radwaste	2a	

ATTACHMENT TO EESS NO. P301-HV-005 Sh. 3 of 3

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BC-HV-F047A	4214	RHR heat exchanger inlet valve	2a	M-51
B	4208	"	2a	
F027A	4102	RHR supply to suppression pool spray header	2a	
B	4102	"	2a	
F040	4102	RHR to radwaste isolation valve	2a	
F003A	4113	RHR heat exchanger outlet valve for cont. cooling	2a	
B	4109	"	2a	
F004A	4102	RHR pump suppression pool suction valve	2a	
B	4102	"	2a	
C	4102	"	2a	
D	4102	"	2a	
F006A	4113	RHR pump suction from recirc. loop for shutdown clg.	2a	
B	4109	"	2a	
1-EE-HV-4680	4102	Water cleanup containment isolation valve	2a	M-53
4681	4102	"	2a	
4679	4102	"	2a	
1-BC-HV-4421	4102	RHR heat exchanger vacuum relief valve to supp. pool	2a	M-51
1-EE-HV-4652	4102	Water cleanup containment isolation valve	2a	M-53
1-BF-HV-4005	4104	Containment isolation valve in CRD pump suction	2a	M-46
1-AN-HV-2600	4101	Demin. water reactor building isolation valve	2a	M-18
1-KA-HV-7626	4201	Reactor building service air isolation valve	2a	M-15
1-KB-HV-7629	4201	Reactor building instrument air isolation valve	2a	
1-GB-HV-9532-1	4615	Reactor building isolation valve	2a	M-87
9532-2	4615	"	2a	

NOTE: Qualification of the actuator constitutes qualification of the internal limit switches.

Prepared by M. Faizul Nag Date 10/20/85

Reviewed by C.W. [illegible] Date 10/21/85

128

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
CONAX CONDUCTOR SEAL

SHT. NO: P301-SEAL-003
REV. NO: 3
DATE: 10/20/85

EQUIPMENT DESCRIPTION

(1) SYSTEM (EC) FUEL POOL CLG. & CLEANUP

(2) TAG NO.
1-EC-HV-4676 A&B
1-EC-HV-4678

COMPONENT
CONDUCTOR SEAL

(4) MANUFACTURER
CONAX

(5) MODEL NO.
N-11001

(6) FUNCTION
See Note 1

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION REACTOR BLDG. El.77' Rm 4102

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. B1
NO ___

11) SURVEILLANCE REQD.
YES ___ REF. B2
NO X

M-53-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	>2141 days	Ref. A Appendix 1	Ref. B1 Fig. 6.9.3 Ref. B3	Test and Analysis	None	>2041 days	17 day DBE test extended by Ref. B3
TEMP. (°F)	340 (Max.) -2 hrs Note #2	355 (Max.) -3 hrs Note #3	↓	↓	Test	None	15°F	
PRESSURE (PSIG)	20 (Peak) Note #2	72 (Peak) Note #3	↓	↓	Test	None	52	
RELATIVE HUMIDITY (%)	100% - 6 hrs 90%-100days	100%	↓	↓	Test	None	Not Req'd	
FLOODING/ FROTH	Subject to steam line break	Submergence 2406 hours	Ref. A2 Item Nos. 13.21 & 8.29	Ref. B1 Addendum A	Test	None	Not Req'd	
RADIATION (RADS)	2E7R G	2.25E8 RG	Ref. A1 Table 6	Ref. B1 App. B Pg. B-3 Ref. C	Test	None	2E8R G	
AGING	40 years	40 years 250°F	Ref. A Appendix 1	Ref. B2 Conax Ltr. of 3/31/84	Test and Analysis	None	Not Req'd	No periodic maintenance is required.
SPRAY	Subject to steam line break	Chemical Spray PH 10.8	Ref. A2 Item Nos. 13.21&8.29	Ref. B1 Figure 6.9.3	Test	None	Not Req'd	

DOCUMENTATION REFERENCE:

A. Design Specification 10855-P301(Q) Rev. 7 (11/81)

A1. DITS 7.5, Rev. 2 (10/84)

A2. M/R, 10855-P301(Q), Rev. 19 (2/84)

B. CONAX QUALIFICATION REPORTS:
1. IPS-1079 Rev.A, Dtd 1/84 (10855-P51216(Q)-1-1F)
2. IPS-325 Rev.D, Dtd 5/81 (10855-P51216(Q)-3-1F) including CONAX forwarding letter of 5/31/84
3. IPS-409.1 Dtd 2/82 (10855-P301(Q)-539(2)-1) Figure 4.5.1 and ¶4.5.3

NOTES

1. Conductor seal associated with air operated isolation valve for filter demineralizer system. Category 2b, item per NUREG-0588 App. E.

2. For specified temperature and pressure profile, see Ref. A, App. 1, Pg. 1-3.

3. For qualified temperature and pressure profile, see Ref. B1, Fig. 6.9.3. and Ref. B3, Fig. 4.5.1.

Prepared by I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/19/85

131

EQUIPMENT EVALUATION SUMMARY SHEET

HOPE CREEK GENERATING STATION

ROTORK VALVE ACTUATOR

SHT. NO: P302-HV-002
REV. NO: 2
DATE: 8/9/85

(1) SYSTEM (AB) Main Steam
(2) TAG NO. 1-AB-HV-F019 Note #7
(3) COMPONENT VALVE ACTUATOR
(4) MANUFACTURER ROTORK
(5) MODEL NO. 14NA1
(6) FUNCTION See Note #1
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION REACTOR BLDG El.102' Rm 4316
(9) ABOVE FLOOD LEVEL YES ___ NO X
(10) SEISMICALLY TESTED YES X REF. ___ NO ___
(11) SURVEILLANCE REQD. YES X REF. B NO ___

M-41-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	100 days	Ref. A Appendix 1	Ref. B Appendix X-2 & Ref. C	Test and Analysis	None	Adequate	Adequate margin provided in temperature and pressure. 30-day test extended by Ref. C
TEMP. (°F)	See Note #3	See Note #4	↓	↓	Test	None	45°F	
PRESSURE (PSIA)	20 psig-1 hr 0.3 psig - 100 days	75 psig-2 hrs 15 psig-30 days	↓	↓	Test	None	55 psig	
RELATIVE HUMIDITY (%)	100%-6 hrs 90%-100days	100%	↓	↓	Test	None	Not req'd	
FLOODING/ FROTH	Submergence 2 min.	Submergence	Ref. A Appendix 1 ¶1.8.4	Ref. D	Test	None	Not req'd	
RADIATION (RADS)	3.33E7R G 1.1E6RB	2.04E8R G Note #2	Ref. A Appendix 1 Ref. D pg 81	Ref. B Section 6	Test	None	1.71E8RG	Specified radiation from DITS 7.5, Rev. 2
AGING	40 years @97°F	40 years @97°F	Ref. E Pg. 44	Ref. C Ref. F	Test and Analysis	None	Not req'd	DITS 7.5, Rev. 2, specifies max. temp 97°F, avg. temp 86°F
SPRAY	Note #6	Chem. Spray & Steam impingement	Note #6	Ref. B Pg. 8-2	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-P302(Q), Rev. 4 (7/81)
B. Wyle Qualificationn Report 43979-1, Rev. A (12/78) (10855-P303A(Q)-304-1), Fisher-FQP-33-3A(Add.A), dt.7/20/83.
C. Rotork letter 8/16/84 (10855-J605(Q)-70-3) and Fisher letter 10/3/83.
D. Rotork ltr. 8/21/84 including Rotork Report TR-178 (12/74) (10855-P303A(Q)-304-1) and Catalog 5/81.
E. Environmental Design Criteria -10855-D7.5, Rev. 2 (10/84)
F. ~~ROTORK ARRH-001, Rev.0~~ Doc NO. PSE-EE-E-002 Rev.0

I. Nag 11/26/85

NOTES

1. Motor operated control valve for main steam line drain line isolation. Category 2a item per NUREG-0588, App. E.
2. Qualified radiation dose encompasses specified G & B doses.
3. 340°F - 1 hr 212°F - 6 hr 150°F - 100 days
4. 385°F - 2 hrs 300°F - 12 hrs 215°F - 100 days
5. The specified and qualified data in Notes #3 and #4, are conservative. For actual specified and qualified profile, See Ref. A, App. 1 and Ref. B, App. X-2, respectively.
6. Device located in steam tunnel.
7. Qualification of the actuator constitutes qualification of the internal limit switch.

Prepared by R.F. Gangly/I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/19/85

132

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
LIMITORQUE A.C. MOTOR OPERATOR

SHT. NO: P302-HV-003
REV. NO: 2
DATE: 10/10/85

(1) SYSTEM VARIOUS
See Attached Sheets
(2) TAG NO. SEE ATTACHED SHEETS
(3) COMPONENT AC MOTOR OPERATOR
(4) MANUFACTURER LIMITORQUE
(5) MODEL NO. (VARIOUS) SMB-SERIES
(6) FUNCTION SEE ATTACHED SHEETS
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION SEE ATTACHED LIST
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. B NO ___
(11) SURVEILLANCE REQD. YES X REF. B NO ___ SMB 82B

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	130 days	A, App.1 Pg. 1-3	E, B-Pgs.3-6,3-7, 4-1	Test & Analysis	None		30 days DBE test extended by analysis, Ref.E.
TEMP. (°F)	See Note #1	See Note #2		B-Pgs.3-5, 4-1,3-3,D	Test	"	Adequate	Second DBE transient provides accept.margin. Also see Ref.B, Sec.3.3, Pg.E.Q.-32, Ref. C & [illegible]
PRESSURE (PSIG)	See Note #1	See Note #2		B-Pgs.3-5 4-1,3-3	"	"	Adequate (43 psig peak)	
RELATIVE HUMIDITY (%)	100%	100%		B-Pg.3-3	"	"	Not req'd	---
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	"	"	Note #4
RADIATION (RADS)	5.1×10^7 RG	2.04×10^8 RG	A, App.1 Pg.1-4	B, App.D Pg.EQ-110 & 111 & Ref. F	Test	"	1.5×10^8 RG	Note #3
AGING	40 yrs @ 150°F	40 yrs @ 150°F	A,App.1 Pg.1-3	B,Pg.3 and Addendum A Pg.5, E	Test & Analysis 10°C Rule	"	Not req'd	Periodic maintenance req'd per maintenance manual
SPRAY	N/A	Demineralized Water	N/A	B, 913.3 Pg. 5	Test	"	"	

DOCUMENTATION REFERENCE:
A. Tech Spec P302(Q) Rev.4/Design Spec. P301/P302(Q) Rev.7 (11/81)
B. Limitorque Report 600376A, Rev.B (P301 & P302(Q)-133-6)
C. Limit. Rpt.#B0119, 7/82 #BC056 1/11/80, PS-300/P301(Q)-133(4)-1, P301(Q)-133(2)-1.
D. Limit. Rpt.#B0027, Rev.A 10/18/78 (Sec.4.0 Pg.6)
E. Limitor-ARRH-001, Rev.1, Dt.8/12/85
F. Bechtel Beta Rad. Qualif. Report.
G. DITS 10855-D7 5-Rev 2

NOTES #1

TIME	TEMP °F	PRESS. PSIG
0-20 sec	340	0-62
20s-5 min	340	62
5m-3 hr	340	40
3h-6 hr	320	40
6h-24 hr	250	25
1da-4 days	200	25
4da-100 days	200	10

#2

0-6 hrs	340	105
6-9 hrs	320	77
9h-99 hrs	250	15

3. Qualified Rad. Dose encompasses total integrated gamma plus neutron doses (2.5×10^7 RA[illegible] See Ref. [illegible] [illegible] B.1... Pg 19

132

ATTACHMENT TO EESS NO. P302-HV-003

Note #

4. 1-AE-HV-F039 is not qualified for submergence caused by a feedwater line break in the steam tunnel. It has been provided with primary and backup IE bus protective devices located in hazard free area.

ATTACHMENT TO EESS NO. P302-HV-003

TAG NO. (Item 2)	LOCATION (Item 3)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-AB-HV-F016	4220	Main steam line drain isolation valve Closes on LOCA, MSLB or PCIS	2a	M41
1-AB-HV-F019	4316	" "	2a	M41
1-FC-HV-F007	4220	RCIC steam supply cont. isol. valve	2a	M47
1-BG-HV-F004	4505	RWCU isolation valve	2a	M44
1-BG-HV-F001	4220	"	2a	M44
1-FD-HV-F002	4220	HPCI steam supply isolation valve	2a	M55
1-FD-HV-F003	4327	"	2a	M55
1-FC-HV-F008	4319	RCIC steam supply cont. isol. valve	2a	M49
1-BC-HV-F022	4220	RHR reactor head spray isolation valve	2a	M51
1-BC-HV-F023	4505	"	2a	M51
1-AB-HV-3631A	4316	Main steam stop and isolation valve	2a	M41
1-AB-HV-3631B	4316	"	2a	M41
1-AB-HV-3631C	4316	"	2a	M41
1-AB-HV-3631D	4316	"	2a	M41
1-BE-HV-F004A	4329	Core spray supply hdr isol. valve	2a	M41
1-BE-HV-F004B	4321	"	2a	M41
1-BC-HV-F052A	4102	HPCI to RHR heat exch. isolation valve	2a	M52
1-BC-HV-F052B	4102	"	2a	M52
1-AE-HV-F039	4316	Motor operator check in RWCU line to feedwater	2a	M51
1-AE-HV-F032A	4316	Motor operated check isolation valve	2a	M51
1-AE-HV-F032B	4316	"	2a	M44
1-BC-HV-F015A	4329	RHR shutdown cooling injection valve on return from RHR Hx	2a	M41
1-BC-HV-F015B	4321	" "	2a	M41
1-BC-HV-F017A	4329	RHR/LPCI injection valve	2a	M51
1-BC-HV-F017B	4321	"	2a	M51
1-BC-HV-F017C	4329	"	2a	M51
1-BC-HV-F017D	4321	"	2a	M51
1-AE-HV-F011A	4220	Shutoff valve used for maintenance	2a	M51
1-AE-HV-F011B	4220	"	2a	M41
1-BE-HV-F005A	4329	Core spray injection and isol. valve	2a	M41
1-BE-HV-F005B	4321	"	2a	M52
1-BC-HV-F009	4220	Containment isolation valve	2a	M52
1-BC-HV-F008	4329	"	2a	M51
1-BG-HV-F034	4102	RWCU reactor bldg. isolation valve	2a	M51
1-BG-HV-F035	4102	"	2a	M44
			2a	M44

NOTE: Qualification of the actuator constitutes qualification of the internal limit switches.

Prepared by B.P. Ganguly / I. Nag Date 10/10/84

Reviewed by C.M. [illegible] Date 10/19/85

133

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
LIMITORQUE D.C VALVE ACTUATOR

SHT. NO: P302-HV-004
REV. NO: 2
DATE: 8/12/85

EQUIPMENT DESCRIPTION

(1) SYSTEM SEE ATTACHED SHEETS
(2) TAG NO. SEE ATTACHED SHEETS
(3) COMPONENT D.C. VALVE ACTUATOR
(4) MANUFACTURER LIMITORQUE
(5) MODEL NO. SMB SERIES
(6) FUNCTION SEE ATTACHED SHEETS
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION 4102, 4110, 4111
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. B NO ___
(11) SURVEILLANCE REQD. YES X REF. B, of NO ___ APP.A of ADD.A & SMBI-170

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	24 hrs	24 hrs	A, App.1 Pg.1-3	B, Add.#A Fig.#1	Test	None	Adequate	Adequate margin provided in temp. and pressure.
TEMP. (°F)	See Note 1	340 (Max.) Note #2		B, Add.#A Fig.#1 & C	Test	None	Adequate	Longer test temperature duration.
PRESSURE (PSIA)	See Note 1	115 (Peak) Note #2		B, ADD#A Fig#1.	Test	None	95psig	
RELATIVE HUMIDITY (%)	100	100		B, Add.#A ¶4.5E, Pg.14	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	Note #5
RADIATION (RADS)	$2x10^7$ RG	$2.0x10^8$ RG	E, Pg 42	Note #3, D	Analysis of AC Motor Test	None	$1.8x10^8$ RG	Considered Rm.4102 Radiation Dose.
AGING	40 yrs @ 88°F	46 yrs @ 140°F	A, Pg.6 & E, Pg.42	Note #4	Analysis of AC Motor Test	None	Not req'd	Considered Rm.4102 Average Temperature.
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	Note #5

DOCUMENTATION REFERENCE:

A. Tech Spec P302(Q) Rev.4/Design Spec P301/P302(Q) Rev.7 (11/81)
B. Limitorque #B0009 Rev.C dt. 10/16/79 (Also #600371A & B0027) V/P:P303A(Q)61-2
C. Limitorque Report #B0119 7/82 (Term-Block)
D. Bechtel Beta Radiation Qualification
E. DITS 10855-D7.5 Rev.2
F. Limitorque letter dt.1/16/81 (Aging by 10°C rule)

NOTES

#1

TIME	TEMP°F	PRESS.PSIG	HUMIDITY%
0-1hr	340	20	100
1-2hrs	340 to 212(Linear)	0.3	100
2-6hrs	212	0.3	100
6h-100days	150	0.3	90

#2 For temp. & press. profile, see Ref. B, Add. A, Fig. 1

#3 Ref. B, Add. A, 14.3.2, Pg. 8, & Ref. B Appendix 1

#4 Ref. B, Add. A, 12.1.2, Pg. 5 & Ref. F.

#5 1-BJ-HV-8278 is not qualified for submergence caused by a feedwater line break in the steam tunnel. It has been provided with primary and backup IE bus protective devices located in hazard free area.

ATTACHMENT TO EESS NO. P302-HV-004

DC POWERED MOTORS

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BD-HV-F013	4316	RCIC pump disch valve to feed water line, isolation valve	2a	49-1
1-FD-HV-F001	4111	HPCI turbine steam supply valve. Auto close on HPCI initiation	2a	55-1
1-BJ-HV-F007	4111	HPCI pump disch valve to core spray & FW. Opens on HPCI initiation	2a	55-1
1-BJ-HV-F006	4329	HPCI isolation valve in Core Spray Disch. Line. Opens on HPCI initiation.	2a	55-1
1-BD-HV-F012	4110	RCIC pump disch valve. Controls RCIC Pump disch flow to RPV	2a	49-1
1-AP-HV-F011	4203	HPCI test valve, auto close on HPCI start	2a	55-1
1-BJ-HV-8278		Isolation valve in HPCI pump disch to feed water. Opens on HPCI initiation.	2a	55-1
1-FC-HV-F045	4110	RCIC steam supply valve. Opens automatically or manually to provide drive steam to RCIC Turbine.	2a	50-1
1-BJ-HV-F008	4203	HPCI test valve, auto close on HPCI start	2a	55-1
1-BJ-HV-F012	4102	HPCI minimum flow control valve to suppression chamber. Opens if disch. Press normal and Flow is Low.	2a	55-1
1-BD-HV-F022	4203	RCIC test loop isolation valve to Condensate Storage Tank.	2b	49-1

NOTE: Qualification of the actuator constitutes qualification of the internal limit switches.

Prepared by I. Nag / J.P. Conroy Date 6/29/85

Reviewed by J.W. Sobkowski Date 7-1-85

134

SMT. NO: P302-ZS-005
REV. NO: 1
DATE: 6/19/85

EQUIPMENT EVALUATION SUMMARY SHEET

NAMCO LIMIT SWITCH

HOPE CREEK GENERATING STATION

(1) SYSTEM
SEE SHEET ATTACHED

(2) TAG NO.
SEE SHEET ATTACHED

(3) COMPONENT
LIMIT SWITCH

(4) MANUFACTURER
NAMCO

(5) MODEL NO.
EA180-31302
EA-180-32302

(6) FUNCTION
SEE SHEET ATTACHED

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
SEE SHEET ATTACHED

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. B
NO ___

(11) SURVEILLANCE REQD.
YES X REF. B
NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days @200°F	134 days	Ref.A Appendix 1 ¶1.8.3	Ref.B Fig.13 P.7-8 Ref.C	Test and Analysis	None	34 days	30 days DBE Test extended by Ref. C
TEMP. (°F)	340-3 hrs Note #2	340-5 3/4hr Note #3		Ref.B Fig.13 P.7-8	Test	None	None	2nd transient during DBE provides accept. margin.
PRESSURE (PSIG)	62-5 min Note #2	80-5 3/4hr Note #3		"	Test	None	18	
RELATIVE HUMIDITY (%)	100%	100% (Water Spray		"	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	5.1E7R G	2.04E8R G	Ref.A Appendix 1 ¶1.8.3	Ref.B Pg4-4,10-15 Ref. D	Test	None	1.53E8R G	
AGING	40 years @135°F	5 yrs 131°F 4 yrs 104°F		Ref.B Pg. 4-7,EQ-12 Note #1	Test and Analysis	None	Not req'd	Periodic Maint. Req'd Maint. instructions EA189-90050 & 90051 of Ref.B provides maint. schedule
SPRAY	YES	Chemical and Water Spray	Ref. E Pg. 19, 21	Ref.B Fig.13 Pg.7-8	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Design Specification 10855-P-301(Q), Rev. 7 (11/81)

B. NAMCO Qualification Report QTR 105, Rev.4, Dtd. 1/84 10855-P301(Q)-228-2 & 196-7)

C. Arrnenius calculation to extend DBE test time to 100 days. EQPM #421 (Part 4 of 4) 6/1/82.

D. Bechtel Beta Qualification Report

E. Environmental Design Criteria -10855-D7.5, Rev. 2 (10/84)

NOTES

1. Qualified Life is 5 yrs @131°F for switches using silicone cover gaskets (Ref.B Figure 8) and EA189-90051. These are switch revision letters H and later. Earlier revisions use NBR cover gaskets (Accobest) and are qualified for 4 yrs @104°F (Ref.B, EQ-11,12).
2. The specified data shown is conservative. For actual specified temperature and pressure profile, see Ref. A, Appendix 1, ¶1.8.3.
3. The qualified data shown is conservative. For actual qualified temperature and pressure profile, see Ref. B, Fig. 13, Pg. 7-8.

ATTACHMENT TO EESS NO. P302-ZS-005

TAG NO. (Item 2)	LOCATION (Item 8) (Room No.)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-AE-ZS-F074A	4316	Provides position indication of feedwater isolation check valve in control room. R.G.1.97 parameter	2a	M41-1
1-AE-ZS-F074B	4316	"	"	"
1-BC-ZS-F060A	4220	Limit switch operates valve status open/closed indication	Addl. operator info and supplied from 1E bus	M51-1
1-BC-ZS-F060B	4220	"	"	
1-BC-ZS-F065A	4220	"	"	"
1-BC-ZS-F065B	4220	"	"	"
1-BC-ZS-F065C	4220	"	"	"
1-BC-ZS-F065D	4220	"	"	"
1-BC-ZS-F077	4220	"	"	"
1-BE-ZS-F007A	4220	Operates open/closed valve status lights in control room for core spray header check valve.	"	M52-1
1-BE-ZS-F007B	4220	"	"	"

Prepared by T.K. Ganguly / I. Nag Date 10/10/85

Reviewed by D.M. Tuleja Date 10/19/85

137

EQUIPMENT EVALUATION SUMMARY SHEET
ROTORK VALVE ACTUATOR

HOPE CREEK GENERATING STATION

SHT. NO: P303A-HV-001
REV. NO: 2
DATE: 8/12/85

(1) SYSTEM (AB) MAIN STEAM
(2) TAG NO. 1-AB-HV-F067A-D
Note #7
(3) COMPONENT VALVE ACTUATOR
(4) MANUFACTURER ROTORK
(5) MODEL NO. SYNCROSET
(6) FUNCTION Note #2
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION REACTOR BLDG. El.102' Rm.4316
(9) ABOVE FLOOD LEVEL YES ___ NO X
(10) SEISMICALLY TESTED YES X REF. C NO ___ (Sect.8)
(11) SURVEILLANCE REQD. YES X REF. C NO ___

M-41-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	100 days	Ref.A Appendix 1	Ref.C Appendix 10-2 & Ref. D	Test	None	Adequate	Adequate margin provided in temperature and pressure. 30 day test extended by Ref. C
TEMP. (°F)	See Note 3	See Note 4			Test	None	45°F	
PRESSURE (PSIA)	20psig-1hr 0.3psig-100days	75psig-2hrs 15psig-30day			Test	None	55psig	
RELATIVE HUMIDITY (%)	100%-6hrs 90%-100days	100%			Test	None	Not req'd	
FLOODING/ FROTH	Submergence required	Submergence	Ref.A Appendix 1 Ref.B,Sh.7	Ref.E	Test	None	Not req'd	Note #6
RADIATION (RADS)	3E7R G	2.04E8R G	Ref.A Appendix 1	Ref.C Section 6	Test	None	1.74E8R G	Specified radiation from DITS 7.5, Rev.2
AGING	40yrs @ 97°F	40 yrs @ 97°F	Ref. F Pg. 44	Ref.D Ref.G	Test and Analysis	None	Not req'd	DITS 7.5 Rev.2 indicates max.temp. is 97°F and Avg.temp is 86°F *
SPRAY	Note #6	Chemical spray	Note #6	Ref.C Page 10-2	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-P303 (Q), Rev.4 (4/81)

B. Design Specification 10855-P303(Q), Rev.6 (4/81)

C. Wyle Qualification Report,43979-1 Rev.A 12/78 (10855-P303A(Q)-304-1) and Fisher Report FQP-33-3A (Addendum A) dt.7/20/83.

D. ROTORK letter 8/16/84(10855-3605(Q)-70-3) and Fisher letter 10/3/83.

NOTES

1. Beta radiation qualification
2. Motor operated valve for main steam line drain isolation. Category 2a item of NUREG-0588, App. E.
3. 340°F-1hr 212°F-5hr 150°F-100days
4. 385°F-2hr 300°F12hrs 215°F-30days
5. The specified and qualified data in Notes #3 and #4, are conservative. For actual specified [illegible] ualified profile, see Ref. A, App. 1 and Ref. B, App. X-2 resp[illegible]ely
6. Device located in steam tunnel and exposed to feed line water break.
7. Qualification of the actuator constitutes qualification of the internal limit switches.

137

ATTACHMENT TO EESS NO. P303A-HV-001

E. ROTORK letter 8/21/84 and Report TR-178 (10855-P303A(Q)-304-1 and Catalog 5/81.

F. Environmental Design Criteria-10855-D7.5, Rev.2 (10/84).

G. ~~ROTORK-ARRH-001, Rev.0~~
Doc NO. PSE-EE-E-002 Rev.0
I. Nag. 11/26/85

Prepared by I. Nag / P.P. Langely Date 10/10/85

Reviewed by [illegible] Date 10/19/85

138

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET

LIMITORQUE D.C. VALVE ACTUATOR

SHT. NO: P303A-HV-002
REV. NO: 2
DATE: 8/23/85

(1) SYSTEM SEE ATTACHED SHEETS
(2) TAG NO. SEE ATTACHED SHEETS
(3) COMPONENT .C. VALVE ACTUATOR
(4) MANUFACTURER LIMITORQUE
(5) MODEL NO. SMB SERIES
(6) FUNCTION SEE ATTACHED SHEETS
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION 4102, 4110, 4111
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. B NO ___
(11) SURVEILLANCE REQD. YES X REF. B, APP.A, OF ADD.A & SMBI-170 NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	24 hrs	24 hrs	A, App.1 Pg.1-2	B, Add.#A Fig.#1	Test	None	Adequate	Adequate margin provided in temperature and pressure.
TEMP. (°F)	See Note 1	340 (Max.) Note #2	↓	B, Add.#A Fig.#1 & C	Test	None	Adequate	Longer test temp. duration.
PRESSURE (PSIA)	See Note 1	115 (Peak) Note #2	↓	B, Add#A Fig.1	Test	None	95psig	
RELATIVE HUMIDITY (%)	100	100	↓	B, Add.#A ¶4.5E, Pg.14	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	$2x10^7$ RG	$2.0x10^8$ RG	E, Pg.42	Note #3, D	Analysis of AC Motor Test	None	$1.8x10^8$ RG	Considered Rm.4102 Radiation Dose.
AGING	40 yrs @ 88°F	46 yrs @ 140°F	A, Pg.6 & E, Pg.42	Note #4	Analysis of AC Motor Test	None	Not req'd	Considered Rm.4102 Average Temperature.
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Tech Spec.10855-P-303(Q) Rev.4/Design Spec 10855-P-303(Q) Rev.6

B. Limitorque #B0009 Rev.C dt. 10/16/79 (Also #600376A & B0027) V/P:P303A(Q)61-2

C. Limitorque Report #B0119 7/82 (Term-Block)

D. Bechtel Beta Radiation Qualification

E. DITS 10855-D7.5 Rev.2

F. Limitorque letter dt.1/16/81 (Aging by 10°C rule)

NOTES

	TIME	TEMP°F	PRESS.PSIG	HUMIDITY%
#1	0-1hr	340	20	100
	1-2hrs	340 to 212(Linear)	0.3	100
	2-6hrs	212	0.3	100
	6h-100days	150	0.3	90

#2 For Temp. & Press. profile, see Ref. B, Add. A, Fig. 1

#3 Ref. B, Add. A, ¶4.3.2, Pg. 8, & Ref. B, App. 1

#4 Ref. B, Add. A, ¶2.1.2, Pg. 5 & Ref. F.

138

ATTACHMENT TO EESS NO. P303A-HV-002

DC POWERED MOTORS

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-FC-HV-F060	4102	RCIC vacuum pump disch isolation valve	2a	M-49
1-BD-HV-F046	4110	Opens to provide water to RCIC lube oil cooler when RCIC starts.	2a	M-50
1-BJ-HV-F059	4111	Opens to provide water to HPCI lube oil cooler. Automatically opens when HPCI initiates.	2a	M-56

NOTE: Qualification of the actuator constitutes qualification of the internal limit switches.

Prepared by T. Chaudhuri / I. Nag Date 10/10/85

Reviewed by C.W. Fowler Date 10/19/85

139

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
LIMITORQUE A.C. MOTOR OPERATOR

SHT. NO: P303A-HV-003
REV. NO: 2
DATE: 10/10/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM VARIOUS	OPERATING TIME	100 days	130 da.	A, App.1 Pg. 1-3	E B-Pgs.3-6,3-7 4-1	Test & Analysis	None	30 days	30 days DBE test extended by analysis, REF.E
(2) TAG NO. SEE ATTACHED SHEETS	TEMP. (°F)	See Note #1	See Note #2		B-Pgs.3-5, 4-1,3-3,D	Test	"	Adequate	Second DBE transient provides accept.margin. Also see Ref.B. Sec.3.3, Pg.E.
(3) COMPONENT AC MOTOR OPERATOR	PRESSURE (PSIG)	See Note #1	See Note #2		B-Pgs.3-5 4-1,3-3	"	"	43 psig Peak	Ref.C&D,Q-32
(4) MANUFACTURER LIMITORQUE	RELATIVE HUMIDITY (%)	100%	100%		B-Pg.3-3	"	"	Not req'd	---
(5) MODEL NO. (VARIOUS) SMB-SERIES	FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	"	"	Note #4
(6) FUNCTION SEE ATTACHED SHEETS	RADIATION (RADS)	5.1×10^7 RG	2.04×10^8 RG	A, App.1 Pg. 1-3	B, App.D Pg.EQ-110 & 111 & Ref.F	Test	"	1.5×10^8 RG	Note #3
(7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A	AGING	40 yrs @ 150°F	40 yrs. @ 150°F		B,Pg.3 and Addendum A, Pg.5, E	Test & Analysis	"	Not req'd	Periodic maintenance req'd per maintenance manual
(8) LOCATION SEE ATTACHED LIST	SPRAY	Yes	Demineralizing Water	G, Pg.19, 21	B, ¶3.3 Pg.5	Test	"	"	

(9) ABOVE FLOOD LEVEL YES X NO ___

(10) SEISMICALLY TESTED YES X REF. B NO ___

(11) SURVEILLANCE REQD. YES X REF. B NO ___ SMB, 82B

DOCUMENTATION REFERENCE:

A. Tech Spec P302(Q) Rev.4/Design Spec P303A(Q) Rev.6 (4/81)

B. Limitorque Report 600376A, Rev.B (P301 & P302(Q)-133-6)

C. Limit. Rpt.#B0119, 7/82, #B0056, 1/11/80. PS-300/P301(Q)-133(4)-1, P301(Q)-133(2)-1.

D. Limit. Rpt.#B0027, Rev.A 19/18/78 (Sec.4.0 Pg.6)

E. Limitor-ARRH-001, Rev.1, dt. 8/12/85

F. Bechtel Beta Rad. Qualif. Report.

G. Environmental Design Criteria, 10855-D7.5, Rev.2 (10/84).

NOTES #1

TIME	TEMP °F	PRESS. PSIG
0-20 sec	340	0-62
20s-5 min	340	62
5m-3 hr	340	40
3h-6 hr	320	40
6h-24 hr	250	25
1da-4 days	200	25
4da-100 days	200	10

#2

0-6 hrs	340	105
6-9 hrs	320	77
9h-99 hrs	250	15
4d-30 days	200	10

#3 Qualified Rad. Dose encompasses total integrated gamma plus neutron doses (2.5×10^7 RAD) See Ref.G, ¶VI B.1.b, Pg.19

139

ATTACHMENT TO EESS NO. P303A-HV-003

#4 Valves 1-KP-HV-5829A&B, 1-KP-HV-5834A&B, 1-KP-HV-5835A&B, 1-KP-HV-5836A&B, 1-KP-HV-5837A&B are not qualified for submergence caused by a Feed Water Line break in the Steam Tunnel. They have been provided with primary and backup 1E bus protective devices located in the hazard free area.

ATTACHMENT TO EESS NO. P303A-HV-003 Sh.1 of 3

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BJ-HV-4803	4102	Isolation valve in sensor line to suppression chamber	2a	M-55
1-BJ-HV-4804	4102	"	"	
1-BC-HV-F104A	4214	RHR heat exh vent isolation valve to suppression pool	"	M-51
B	4208	"	"	"
1-BC-HV-F103A	4114	"	"	"
B	4208	"	"	"
1-FC-HV-F076	4220	RCIC turbine exhaust isolation valve	"	M-49
1-BH-HV-F006A	4509	Isolation valve between standby liquid control & core spray	"	M-48
B	4509	"	"	"
1-GS-HV-4951	4410	Containment isolation valve	"	M-57
1-GS-HV-4963	4102	"	"	"
1-GS-HV-4955A	4330	"	"	"
B	4605	"	"	"
1-GS-HV-5019A	4601	"	"	"
1-GS-HV-5019B	4605	"	"	"
1-AB-HV-F071	4316	Main steam line drain isolation valve	"	M-41
1-BC-HV-4428	4102	Isolation valve between main steam line and RHR heat exhr	"	M-51
1-BF-HV-3800A	4102	Containment isolation in line to recirc pump seal	"	M-43
B	4321	"	"	"
1-KL-HV-5172A	4329	Primary containment isolation valve	"	M-59
B	4321	"	"	"
1-GS-HV-4983A	4330	Containment atmosphere isolation valve	"	M-57
B	4605	"	"	"
1-GS-HV-4984A	4601	"	"	"
B	4605	"	"	"
1-GS-HV-4965A	4102	"	"	"
B	4102	"	"	"
1-GS-HV-4966A	4102	"	"	"
B	4320	"	"	"
1-GS-HV-5022A	4102	"	"	"
B	4322	"	"	"
1-GS-HV-4959A	4102	"	"	"
B	4102	"	"	"
1-GS-HV-4974	4322	Containment isolation valve	"	"

ATTACHMENT TO EESS NO. P303A-HV-003 Sh.2 of 3

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-SK-HV-4957	4601	Drywell gas sample containment isolation valve	2a	M-25
4981	4601	"	"	"
1-FD-HV-F100	4220	HPCI steam supply warm up line isolation valve	"	M-55
1-SK-HV-5018	4601	Drywell gas sample containment isolation valve	"	M-25
4953	4601	"	"	"
1-KL-HV-5152A	4220	Primary containment isolation valve	"	M-59
B	4220	"	"	"
1-KL-HV-5148	4220	"	"	"
5126A	4329	"	"	"
B	4321	"	"	"
5162	4408	"	"	"
5147	4408	"	"	"
5160A	4413	Instrument gas comp. intake isol. valve to backup supply	2b	"
B	4412	"	"	"
5124A	4420	Primary containment isolation valve	2a	"
B	4420	"	"	"
1-EG-HV-2452A	4413	Containment inst. gas comp. cooling water isolation valve	"	M-11
B	4412	"	"	"
2302A	4413	"	"	"
B	4412	"	"	"
2321A	4413	Cross connect valves between SACS cooling loops to provide cooling	"	"
B	4412	Water from either loop to both cont. inst. gas comp. coolers closes on LOCA/LOP	"	"
1-KP-HV-5829A	4316	MSIV supply header control valve	"	M-72
B	4316	"	"	"
5834A	4316	MSIV seal system isol. valve. closes on high radiation or LVL 2 isol. sig.	"	"
B	4316	MSIV seal controls seal gas flow between outbd.MSIVS & MSSVS	"	"
5835A	4316	MSIV seal isol. valve. closes on high radiation or LVL 2 isol. sig.	"	"
B	4316	MSIV seal controls seal gas flow between outbd.MSIVS & MSSVS	"	"

ATTACHMENT TO EESS NO. P303A-HV-003 Sh. 3 of 3

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-KP-HV-5836A	4316	MSIV seal system isol. vlv. closes on high radiation or LVL 2 isol. sig.	2a	M-72
B	4316	MSIV seal controls seal gas flood between outbd. MSIVS & MSSVS	"	"
5837A	4316	MSIV seal isol. vlv. closes on high radiation or LVL 2 isol. signal	"	"
B	4316	MSIV controls seal gas flow between outbd. MSIVS & MSSVS.	"	"
1-BG-HV-3980	4402	Containment isolation in line to chemical waste tank	"	M-45
1-BJ-HV-4865	4102	Suppression chamber isolation valve in sensor line	"	M-55
4866	4102	"	"	"
1-GS-HV-5741A	4408	Controls flow from hydrogen bottles to H_2/O_2 analyzer	"	M-57
B	4404	"	"	"
1-BC-HV-5055A	4113	Containment isolation valve	"	M-58
B	4102	"	"	"
1-GS-HV-5057A	4113	"	"	"
B	4102	"	"	"
1-EG-HV-2446	4309	Open for backup water to SACS from SW if normal makeup wtr. supply is lost.	"	M-10
2447	4307	"	"	"
1-EC-HV-4647	4613	Open to provide emergency clg. makup wtr. to fuel pool from sw.	"	"
4648	4613	"	"	"
1-EG-HV-2453A	4413	Cross connect valves between SACS cooling loops to provide clg. water from either loop to both cont. inst. gas comp. coolers close on LOCA/LOP.	"	M-11
B	4412	"	"	"
		NOTE: Qualification of the actuator constitutes qualification of the internal limit switches.		
1-FD-HV-4922	4111	Motor operated valve closes automatically on HPCI initiation to isolate main condenser from HPCI condenser.	"	M-56-1

Prepared by T.P. Ganguly / I. Nug Date 10/10/85

Reviewed by A.W. [illegible] Date 10/19/85

140

EQUIPMENT EVALUATION SUMMARY SHEET

HOPE CREEK GENERATING STATION

ASCO SOLENOID VALVE

SHT. NO: P303A-SV-004
REV. NO: 2
DATE: 10/10/85

EQUIPMENT DESCRIPTION

(1) SYSTEM
See Attached Sheet

(2) TAG NO.
See Attached Sheet

(3) COMPONENT
Solenoid Valve

(4) MANUFACTURER
ASCO

(5) MODEL NO.
NP-8320A185V

(6) FUNCTION
See Attached Sheet

(7) ACCURACY
a) SPECIFIED NA
b) ACTUAL ____

(8) LOCATION
See Attached Sheet

(9) ABOVE FLOOD LEVEL
YES X NO ____

(10) SEISMICALLY TESTED
YES X REF. ____
NO ____

(11) SURVEILLANCE REQD.
YES X REF. B
NO ____ APP.C.

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	NOTE 1a and 1b	>2000 days	Ref.A Table #5 Pg.40&Ref.E	Ref. B Figure 4.1 Ref. G & K	Test & Analysis	NONE	>2000 days	30 day test extended by REF.C
TEMP. (°F)	NOTE 1a and 1b	345 (Max) NOTE 2		Ref. B Figure 4.1&B	Test		Adequate	Second transient DBE provides adequate margin.
PRESSURE (PSIA)	NOTE 1a and 1b	NOTE 2					6	
RELATIVE HUMIDITY (%)	100%	100 Steam & Spray		Ref. B Figure 4.1 Para.4.2.3&K			Not Required	
FLOODING/ FROTH	NA	NA	Ref. D	NA	NA		Not Required	
RADIATION (RADS)	NOTE 3	NOTE #4	NOTE #3	Ref. B 4.1.4&4.2.2 Ref.H	Test		1.54E8RG (EPDM) .58E7RG (Viton)	
AGING	40 years @150°F	40 years @104°F	Ref. A Pg. 18	Ref. B Para.4.1.1 & App. C	Test & Analysis		Not Required	Maintenance Replacement Required as per Ref.B, App.C.
SPRAY	Yes	Chemical Spray 24 hr	Ref.A Pg.19,21	Ref.B	Test		Not Required	

DOCUMENTATION REFERENCE:

A. Enviro. Design Criteria 10855-D7.5, Rev. 2

B. ASCO Qualification Report AQR-67368, Rev.o, 3/82 (J601-126-1)

C. Arrehnius Calculation EQPM #364,

D. Design Spec. 10855-P-303A(Q)Rev.6

E. Bechtel memo 6/10/85-Confirming 100 days duration in Table 5.

F. Design Spec. P303A A(Q)Rev.6, (4/81).

G. App.-1, Pg.1-3, Bechtel telcon dt. 4/24/85.

H. Bechtel Qualification Report. (Beta)

K. Miller Report #TR-ST-200 P [illegible]

NOTES

1. a.

TIME	TEMP. °F	PSIG
0-20sec.	340	0-62
20-5min.	340	0-62
5min-3hr	340	0-40
3hr-6hr	320	0-40
6hr-24hr	250	0-25
1da-4days	200	0-25
4da-100days	200	0-10

2.

TIME	TEMP. °F	PSIG
0-9hr	345	38
9-12hr	328	30
12hr-48	310	68
2-6days	280	36
6-29 days	265	24

b. P303A covers a large number of ASCO Solenoid valves in various locations. The worst env. conditions to which the valves will be exposed have been considered under "Specified" Column.

3. 5.1E7 RG for inside drywell (Rm.#4220), Ref.F

   1.42E7 RG for Room #4102, Worst cond. outside drywell for Values in attached sheet, Ref. G.

   2.5E7 RAD TID Gamma Plus Neutron, Ref.A, ¶VI, B.1.1 Pg.19

4. 2E7 RG with Viton Gasket

   2.05 E8RG with EPDM Gasket.

Qualified Radiation Dose with EPDM Gasket encompasses.
Specified Gamma Plus Neutron, TID.

140

ATTACHMENT TO EESS NO. P303A-SV-004

SHEET 1 OF 2

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BC-SV-F122A	4220	Solenoid valve, functions to test RHR check valve. Control switch in control room	2b	M-51-1
1-BC-SV-F122B				
1-BC-SV-F146A				
BC-SV-F146B				
1-BC-SV-F146C				
1-BC-SV-F146D				
1-BE-SV-F A		Solenoid valve operates assocaited equalizaing valve to test core spray header check valve	2b	M-52-1
1-BE-SV-F039B				
1-EG-SV-2293A	4110	Solenoid valve. Supplies cooling water to RCIC pump pump room unit coolers	2a	M-11-1
1-EG-SV-2293B	4110		2a	
1-EG-SV-2520A	4113	Solenoid valve. Operates valve that supples cooling water to pump seals and motor bearings	2a	M-11-1
1-EG_SV-2520B	4109			
1-EG-SV-2520C	4114			
1-EG-SV-2520D	4107			
1-FC-SV-F004	4110	Solenoid valve. Condensate pump discharge isolation valve.	2a	M-50-1

ATTACHMENT TO EESS NO. P303A-SV-004

SHEET 2 OF 2

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-FC-SV-F025	4110	Solenoid valve RCIC steam line drain isolation valve. Normally open valve, control switch in control room	2a	M-49-1
1-FC-SV-F026	4110	" " " " " " "	2a	↓
1-FD-SV-F026	4111	Solenoid valve, provides signal to close pneumatic isolation valve when HPIC steam supply valve opens.	2a	M-56-1
1-FD-SV-F028	4111	Solenoid valve, operates isolation valve in line from steam line drain pot to main condenser	2a	M-55-1
1-FD-SV-F029	4111	" " " " " " " "	2a	↓
1-KL-SV-5154	4102	Isolation valve, closes on high radiation or LVL2 isolation signal	2a	M-59-1
1-KL-SV-5155	4102	↓	↓	↓
1-KL-SV-5156A	4331	↓	↓	↓
1-KL-SV-5156B	4331	↓	↓	↓
1-KL-SV-6057	4102	Isolation valve, closes on high radiation or LVL2 isolation signal	2a	M-72-1
1-KP-SV-6055A	4102	↓	↓	↓
1-KP-SV-6055B	4102	↓	↓	↓
1-SE-SV-5161	4102	↓	2a	M-59-1

Prepared by M. Ganguly / I. Nag Date 10/10/85

Reviewed by A.W. [illegible] Date 10/19/85

141

EQUIPMENT EVALUATION SUMMARY SHEET

HOPE CREEK GENERATING STATION

NAMCO LIMIT SWITCH

SHT. NO: P303A-ZS-005
REV. NO: 2
DATE: 10/10/85

EQUIPMENT DESCRIPTION

(1) SYSTEM
SEE SHEET ATTACHED

(2) TAG NO.
SEE SHEET ATTACHED

(3) COMPONENT
LIMIT SWITCH

(4) MANUFACTURER
NAMCO

(5) MODEL NO.
EA180-31302

(6) FUNCTION
SEE SHEET ATTACHED

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
SEE SHEET ATTACHED

(9) ABOVE FLOOD LEVEL
YES X NO ___
(NOT SPECIFIED)

(10) SEISMICALLY TESTED
YES X REF. B
NO ___

(11) SURVEILLANCE REQD.
YES X REF. B
NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days @200°F	134 Days	Ref.A Appendix 1 ¶1.6.3	Ref.B Fig.13 P.7-8 Ref.C	Test and Analysis	None	34 days	30 days DBE test extended by Ref. C.
TEMP. (°F)	340-3 hrs Note #2	340-5 3/4hr Note #3	↓	Ref.B Fig.13 P.7-8	Test	None	None	2nd transient during DBE provides accept. margin.
PRESSURE (PSIG)	62-5 min Note #2	80-5 3/4hr Note #3	↓	↓	Test	None	18	
RELATIVE HUMIDITY (%)	100%	100% (Water Spray)	↓	↓	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	5.1E7R G	2.04E8R G	Ref.A Appendix 1 ¶1.6.3	Ref.B Pg4-4,10-15 Ref. D	Test	None	1.53E8R G	Note #4
AGING	40 years 150°F	5 yrs 131°F 4 yrs 104°F	↓	Ref.B Pg. 4-7,EQ-12 Note #1	Test and Analysis	None	Not req'd	Periodic Maint. Req'd. Maint. instructions EA189-90050 & 90051 of Ref.B provides maint. schedule.
SPRAY	YES	Chemical and Water Spray	Ref. E Pg. 19,21	Ref.B Fig.13 Pg.7-8	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Design Specification 10855-P-303(Q), Rev.6 (4/81)

B. NAMCO Qualification Report QTR 105, Rev.4, Dtd. 1/84 10855-P301(Q) 228-2 & 196-7)

C. Arrnenius calculation to extend DBE test time to 100 days, EQPM #421 (Part 4 of 4) 6/1/82.

D. Bechtel Beta Radiation Qualification Report.

E. Environmental Design Criteria 10855-P-[illegible] (10/84)

NOTES

1. Qualified Life is 5 yrs 131°F for switches using silicone cover gaskets Ref.B Figure 8 and EA189-90051. These are switch revision letters H and later. Earlier revisions use NBR cover gaskets (Accobest) and are qualified for 4 yrs 104°F (Ref.B, EQ-11,12).
2. The specified data shown is conservative. For actual specified temperature and pressure profile, see Ref. A, Appendix 1, ¶1.6.3.
3. The qualified data shown is conservative. For actual qualified temperature and pressure profile, see Ref. B, Fig. 13, Pg. 7-8.
4. Qualified radiation dose encompasses specified gamma plus Neutron TID 2.5E7 Rads, Ref. E, ¶VI B.1b., Pg. 19.

ATTACHMENT TO EESS NO. P303A-ZS-005 Sh.1 of 2

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-EG-ZS-2520A,B, C,D	Rms.4113,4109 4114,4107	Limit Switch, Operates open/close valve status lights for RHR pump seal and motor bearing cooling water supply valve.	Additional info to operator and supplied from IE bus.	M-11-1
1-FC-ZS-F025	4110	Limit Switch, Operates open/close valve status lights for inboard steam line drain valve.	"	M-49
1-FC-ZS-F026	4110	G.E. Schematic 791E421AC, Sht. 14	"	"
1-FC-ZS-F004	4110	Limit Switch, Operates open/close valve status lights for steam line drain valve.		M-50
1-FD-ZS-F028	4111	G.E. Schematic 791E420AC, Sht. 12	"	M-55-1
1-FD-ZS-F029	4111	"	"	"
1-FD-ZS-F026	4111	"	"	M-59-1
1-KL-ZS-5156A,B	4331,4331	Limit Switch. Operates open/close valve status lights for instrument gas isolation valves.	"	"
1-KP-ZS-6055A,B	4102,4102	Limit Switch. Operates open/close valve status lights for main steam seal gas test bypass line isolation valve.	"	M-72-1
1-KP-ZS-6057	4102	Limit Switch. Operates open/close valve status lights for Main steam seal gas leak test isolation valve.	"	"
1-EG-ZS-2293A,B	4110,4110	Limit Switch. Operates open/close valve status lights for SACS cooling water valve.	"	M-11-1
1-BE-ZS-F039A	4220	Operates open/close valve status lights in control room for equalizing valve. R.G.1.97 parameter	2a	M-52-1
1-BE-ZS-F039B	4220	"	"	"
1-KL-ZS-5154	4102	Limit switch, operates valve status open/closed indication. R.G.1.97 parameter.	"	M-59-1
1-KL-ZS-5155	4102	"	"	"
1-SE-ZS-5161	4102	"	"	"

ATTACHMENT TO EESS NO. P303A-ZS-005 Sh.2 of 2

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BC-ZS-F122A	4220	Operates open/close valve status indication in control room for solenoid valve which functions to operate RHR check valve R.G.1.97 parameter.	2a	M-51-1
1-BC-ZS-F122B	4220	"	"	"
1-BC-ZS-F146A	4220	"	"	"
1-BC-ZS-F146B	4220	"	"	"
1-BC-ZS-F146C	4220	"	"	"
1-BC-ZS-F146D	4220	"	"	"

Prepared by [illegible] / I. Nag Date 10/10/[illegible]

Reviewed by [illegible] Date 10/20/85

143

EQUIPMENT EVALUATION SUMMARY SHEET
CONAX CONDUCTOR SEAL

HOPE CREEK GENERATING STATION

SHT. NO: P305-SEAL-001
REV. NO: 2
DATE: 8/13/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT		DOCUMENTATION REFERENCE		QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
		SPECIFIED	QUALIFIED	SPECIFIED	QUALIFIED				
(1) SYSTEM (GS) CONT. ATMOS. CONTROL (2) TAG NO. SEE SHEET ATTACHED (3) COMPONENT CONDUCTOR SEAL ASSEMBLY (4) MANUFACTURER CONAX (5) MODEL NO. ECSA (6) FUNCTION SEE SHEET ATTACHED (7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A (8) LOCATION SEE SHEET ATTACHED (9) ABOVE FLOOD LEVEL YES X NO ___ (10) SEISMICALLY TESTED YES X REF. B1 NO ___ (11) SURVEILLANCE REQD. YES ___ REF. B2 NO X M-57-1	OPERATING TIME	100 days	>2141 day	Ref.A Appendix 1 ¶1.6	Ref.B1 Figure 6.9.3 Ref. B3	Test and Analysis	None	>2041 days	17 day DBE test extended by Ref.B3
	TEMP. (°F)	340 (Max)-2 hrs Note #1	355 (Max)-3 hrs Note #2	↓	↓	Test	None	15°F	
	PRESSURE (PSIG)	20 (Peak) Note #1	72 Psig Peak Note #2	↓	↓	Test	None	52 psig	
	RELATIVE HUMIDITY (%)	100%-6hrs 90%-100days	100%	↓	↓	Test	None	Not req'd	
	FLOODING/ FROTH	N/A	Submergence 2406 hrs.	N/A	Ref. B1 Addendum A	Test	None	Not req'd	
	RADIATION (RADS)	2E7R G	2.2E8R G	Ref. A1 Table 6	Ref.B1 App. B Pg B-3 Ref C	Test	None	2E8R G	
	AGING	40 yrs @ 91°F	40 yrs @ 250°F	Ref.A Appendix 1	Ref.B2 Conax letter 5/31/84	Test and Analysis	None	Not req'd	Periodic maintenance not required.
	SPRAY	Moisture Protection of limt sw	Chemical Spray PH 10.8	Ref.A2 Note #A	Ref. B1 Fig.. 6.9.3	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Design Specification 10855-P305(Q), Rev.4

A1. DITS 7.5, Rev.2 (10/84)

A2. M/R 10855-P305(Q), Rev.16 (11/84)

B. CONAX QUALIFICATION REPORTS:
1. IPS-1079 Rev. A, Dtd 1/84 (10855-P51216(Q)-1-IP)
2. IPS-325, Rev. D, Dtd 5/81 (10855-P51216(Q)-3-IP) including CONAX forwarding letter of 5/31/84
3. IPS-409.1 Dtd 2/82 (10855-P301(Q)-539(2)-1) Figure 4.5.1 and ¶4.5.3

C. BECHTEL BETA QUALIFICATION REPORT CCN #0264399, dated 5/15/84

NOTES

1. For specified temperature and pressure profile, see Ref. A, App. 1, ¶1.6.
2. For qualified temperature and pressure profile see Ref. B1, Fig. 6.9.3 and Ref. B3, Fig. 4.5.1.

ATTACHMENT TO EESS NO. P305-SEAL-001

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GS-HV-5029	RB.54' Rm.#4102	Seal Limit Switch Providing Open/Close Status (RG 197)	2a	M-57-1, M/R Item #1.1
1-GS-HV-5031	RB.54' Rm.#4102	"	2a	M-57-1, M/R Item #1.1
1-GS-HV-4964	RB.54' Rm.#4102	"	2a	M-57-1, M/R Item #1.1
1-GS-HV-4958	RB.54' Rm.#4102	"	2a	M-57-1, M/R Item #1.1
1-GS-HV-4962	RB.54' Rm.#4102	"	2a	M-57-1, M/R Item #1.1
1-GS-HV-4980	RB.54' Rm.#4102	"	2a	M-57-1, M/R Item #1.1
1-GS-HV-4956	RB.102' Rm.#4321	"	2a	M-57-1, M/R Item #1.3
1-GS-HV-4979	RB.102' Rm.#4321	"	2a	M-57-1, M/R Item #1.3

NOTE: Sepcial connectors (CONAX) used to seal moisture from associated valve limit switches.

Prepared by N.K. Ganguly / I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/20/85

144

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
LIMITORQUE A.C. MOTOR OPERATOR

SHT. NO: P305-HV-002
REV. NO: 2
DATE: 10/10/85

(1) SYSTEM VARIOUS

(2) TAG NO. SEE ATTACHED SHEETS

(3) COMPONENT AC MOTOR OPERATOR

(4) MANUFACTURER LIMITORQUE

(5) MODEL NO. (VARIOUS) SMB-SERIES

(6) FUNCTION SEE ATTACHED SHEETS

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION SEE ATTACHED LIST

(9) ABOVE FLOOD LEVEL YES X NO ___

(10) SEISMICALLY TESTED YES X REF. B NO ___

(11) SURVEILLANCE REQD. YES X REF. B NO ___ SMB 82B

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	130 days	A, App.1 Pg.4	E B-Pgs.3-6,3-7 4-1	Test & Analysis	None	30 days	30 days DBE test extended by analysis, Ref.E.
TEMP. (°F)	See Note #1	See Note #2		B-Pgs.3-5, 4-1,3-3,D	Test	"	Adequate	Second DBE transient provides accept margin. Also see Ref.B, Sec.3.3, Pg.E.Q.-32, Ref.C&D.
PRESSURE (PSIG)	See Note #1	See Note #2		B-Pgs.3-5 4-1,3-3	"	"	43 psig (Peak)	
RELATIVE HUMIDITY (%)	100%	100%		B-Pg.3-3	"	"	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	"	"	
RADIATION (RADS)	5.1×10^7 RG	2.04×10^8 RG	A, App.1 Pg.4	B, App.D Pg.EQ-110 & 111,F	Test	"	1.5×10^8 RG	Note #3
AGING	40 yrs @ 150°F	40 yrs @ 150°F		B,Pg.3 and Addendum A, Pg.5, E	Test & Analysis 10°C Rule	"	Not req'd	Periodic maintenance req'd per maintenance manual
SPRAY	N/A	Demineralized Water	N/A	B,9.3.3 Pg.5	Test	"	"	

DOCUMENTATION REFERENCE:

A. Tech. Spec. P305(Q), Rev.5

B. Limitorque Report 600376A, Rev.B (P301 & P302(Q)-133-6)

C. Limit. Rpt.#B0119, 7/82 #B0058, 1/11/80. PS-300/P301(Q)-133(4)-1 P301(Q)-133(2)-1

D. Limit. Rpt.#B0027, Rev.A 19/18/78 (Sec.4.0 Pg.6)

E. Limitor-ARRH-001, Rev.1, dt. 8/12/85

F. Bechtel Beta Rad. Qualif. Report. CCN#0264399 dt.5/15/84

G. DITS 10855-D7.5-Rev.2

NOTES #1

TIME	TEMP °F	PRESS. PSIG
0-20 sec	340	0-62
20s-5 min	340	62
5m-3 hr	340	40
3h-6 hr	320	40
6h-24 hr	250	25
1da-4 days	200	25
4da-100 days	200	10

#2

0-6 hrs	340	105
6-9 hrs	320	77
9h-99 hrs	250	15

3. Qualified Rad. Dose encompass total integrated gamma plus neutron doses (2.5×10^7 R. See Ref.G, ¶VI B.1.b, Pg 1

ATTACHMENT TO EESS NO. P305-HV-002 Sh.1 of 2

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-EA-HV-2357A	4211	SACS heat exch disch valve to cooling tower	2a	M-10
B	4209	"	"	"
1-EA-HV-2356A	4309	SACS heat exch disch valve to yard	"	"
B	4307	"	"	"
1-ED-HV-2598	4101	RAC reactor bldg. isol. valve. Closes on LOCA and LOP	"	M-13
2599	4101	"	"	"
1-EA-HV-2355A	4309	SACS heat exch cooling water outlet valve. Automatically opens opens following assoc pump start & closes upon receipt of a pump stop signal.	"	M-10
B	4307	"	"	"
1-EA-HV-2371A	4309	"	"	"
B	4307	"	"	"
1-EA-HV-F073	4209	Isolation valve between service water sys and SACS	2b	"
1-EA-HV-2207	4309	Isolation valve between RACS and service water sys.	"	"
2346	4211	"	2a	"
1-EA-HV-2203	4309	"	"	"
2204	4307	"	"	"
1-GH-HV-5543	4102	Liquid and solid radwaste isolation valve	"	M-66
1-EA-HV-2238	4209	Isolation valve between service water sys. and SACS	2b	M-10
1-EA-HV-2236	4211	"	"	"
2234	4211	"	"	"
1-EG-HV-2317A	4608	Cross connect between SACS loop to provide cly. wtr. from either loop to both fuel pool HX's. Close on LOCA/LOP	2a	M-11
B	4608	"	"	"
1-EG-HV-2419A	4309	SACS heat exchanger inlet isolation valve	"	"
B	4307	"	"	"
1-EG-HV-2494A	4309	"	"	"
B	4307	"	"	"
1-EG-HV-2512A	4214	RHR heat exchanger cooling water outlet valve	"	"
B	4208	"	"	"
1-EG-HV-2314A	4608	Isolation valve to fuel pool heat exch.	"	"
B	4608	"	"	"
1-EG-HV-7921A	4608	"	"	"
B	4608	"	"	"

ATTACHMENT TO EESS NO. P305-HV-002 Sh.2 of 2

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-EG-HV-2496A	4309	SACS return line to heat exchanger. Automatically transfers return line to SACS loop in operation based on flow signal, or isolates both on LOCA or LOP	2a	M-11
B	4307	"	"	"
C	4309	"	"	"
D	4307	"	"	"
1-EG-HV-7922A	4608	Control valve cross connects between SACS loops to provide cooling water from either loop to both fuel pod head exchangers.	"	M-11-1
1-EG-HV-7922B	4608	"	"	"

NOTE: Qualification of the actuator constitutes qualification of the internal limit switches.

Prepared by R.P. Ganguly / I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/20/85

145

EQUIPMENT EVALUATION SUMMARY SHEET
ASCO SOLENOID VALVES

NINE MILE CREEK GENERATING STATION

SHT. NO: P305-SV-003
REV. NO: 2
DATE: 10/10/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM SEE ATTACHED SHEET (2) TAG NO. SEE ATTACHED SHEET (3) COMPONENT SOLENOID VALVE (4) MANUFACTURER ASCO (5) MODEL NO. (NPX 8316A74V) (6) FUNCTION SEE ATTACHED SHEET (7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A (8) LOCATION SEE ATTACHED SHEET (9) ABOVE FLOOD LEVEL YES X NO ___ (10) SEISMICALLY TESTED YES X REF. B NO ___ (11) SURVEILLANCE REQD. YES X REF. B NO ___ APP. C	OPERATING TIME	100 days	>2000 days	Ref.A Pg.42,81	Ref.B,Fig4.1 Ref.C	Test and Analysis	None	>2000 days	Room #4102-30 days DBE Test extended by analysis Ref.C
	TEMP. (°F)	Note #2	345°F-3hrs 265°F-30days	Ref.A,Pg.42	Ref.B Fig.4.1	Test		43	Room #4102 Note #1
	PRESSURE (PSI)	1.1-30 min then 0	30psig-5days 24psig-30days	"	"	"		28.9	"
	RELATIVE HUMIDITY (%)	100-6 hrs then 95	100 Steam & Spray	"	Ref B Fig.4.1 §4.2.3	"		Not req'd	Rm #4102
	FLOODING/ FROTH	Not req'd	N/A	N/A	N/A	N/A		Not req'd	
	RADIATION (RADS)	1.42E7 RG 1.1E6 RB	2E7 RG	Ref.D	Ref.B §1.4 & 4.2.2 App.D, Ref.D	Test		0.58E7 RG	Rm #4102 Note #3
	AGING	40 yrs @ 94°F	40 yrs @ 104°F	Ref.A Pg.44	Ref.B & App.C	Test and Analysis		Not req'd	Rm #4307 & 4309 Periodic main. Ref.B, App.C. Report provides maint. guidelines
	SPRAY	N/A	N/A	N/A	N/A	N/A		Not req'd	

DOCUMENTATION REFERENCE:

A. Enviro. Design Criteria 10855-D7.5, Rev.2

B. ASCO Qual. Report AQR-67368, Rev.0 3/82 (See J601(Q)-126-1)

C. Arrhenius calculation EQPM#364

D. Bechtel Telecon dated 4/24/85

NOTES

1. The qualified data shown are conservative. For actual qualified temp. and pressure profile see Ref.B, Fig. 4.1.
2. 302°F for 30 min or 175°F for 9 days then 148°F thereafter.
3. For specified G and B Radiation Dose and Beta Radiation Qualification, see Ref.D.
4. P.O. P305 covers a large number of ASCO solenoid valves indifferent locations as shown in attached sheet. The worst condition to which the valve will be exposed is shown in "Specified" Column.

145

ATTACHMENT TO EESS NO. P305-SV-003

ASCO SOLENOID VALVES

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
GS-SV-5029	4102	Reactor Bldg. to Torus vacuum relief valve	2a	M-57
5031	4102	"	2a	"
4964	4102	Control isolation valve	2a	"
4958	4102	"	2a	"
4962	4102	"	2a	"
4980	4102	"	2a	"
4952	4411	"	2a	"
4956	4321	"	2a	"
4978	4320	"	2a	"
4979	4321	"	2a	"
4950	4411	"	2a	"
I-EG-SV-2457A	4309	Operates heat exchanger bypass valve	2a	"
B	4307	"	2b	M-11
			2b	"

Prepared by P.K. Ganguly/T. Nag Date 10/10/85

Reviewed by A.W. [illegible] Date 10/20/85

146

EQUIPMENT EVALUATION SUMMARY SHEET
NAMCO LIMIT SWITCH

HOPE CREEK GENERATING STATION

SHT. NO: P305-ZS-00 5
REV. NO: 2
DATE: 8/14/85

(1) SYSTEM CONTAINMENT ATMOSPHERIC CONTROL
(2) TAG NO.
SEE SHEET ATTACH.
(3) COMPONENT
LIMIT SWITCH
(4) MANUFACTURER
NAMCO
(5) MODEL NO.
EA-740-50100
(6) FUNCTION
SEE SHEET ATTACH.
(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A
(8) LOCATION
SEE SHEET ATTACH.
(9) ABOVE FLOOD LEVEL
YES X NO ___
(10) SEISMICALLY TESTED
YES X REF. B
NO ___ (Pg.10-102)
(11) SURVEILLANCE REQD.
YES X REF. B
NO ___
M-57-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS (Note #5)
OPERATING TIME	100 days	153 days	Ref.A Pg.42,81	Ref.B,10-35 Thru 44, Ref.C	Test and Analysis	None	53 days	33 day Test extended by analysis. Ref.C.
TEMP. (°F)	See Note #3	340°F-3hr 200°F-33day	Ref.A Pg.42	Ref.B,Pg. 10-35 to 44	Test	None	38°F	Room #4102 Note #4
PRESSURE (PSIG)	1.1-30 min then ATM	180psig-3hr 10psig-33day	Ref.A Pg.42,81	"	Test	None	10psig	Room #4102 Note #4
RELATIVE HUMIDITY (%)	100-6hrs then 95	100 (spray)	"	"	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	1.42E7 RG 1.1E6 RB	2.04E8R G Note #2	Ref.D	Ref.B Appendix B Pg.10-73,74	Test	None	1.85E8 RG	Room 4102 Note #2
AGING	40 years 94°F	5 yrs 131°F 4 yrs 104°F	Ref.A Pg.44 (Rm.#4320)	Ref.B Figure 11 & Pg.4-18 Note #1	Test and Analysis	None	Not req'd	Periodic Maint. Req'd NAMCO instructions EA749-20010 and-20011 (Ref.B)
SPRAY	N/A	Caustic & Water Spray	N/A	Ref.B ¶4.6	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Environ Design Criteria 10855-D7.5, Rev.2 (10/84)

B. NAMCO Qualification Report QTR III, Rev.0 (10/81) [P305(Q)-234-4 & M728(Q)-60(1)-1]

C. Arrhenius calculation used to extend DBE test time, EQPM 199 (part 5 of 5) Dtd.3/16/82

D. Bechtel Telecon dated 4/24/85

NOTES

1. Qualified Life:
   . Switches with silicone gasket 5 yrs @131°F
   . Switches with NBR gasket 4 yrs @104°F
2. The Qualified Radiation dose encompasses specified G & B doses.
3. 302°F for 30 min. or 175°F for 9 days then 148°F thereafter.
4. The qualified values shown are conservative. For actual test profile see Ref.B, Pg.10-35 thru 10-44
5. P.O.305 covers a large number of NAMCO Limit Switches in different locations as shown in attached sheet. The worst condition to which the valve will be exposed is shown in "Specified" column.

146

ATTACHMENT TO EESS NO. P305-ZS-005

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GS-ZS-4950	REACTOR BUILDING Rm.#4411	Operates valve status open/closed indication R.G. 1.97 parameter	2a	P&ID M-57-1, M/R Item 1.1
4952	4411	"	"	"
4956	4321	"	"	"
4958	4102	"	"	"
4962	4102	"	"	"
4964	4102	"	"	"
4978	4320	"	"	"
4979	4321	"	"	"
4980	4102	"	"	M-57-1, M/R Item 1.3
5029	4102	"	"	M-57-1. M/R Item 1.1
5031	4102	"	"	"
1-EA-ZS-2350A,B	A4309,B4307	Operate out of service alarm when SACS Hx inlet valve is closed.	Additional info to operator and supplied from 1E bus.	
		"		
1-EA-ZS-2363A,B	A4309,B4307	"	"	
1-EG-ZS-2457A,B	A4309,B4307	Operate open/closed valve status indication for SAC heat exchanger bypass valve.	"	

Prepared by [illegible] / I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/19/85

147

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET

BIF/PAUL MONROE HYDRAULIC ACTUATOR ASSEMBLY

SHT. NO: P305-HV-004
REV. NO: 2
DATE: 10/10/85

(1) SYSTEM EG SAFETY & TURBINE AUX. COOLING

(2) TAG NO. EG-HV-2522A,B,C,D

(3) COMPONENT HYDRAULIC ACTUATOR ASSEMBLY

(4) MANUFACTURER BIF/PAUL-MONROE

(5) MODEL NO. VOQ6250H (TESTED: GENERIC ACTUATOR MODEL NO. VOQ4500)

(6) FUNCTION SEE ATTACHED SHEET

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION RB: EL.102 Rm.4309

(9) ABOVE FLOOD LEVEL YES X NO ___

(10) SEISMICALLY TESTED YES X REF. B NO ___

(11) SURVEILLANCE REQD. YES X REF. B DWG.NO. PA26714 NO ___

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	100 days	Ref.A Appendix-1 Pg.3	Ref.B, Pg.29-1	Test and Analysis	None	Adequate	30days' DBE Test extended by analysis, Ref.B, Pg.29-1. Note #4
TEMP. (°F)	340 (Max) Note #1	365 (Max) Note #2	"	Ref.B, Pg.31 Wyle RptPg. 64-65	Test	"	Adequate Note #2	
PRESSURE (PSIG)	20 (Max) Note #1	66 (Max) Note #2	"	"	"	"	"	
RELATIVE HUMIDITY (%)	100 Note #1	100 (steam & spray)	"	Ref.B Pg.29-2	"	"	Not req'd	
FLOODING/ FROSH	N/A	N/A	N/A	N/A	N/A	"	"	
RADIATION (RADS)	1.0E7 RG 1.1E6 RB	Total 192E6 RG Note #3	Ref.A App.1, Pg.3 Ref.C,Pg.81	Ref.B Pg.23	Test	"	18.2E7 RG	
AGING	40 yrs @ 94°F 2000 cycles min.	40 yrs, 10yrs & 5 yrs @ 135°F 5122 cycles	Ref.C,Pg.44 Ref.A App.1 Pg.3	Ref.B Drw.PA18959 Pgs.2,3 of5	Test & Analysis incl. Arrhenius calculations	"	Not req'd	Periodic maintenance and replacement req'd. See Ref.B, Dwg.No.PA26714
SPRAY	N/A	Chem spray	N/A	Ref.B Pg.29-2	Test	"	"	

DOCUMENTATION REFERENCE:

A. Tech. Spec. P305(Q), Rev.5/1-25-80

B. Valve operator qual. progr.-Qualification Report (PA86597). Basic in flow co: valve operator PF86010/1-29-81 10855-P305(Q)-286-5 (includes Wyle Rpt.#58388)

C. DITS 10855-D7.5, Rev.2

NOTES

1.

Time	Temp (°F)	Press.(psig)	Humidity (%)
0-1 hr.	340	20	100
1-2 hr.	340-212 (Linear)	0.3	100
2-6 hr.	212	0.3	100
6-100 days	150	0.3	90

2. For Qualified Temperature and Pressure Profile and also for margin see Ref. B, Pg.31.

3. Qualified Radiation Level encompasses specified G and B Radiation Doses.

4 Adequate margin is provided in Temperature and Pressure.

ATTACHMENT TO EESS NO. P305-HV-004

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-EG-HV-2522A 2522B 2522C 2522D	Rm. 4309 Rm. 4307 Rm. 4309 Rm. 4307	Converts electrical signal to pneumatic signal for control of valve selecting which SACC supplies cooling water to turbine auxiliaries cooling systems. Also receives isolation signal on LOCA and LP. NOTE: Qualification of the actuator constitutes qualification of the internal limit switches.	2a	M-11-1

Prepared by A.K. Ganguly/I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/20/85

150

SHT. NO: M001-LS-023
REV. NO: 1
DATE: 8/14/85

EQUIPMENT EVALUATION SUMMARY SHEET

MAGNETROL LEVEL SWITCH

HOPE CREEK GENERATING STATION BOOK C11

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM HPCI (FD) RCIC (FL)	OPERATING TIME	12 hrs	218.5 hrs	Ref.A,Att. 3, Pg.24, 26 & 28	Ref.A,Att.8 Pg.262-264	Test	None	206.5 hrs	
(2) TAG NO. SEE ATTACHED SHEET	TEMP. (°F)	147°F	281°F	Ref.A,Att. 4,Pg.60,69 122	Ref.A,Att.8 Pg.263,262	Test	None	133	
(3) COMPONENT LEVEL SWITCH	PRESSURE (PSIG)	2.9 psig	18 psig	Ref.A,Att. 4,Pg.60 & 69	Ref.A,Att.8 Pg.263,262	Test	None	15.1	
(4) MANUFACTURER MAGNATROL INTERNATIONAL	RELATIVE HUMIDITY (%)	100%	100%	Ref.A Attach.4 Pg.60&69	Ref.A Attach.8 Pg.262-264	Test	None	Not req'd	
(5) MODEL NO. C-751 (GE 184C776P003)	FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	Not req'd to operate after flood
(6) FUNCTION SEE ATTACHED SHEET	RADIATION (RADS)	2.3E5 RG 1.1E6 RB	2.2E8 RG	Ref.A,Att. 4,Pg.60& 69	Ref.A,Att.8 Pg.265-268, 137	Test	None	2.2E8 RG	Note #1
(7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A	AGING	40 yrs ambient @72°F	Seals & Wire 6.5yrs @ ambient 72 process 560°F	Ref.A,Prod Eval sec.Pg.6	Ref.A,Att.9	Test and Analysis	None	Not req'd	Other components in level switch >40 yrs
(8) LOCATION SEE ATTACHED SHEET	SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

(9) ABOVE FLOOD LEVEL YES X NO ___

(10) SEISMICALLY TESTED YES X REF. A NO ___

**1) SURVEILLANCE REQD. YES X REF. A NO ___ Pg. 18

DOCUMENTATION REFERENCE:

A. GE Co (NSSS) Environmental Qualification Report MFOC 30433 (Book C11). Rev.1, dtd. 6/85.

NOTES

1. Qualified Radiation Dose encompasses Specified Gamma and Beta Dose.

150

ATTACHMENT TO EESS NO. M001-LS-023

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-FC-LSH-N014 (E41)	Reactor 54' Rm#4111	Controls the condensate level in the HPIC steam supply line drain pot.	2a	M-55-1
1-FC-LSH-N010 (E51)	Reactor 54' Rm#4110	Controls the condensate level in the RCIC steam supply line drain pot.	"	M-49-1

Prepared by M. Langely / I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/22/85

151

EQUIPMENT EVALUATION SUMMARY SHEET

MAGNETROL LEVEL SWITCHES

HOPE CREEK GENERATING STATION (BOOK C11)

SHT. NO: M001-LS-024
REV. NO: 1
DATE: 10/10/85

EQUIPMENT DESCRIPTION

(1) SYSTEM CRD HYDRAULIC (BF)

(2) TAG NO.
SEE ATTACHED SHEETS

(3) COMPONENT
LEVEL SWITCH

(4) MANUFACTURER
MAGNETROL INTERNATIONAL

(5) MODEL NO. C-751 (GE-184C4776 P002)

(6) FUNCTION
SEE ATTACHED SHEET

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
SEE ATTACHED SHEETS

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. A
NO ___

11) SURVEILLANCE REQD.
YES X REF. A
NO ___ Pg. 18

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	12 hrs	218.5 hrs	Ref.A,Att. 3, Pg.28	Ref.A,Att.8 Pg. 262-264	Test	None	206.5 hrs	
TEMP. (°F)	148°F	281°F	Ref.A,Att. 4,Pg.48&57	Ref.A,Att.8 Pg.263 ,262	Test	None	133°F	
PRESSURE (PSIA)	0	18 psig	Ref.A,Att. 4,Pg.48&57	Ref.A,Att.8 Pg.263 ,262	Test	None	18 psig	
RELATIVE HUMIDITY (%)	100%	100%	Ref.A,Att 4,Pg.48&57	Ref.A,Att.8 Pg.262-264	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	4E6 RG 1.1E6 RB	2.2E8 RG	Ref.A,Att. 4,Pg.48&57	Ref.A,Att.8 Pg.265-268 & 137	Test	None	2.1E8 RG	Note #2
AGING	40 yrs @82°F	40 yrs @82°F and 280°F process	Ref.A P.8	Ref.A Att.9 & Pg. 272	Test and Analysis	None	Not req'd	Note #1
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. GE Co (NSSS) Environmental Qualification Report, NEDC 30433, (Book C11). Rev.1 Dated 6/1985.

NOTES

1. Switch mechanism and housing gaskets must be replaced at 18 months intervals.
2. Qualified Radiation Level encompasses Specified Gamma and Beta Doses.

ATTACHMENT TO EESS NO. M001-LS-024

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BF-LS-N013A	RB 102' Rm#4328	Measures scram discharge volume water level and initiates scram on high level	2b	M-47-1
1-BF-LS-N013B	Rm#4328	"	"	"
1-BF-LS-N013C	Rm#4320	"	"	"
1-BF-LS-N013D	Rm#4320	"	"	"
1-BF-LS-N013E	Rm#4320	"	"	"
1-BF-LS-N013F	Rm#4320	"	"	"

Prepared by P.K. Langely / I. Nag Date 10/10/85

Reviewed by [illegible] Date 10/20/85

153

EQUIPMENT EVALUATION SUMMARY SHEET

PRM CONNECTOR

HOPE CREEK GENERATING STATION C23A/C24A

SHT. NO: M001-CONN-026
REV. NO: 2
DATE: 8/13/85

EQUIPMENT DESCRIPTION

(1) SYSTEM NEUTRON MONITORING

(2) TAG NO.
NO TAG NUMBER
MPL B11-D194

COMPONENT
PRM (COAXIAL) CONNECTOR

(4) MANUFACTURER
AMPHENOL

(5) MODEL NO.
CATALOG #901-199

(6) FUNCTION
NOTE #1

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A (Pg.105)

(8) LOCATION REACTOR VESSEL AREA EL.120'

(9) ABOVE FLOOD LEVEL
YES X NO ___

(10) SEISMICALLY TESTED
YES X REF. A
NO ___ (Pg.67A)

11) SURVEILLANCE REQD.
YES X REF. A
NO ___ (Pg.14)

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	12 hours	42 hours	Ref.A Pg.73	Ref.A Pgs.129 and 157	Test and Analysis	None	Adequate	Margin demonstrated by Analysis,(Ref.A, Pg.13 and App.F)
TEMP. (°F)	340°F(Max)	340°F(Max)	Ref.A Pg.116	Ref.A Pgs.13 & 129	Test	None	Adequate	Margin demonstrated by Analysis (Ref.A, Pg.13 & App.F)
PRESSURE (PSIG)	62 psig (Max)	56 psig (Max)	"	Ref.A Pgs.13 & 54	Test and Analysis	None	Not Req'd	This is not a pressure sensitive device.
RELATIVE HUMIDITY (%)	100% (Steam)	100%	Ref.A Pg.115	Ref.A Pg.128	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	3.14E7 RG 4.2E6 RN 1.6E9RB	2.9E7RG(Test) 6E8RG (Thres)	Ref.A Pgs.115 & 116	Ref.A Pgs.11,13&52 58 & 60	Test Analysis	None	5.7E8RG	Margin based on threshold limit for Rexolite. Beta negligible(Ref.A,Pg.11&12)
AGING	40 yrs @ 150°F Max	5 yrs @ 150°F	Ref.A Pg.87 and 114	Ref.A Pg.157	Test and Analysis	None	Not req'd	Periodic replacement @ 5 yr. intervals
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. GE NSSS Report NEDC-30437 (Book Number C23A/C24A) Rev. 1, Dated 5/30/85.

NOTES

1. Connector between PRM detector and cable. R.G. 1.97 Parameter. Category 2a.

Prepared by I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/21/85

153A

EQUIPMENT EVALUATION SUMMARY SHEET
IRM CONNECTOR

HOPE CREEK GENERATING STATION C23A/C24A

SHT. NO: M001-CONN-026
REV. NO: 2
DATE: 8/13/85

EQUIPMENT DESCRIPTION	PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED (NOTE #1)	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED (NOTE #1)	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
(1) SYSTEM NEUTRON MONITORING (2) TAG NO. NO TAG NUMBER (3) COMPONENT IRM (COAXIAL) CONNECTOR (4) MANUFACTURER AMPHENOL (5) MODEL NO. CATALOG #82-38 (6) FUNCTION Note #4 (7) ACCURACY a) SPECIFIED N/A b) ACTUAL N/A (Pg.86) (8) LOCATION INCORE/ DRYWELL, EL.121' (9) ABOVE FLOOD LEVEL YES X NO ___ (10) SEISMICALLY TESTED YES ___ REF. A NO X (Pg.97) (11) SURVEILLANCE REQD. YES X REF. A NO ___ (Pg.14)	OPERATING TIME	12 hours	24 hour LOCA Test	Ref.A Pg.80 & 87	Ref.A Pgs.139,140 and App.F	Test and Analysis	None	Adequate	Margin demonstrated by Appendix F, material analysis.
	TEMP. (°F)	Note #2	Note #3	Ref.A Pg.97	"	Test	None	7°F	"
	PRESSURE (PSIG)	Note #2	Note #3	"	"	Test	None	Not req'd	This is not a pressure sensitive device
	RELATIVE HUMIDITY (%)	100% Steam	100%	Ref.A Pg.96	"	Test	None	Not req'd	
	FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
	RADIATION (RADS)	3.14E7RG 4.2E6RN 1.6E9RB	2.54E8RG(Test) 6.E8RG(Thres)	Ref.A Pg.96	Ref.A Pgs.11,12,52 153	Test and Analysis	None	5.7E8RG	Margin based on threshold limit for RexoLite. Beta negligible(Ref.A,Pg.11&12)
	AGING	40 yrs @ 150°F (Max)	5 yrs @ 150°F	Ref.A Pgs.96,87, 95	Ref.A Pg.157	Test and Analysis	None	Not req'd	Periodic replacement at 5 year intervals
	SPRAY	N/A	Chem. Spray 9.5-10.5 PH, 24 hours	N/A	Ref.A Pg.139	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. GE Report NEDC-30437 (NSS Book #C23A/C24A) Rev.1, Dated 5/30/85.

NOTES

1. Qualification data and reference pertain to the Ref.A, App. E test of an identical connector which uses an Irrathene insulator instead of RexoLite supplied for Hope Creek. The Ref.A, Appendix F analysis demonstrates qualification of the RexoLite insulation material on the basis of equivalent or better material properties.

2.

0-20sec	135-340°F	0-62 psig
20sec-5min	340°F	62 psig
5min-6hrs	320°F	40 psig
6hrs-24hrs	250°F	25 psig
24hrs-100days	200°F	10 psig

3.

0-10sec	129-355°F	0-110 psig
10sec-5min	392°F	120 psig
5min-6hrs	347°F	48 psig
6hrs-434hrs	261°F	27 psig

4. Connector between IRM detector and cable R.G. 1.97, Parameter Cat. 2a.

Prepared by I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/20/85

154

EQUIPMENT EVALUATION SUMMARY SHEET
GE VOLTAGE PREAMPLIFIER

HOPE CREEK GENERATING STATION BOOK C25

SHT. NO: M001-EAM-027
REV. NO: 1
DATE: 8/14/85

(1) SYSTEM NEUTRON MONITORING (SE)
(2) TAG NO. 1-SE-EAM-K002 A-H (C51)
(3) COMPONENT VOLTAGE PREAMPLIFIERS
(4) MANUFACTURER GENERAL ELECTRIC
(5) MODEL NO. 163C1263AAG001
(6) FUNCTION AMPLIFICATION OF IRM DETECTOR SIGNALS FOR TRIP SIG. TO THE RPS
(7) ACCURACY
a) SPECIFIED SEE NOTE
b) ACTUAL #2
(8) LOCATION REAC. 102' Rms.4317,4322,4326,4328
(9) ABOVE FLOOD LEVEL YES X NO ___
(10) SEISMICALLY TESTED YES X REF. A NO ___
11) SURVEILLANCE REQD. YES X REF. A NO ___ SEC.VI, Pg.11

M-42-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	12hrs-SB 0.4sec Rod Drop	200 hrs	Ref.A Attach.2 Pg.36	Ref. A Appendix D Pg.366	Test	None	188 hrs	
TEMP. (°F)	148°F	155°F	Ref.A,Att.2 Pg.26	Ref.A,App.D Pg.366	Test	None	+7° on Peak	Longer test time duration provides adequate margin
PRESSURE (PSIG)	0 psig	0 psig	Ref.A,Att.2 Pg.26	Ref.A,App.D Pg.366	Test	None	None	
RELATIVE HUMIDITY (%)	95%	98%	Ref.A Attach.2 Pg.26	Ref.A Appendix D Pg.366	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	2.588E4 RG 1.1E6 RB	1.46E5 to 2E5 RG TID	Ref.A,Att.2 Pg.26	Ref.A,Att.3 Pg.40,Ref.A App.E,Pg.380	Test and Analysis	None	Exceeds Req'mt by 12.02E4RAD	Shielded from Beta dose by Hoffman enclosure (Ref.A, Pg.380).
AGING	40 yrs @104°F	31.9 yrs @114°F	Ref.A Attach.2 Pg.26	Ref.A Attach.3 Pgs.42&63 Appen.A	Test and Analysis	None	Not req'd	
SPRAY	N/A	N/A	N/A	N/A	N/A	N/A	Not req'd	

DOCUMENTATION REFERENCE:

A. GE Co. (NSSS) Qualification Report NEOC 30487, Rev.1, dtd. 6/13/85 Voltage pre-amplifier.

NOTES

1. These components are considered to be Category 2a of NUREG 0588, Appendix E.
2. Gain Specified: Lo = 4000 ±5%
   Hi > 1000

   Demonstrated: Within Specified REquirements.

Prepared by I. Nag Date 10/10/85

Reviewed by C.W. [illegible] Date 10/20/85

155

EQUIPMENT EVALUATION SUMMARY SHEET

ROSEMOUNT PRESSURE TRANSMITTER (1153B)

HOPE CREEK GENERATING STATION BOOK C59

SHT. NO: M001-XMIT-028
REV. NO: 2
DATE: 10/10/85

EQUIPMENT DESCRIPTION

(1) **SYSTEM**
SEE ATTACHED SHEETS

(2) **TAG NO.**
SEE ATTACHED SHEETS

(3) **COMPONENT**
LT & FT, PDT TRANSMITTERS

(4) **MANUFACTURER**
ROSEMOUNT INC.

(5) **MODEL NO.**
1153B SERIES

(6) **FUNCTION**
SEE ATTACHED SHEETS

(7) **ACCURACY**
a) **SPECIFIED** See Note 2
b) **ACTUAL** ____

(8) **LOCATION**
SEE ATTACHED SHEETS

(9) **ABOVE FLOOD LEVEL**
YES X NO ____

(10) **SEISMICALLY TESTED**
YES X REF. A
NO ____ (P.644)

(11) **SURVEILLANCE REQD.**
YES X REF. A
NO ____ (P.33)

PARAMETERS	ENVIRONMENT		DOCUMENTATION REFERENCE		QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
	SPECIFIED	QUALIFIED	SPECIFIED	QUALIFIED				
OPERATING TIME	100 days	110 days	Ref.A Appendix H	Ref.A Pgs.72A, 657 & 661	Test and Analysis	None	10 days	417hr. DBE test extended by analysis REf.A, Pg.72A
TEMP. (°F)	148°F	318°F (Max)	Ref.A Appendix J	Ref.A Pgs657 & 661	Test	None	170°F	
PRESSURE (PSIG)	3-30 min 0-180 days	73 (Max)	Ref.A Pg.42	Ref.A,Pgs. 657 & 661	Test	None	70 psig	
RELATIVE HUMIDITY (%)	100%	100% Steam	Ref.A App.J	Ref.A Pg.651	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	Ref.A App.J	N/A	N/A	None	Not req'd	
RADIATION (RADS)	3.03E6 RG 1.1E6 RB	2.44E7 RG	Ref.A Pg.42	Ref.A Pg.629	Test	None	2.14E7 RG	Note #1
AGING	40 yrs @91°F	17.8-20 yrs @104°F	Ref.A App.J	Ref.A Pg.66A & 66B	Test and Analysis	None	Not req'd	Transmitter replacement req'd at end of qualified life (Ref.B)
SPRAY	N/A	Water Spray	Ref.A App.J	Ref.A Pg.657	Test	None	Not req'd	

DOCUMENTATION REFERENCE:

A. GE Co Equipment Qualification Report NEDC-30446, Rev.2, Dtd. 7/10/85.

B. GE Co. letters SS-85-006 (5/19/85) and SS-85-010 (7/9/85).

NOTES

1. Qualified Radiation level encompasses specified Gamma and Beta doses.

2. Specific accuracy requirements for each application are being addressed under a separate program.

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BB-PT-N078 A thru D	A-RB 77' Rm#4215 B-RB 77' Rm#4203 C-RB 77' Rm#4218 D-RB 77' Rm#4202	Monitors reactor vessel pressure and provides a scram trip signal when reactor pressures rises to a predetermined high value or if pressure decreases to a predetermined low pressure. Annunciated in control room.	2a	MPL-B21, M-42-1
1-BB-LT-N080-A thru D	A-RB 77' Rm#4215 B-RB 77' Rm#4203 C-RB 77' Rm#4218 D-RB 77' Rm#4202	Monitors reactor vessel water level and provides a scram trip signal (RPS) if the water level falls to a predetermined low level 3 setpoint. Annunciated in control room.	2a	"
1-SM-LT-N081-A thru D	A-RB 77' Rm#4215 B-RB 77' Rm#4203 C-RB 77' Rm#4218 D-RB 77' RM#4202	Monitors reactor vessel water level and provides a trip signal if the water level falls to a predetermined low level 2 setpoint and further at low level 1 setpoint.	"	"
1-BB-LT-N085-A & B	A-RB 77' Rm#4211 B-RB 77' Rm#4209	Measures reactor vessel water level in the fuel zone range for operator indication and record, of water inventory. Not used for auto. control for accident mitagation.	2b	"
1-AB-PDT-N086 A thru D	RB 77' Rm#4201	Monitors main steam line flow and provides a trip signal if flow is above a predetermined value. Initiates main steam line isolation valve and drain isolation valve closure.	2a	MPL-B21, M-41-1
1-AB-PDT-N087-A thru D	RB-77' Rm#4201	"	"	"
1-AB-PDT-N088-A thru D	RB-77' Rm#4201	"	"	"
1-AB-PDT-N089-A thru D	RB-77' Rm#4201	"	"	"
1-BB-PT-N090-A,B,E & F	A-RB 77' Rm#4215 B-RB 77' Rm#4203 E-RB 77' Rm#4215 F-RB 77' Rm#4203	Monitors reactor vessel pressure and provides a trip signal when reactor pressure falls below the predetermined low pres. In conjunction with a high drywell pressure and low reactor water level, the core spray system inboard and outboard injection valves open.	"	MPL-B21, M-42-1

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BE-PT-N090-J,K,N & P	J-RB 77' Rm#4215 K-RB 77' Rm#4203 N-RB 77' Rm#4215 P-RB 77' Rm#4203	Monitors reactor vessel pressure and provides a trip signal when reactor pressure falls below the predetermined low pres. In conjunction with a high drywell pressure and low reactor water level, the core spray system inboard and outboard injection valves open.	2a	MPL-B21, M-42-1
1-BB-LT-N091-A 1-BB-LT-N091 B thru H	A-RB 77' Rm#4215 B-RB 77' Rm#4203 C-RB 77' Rm#4218 D-RB 77' Rm#4202 E-RB 77' Rm#4215 F-RB 77' Rm#4203 G-RB 77' Rm#4218 H-RB 77' Rm#4202	Monitors reactor vessel water level and provides trip signals if water level falls to predetermined low levels (level 2 and level 1) or rises to a predetermined high level (8). A sufficient quantity of level 2 trips will result in initiation of the RCIC and HPCI systems.	"	"
1-BB-PT-N094-A thru H	A-RB 162' Rm#4605 B-RB 162' Rm#4605 C-RB 162' Rm#4601 D-RB 162' Rm#4601 E-RB 162' Rm#4605 F-RB 162' Rm#4605 G-RB 162' Rm#4601 H-RB 162' Rm#4601	Monitors drywell pressure and provides a trip signal if pressure rises to a predetermined setpoint. Indicates a reactor loss of coolant accident might be occurring. Presence of a trip signal will contribute to initiation of a number of safety system functions.	"	"
1-SN-LT-N095 B and D	B-RB 162' Rm#4201 D-RB 162' Rm#4202	Monitors reactor vessel water level and provides a trip signal if water level falls to a predetermined low level (level 3) and below. Signal serves as a permissive that contributes to iniation of the automatic depressurization function.	"	"
1-BB-LT-N097-D and H	D-RB 77' Rm#4202 H-RB 77' Rm#4202	Monitors reactor vessel water level and provides trip signals if the water level falls to predetermined low levels (level 2) or rises to a predetermined high level (level 8). A sufficient quantity of level 2 trip signals will initiate RCIC and HPCI functions.	"	"

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BB-PT-N050-A thru D	A-RB 162' Rm#4605 B-RB 162' Rm#4603 C-RB 162' Rm#4601 D-RB 162' Rm#4601	Monitors the pressure in the primary containment and initiates a trip signal to the RPS for reactor scram and to the NSSSS system for certain isolation functions. Annunciation in the control room.	2a	MPL-C71, M-42-1
1-BC-FT-N015-A thru D	A-RB 77' Rm#4215 B-RB 77' Rm#4205 C-RB 54' Rm#4114 D-RB 54' Rm#4107	Monitors and records the flow rate of water in RHR system piping of the main water line. Provides only a flow measurement capability, it has no safety function.	2b	MPL-E11, M-51-1
1-BC-FT-N052-A thru D	A-RB 77' Rm#4215 B-RB 77' Rm#4205 C-RB 54' Rm#4114 D-RB 54' Rm#4107	Monitors the process flow rate in each of 4 loops of the RHR system discharge piping and provides a trip signal when the pump flow rate falls below the setpoint. This signal starts opening of the minimum flow bypass valve. The purpose is to ensure that flow in each RHR pump exceeds a minimum valve so that the pumps are adequately cooled.	2b	"
1-BC-PT-N055-B,D,F & H	B-RB 54' Rm#4108 D-RB 54' Rm#4112 F-RB 54' Rm#410 H-RB 54' Rm#4114	Monitors RHR pump discharge pressure and provides a trip signal if the discharge line pressure is above a preset valve. The signal is used by ADS logic and confirms that the low pressure pumps are running before the ADS depressurizes the reactor vessel.	2a	"
1-BC-PT-N056-B,D,F & H	B-RB 54' Rm#4107 D-RB 54' Rm#4114 F-RB 54' Rm#410 H-RB 54' Rm#4112	"	"	"
1-BC-PDT-N058-A thru D	A-RB 77' Rm#4215 B-RB 77' Rm#4203 C-RB 77' Rm#4218 D-RB 77' Rm#4202	Monitors the process fluid pressure in each of the four (4) RHR system piping loops and provides a trip signal when the internal pressure in the piping falls below a setpoint. It allows manual opening of the RHR injection valve.	"	"
BC-FT-N051-A and B	A-RB 54' Rm#4116 B-RB 54' Rm#4105	Senses differential pressure at the flow element in the LPCS pump discharge piping and provides a trip signal when flow exceeds a setpoint. Valves in the core spray piping systems are closed on high flow.	"	MPL-E21, M-52-1

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BE-PT-N054-A and B	A-RB 54' Rm#4116 B-RB 54' Rm#4105	Monitors pressure in the core spray system pump discharge piping and provides a trip signal at both predetermined high and low pressure setpoints. Signals actuate annunciators in the control room for operating information.	2b	MPL-E21, M-52-1
1-BE-PT-N055-B,D,F & H	B-RB 54' Rm#4104 D-RB 54' Rm#4118 F-RB 54' Rm#4105 H-RB 54' Rm#4116	Senses pressure at the discharge of the core spray pumps and provides a trip signal when pressure rises to a predetermined setpoint. The trip signal permits the ADS valves to open automatically on demand.	2a	"
1-BE-PDT-N056	RB 77' Rm#4211	Senses difference between the pressure of the two core spray injection lines to the reactor pressure vessel and provides a trip signal at a setpoint. It interprets a differential pressure as a core spray line break and actuates alarms and annunciators.	2b	"
1-FD-FT-N008	RB 54' Rm#4112	Monitors flow in the HPCI system discharge pipe to the reactor vessel and provides a signal for control room display and to the HPCI turbine governor for regulating turbine speed thus controlling pump flow to the vessel.	2a	MPL-E41, M-55-1
1-BJ-PI-N050	RB 54' Rm#4112	Monitors pressure in the HPCI pump discharge line and provides a trip signal to permit opening of the minimum flow bypass valve whenever the pump discharge pressure exceeds setpoint.	"	"
1-BJ-FT-N051	RB 54' Rm#4112	Monitors HPCI pump discharge line flow to the reactor vessel and provides a signal to open or close a valve in the minimum bypass flow line to the suppression pool at predetermined flow.	"	"
1-BJ-PT-N053	RB 54' Rm#4112	Monitors water pressure in the piping connected to the suction side of the HPCI pump and provides a turbine drive trip signal if the pressure drops to a predetermined low value. This will protect the HPCI pump from potential damage due to pump cavitation at low suction heads.	"	MPL-E41, M-56-1

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-FD-PT N055-A,C,E & G	A-RB 77' Rm#4219 C-RB 77' Rm#4219 E-RB 77' Rm#4219 G-RB 77' Rm#4219	Senses turbine exhaust diaphragm pressure and provides a trip signal if the turbine exhaust diaphragm pressure increases over a setpoint. The trip signal closes the steam supply isolation valve isolating the HPCI turbine from supply steam.	2a	MPL-E41, M-56-1
1-FD-PT-N056-A and E	A-RB 54' Rm#4112 E-RB 54' Rm#4112	Senses turbine exhaust pressure of the HPCI turbine and provides a trip signal if exhaust pressure exceeds setpoint. The signal closes the throttling valve isolating the turbine from its steam supply before damage occurs.	"	"
1-FD-PDT-N057-A and C	A-RB 77' Rm#4215 C-RB 77' Rm#4219	Monitors steam flow to the HPCI turbine and provides a trip signal in the event of a break of the HPCI steam line or instrument line.	"	MPL-E41, M-55-1
1-FD-PT-N058-A,C,E & G	A-RB 77' Rm#4215 C-RB 77' Rm#4219 E-RB 77' Rm#4215 G-RB 77' Rm#4219	Monitors steam pressure in the HPCI system and provides signals to close the HPCI isolation valve in the HPCI turbine steam supply pipe and to automatically isolate the HPCI and prevent it from being automatically started.	"	"
1-BJ-LT-N061-A and E	A-RB 77' Rm#4203 E-RB 77' Rm#4203	Senses differential pressure as level of water in the Condensate Storage Tank (CST) and provides a trip signal at a predetermined low level. At the low level setpoint the suction valve to the HPCI pump is opened to the suppression pool.	"	MPL-E41, M-08-0
1-FC-FT-N003	RB 54' Rm#4108	Monitors the flow rate from the RCIC turbine driven pump discharge to the reactor vessel for control room display and for RCIC turbine governor control.	"	MPL-E51, M-49-1
1-BD-PT-N050	RB 54' Rm#4108	Monitors pressure in the RCIC pump discharge and provides a trip signal to permit opening of the minimum flow bypass valve whenever pressure exceeds a setpoint.	"	"
1-BD-FT-N051	RB 54' Rm#4108	Monitors flow rate in the RCIC pump discharge line to the reactor vessel and initiates a signal to open or close a valve in the minimum bypass flow line to the suppression pool at predetermined flow rates.	"	"

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BD-PT-N053	RB 77' Rm#4210	Monitors water pressure in the piping connected to the suction side of the RCIC system pump and provides a trip signal if pressure drops to a predetermined low value. Will provide auto. signal for trip of the turbine drive by closing the throttling valve.	2a	MPL-E51, M-50-1
1 FC-PT-N055-B,D,F & H	RB 77' Rm#4210	Senses turbine exhaust pressure (RCIC) in the vent line following rupture of the pressure disc and provides a trip signal to shutdown the RCIC turbine by closing the steam supply isolation valves.	"	"
1-FC-PT-N056-B and F	RB 54' Rm#4108	Senses exhaust pressure from the RCIC turbine and provides a trip signal to initiate automatic shutdown of the RCIC turbine. Trip and throttle valve is closed.	"	"
1-FC-PDT-N057-B and D	B-RB 77' RM# 4201 D-RB 77' RM#4201	Monitors flow in the steam supply line to the RCIC turbine and provides a trip signal for closure of isolation valves and initiate RCIC turbine trip.	"	MPL-E51, M-49-1
1-FC-PT-N058-B D,F, & H	RB 77' Rm#4203 RB 77' RM# 4201 RB 77' RM# 4203 RB 77' RM# 4201	Monitors pressure in the RCIC steam supply piping and provides a trip signal at a predetermined low valve. Will initiate closure of isolation valves to protect the RCIC turbine from stalling on low pressure.	2b	"
1-BG-FT-N012-A and D	A-RB 77' Rm#4203 D-RB 102' Rm#4320	Senses pressures from a flow element and interprete this signal as blowdown flow to the main condenser radwaste. The circuit compares flows to the RWCU system inlet flow and provides a trip signal and isolates the RWCU system.	2a	MPL-G33, M-44-1
1-BG-FT-N036-A and D	A-RB 77' Rm#4215 D-RB 77' Rm#4205	Monitors return flow from the RWCU system to the reactor. This is summed with RWCU blowdown flow and subtracted from RWCU inlet flow. If diff. flow rises above a setpoint, a leak is presumed and the RWCU system is isolated.	"	"

ATTACHMENT TO EESS NO. M001-XMIT-028 Sh.7 of 7

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-BG-FT-N041-A and D	RB 102' Rm#4315	Monitors return flow from the RWCU system to the reactor. This is summed with RWCU blowdown flow and subtracted from RWCU inlet flow. If diff. flow rise to a setpoint, a leak is presumed and the RWCU system is isolated.	2a	MPL-G33, M-44-1
1-BB-FT-N014-A thru D	A&B-RB 77' Rm#4201 C&D-RB 77' Rm#4202	Measures flow in the recirculation pump suction line. Provides indication and APRM scale change signal.	2a	MPL-B31, M-43-1
1-BB-FT-N024-A thru D	A&B-RB 77' Rm#4219 C&D-RB 77' Rm#4210	"	2a	"
1-BE-FT-N003-A and B	A-RB 54' Rm#4116 B-RB 54' Rm#4105	Provides signal for core spray flow indication to control room recorder. R.G. 1.97 parameter.	2a	MPL-E21, M-52-1
1-BD-PT-N052	RB 77' Rm#4210	Meaures water pressure in suction piping to the RCIC pump and provides a trip signal for alarm and annunciation; it provides status information only.	2b	MPL-E51, M-50-1

Prepared by I. Nag Date 10/9/85

Reviewed by C.W. Fulk Date 10/20/85

158

EQUIPMENT EVALUATION SUMMARY SHEET

HOPE CREEK GENERATING STATION BOOK S05B NAMCO LIMIT SWITCH

SHT. NO: M001-LS-031
REV. (NO: T
DATE: 10/9/85

(1) SYSTEM (AB)

(2) TAG NO.
SEE ATTACHED SHEET

(COMPONENT
MSIV LIMIT SWITCH

(4) MANUFACTURER
NAMCO

(5) MODEL NO.
EA740-80100, Rev.K

(6) FUNCTION
SEE ATTACHED SHEET

(7) ACCURACY
a) SPECIFIED N/A
b) ACTUAL N/A

(8) LOCATION
SEE ATTACHED SHEET

(9) ABOVE FLOOD LEVEL
YES X NO ___
(REF.A Pg.C-6)

(10) SEISMICALLY TESTED
YES X REF. A
NO ___ (D-22)

11) SURVEILLANCE REQD.
YES X REF. A
NO ___ (Pg.17)

M-41-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALIFIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	1 hour	29 days	Ref.A MSIV-FPR A2 -17	Ref.A D-24	Test	None	28+ days	3 switches tested.Failures occurred @24 days & 54 days. One specimen survived 100days.
TEMP. (°F)	Note #1	Note #2	Ref.A A2-2	Ref.A D531-554	Test	None	15°F @ Peak	Test specimen QA226 failed @ 24 days w/o cover gasket.
PRESSURE (PSIA)	Note #1	Note #2	"	"	Test	None	8 psig	
RELATIVE HUMIDITY (%)	100% steam	100% (48 hrs)	"	Ref.A D-16 and D-150	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	4.9E7 RG 2.66E8 RB	3.15E8 RG Note #3	Ref.A Pg.C-8 A1-4,A2-5	Ref.A Pg.D-134 D-184	Test	None	2.66E8 RG Note #4	Rad.levels based on 5yrs normal +1 hr DBE. Neutron equiv. in Gamma Beta Effect Negligable.
AGING	40 yrs Note #5	40 yrs 140°F 1000 cycles Note #6	Ref.A Pg.A1-5 Ref.A, A2-18	Ref.A Attach.4 Ref.A, Pg. D-20	Test and Analysis	None	Not req'd	Replacement of non-metalics req'd at 5 year intervals.
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. G.E. Environmental Qualification Report NEDC-30925, Rev.1, Dtd. June 1985.

NOTES

1.

TIME	TEMP.	PRESSURE
0-20 sec	135-340°F	0-62 psig
20sec-5min	340°F	62 psig
5min-3hr	340°F	40 psig
3hr-6hr	320°F	40 psig
6hr-24hr	250°F	25 psig
24hr-4days	200°F	25 psig
4days-100days	200°F	10 psig

2.

0-3hr	80-358°F	0-71 psig
3-6hr	358-337°F	71-44 psig
6-30hr	337-272°F	44-32 psig
6hr-4days	272°F	32 psig
4da-7days	272-257°F	32-11 psig
7da-100days	245-216°F	11.5 psig

3. New EPDM cover gasket material qualified as part of Junction Box Tests (Ref.A, Pgs.D-611 & D-613.

4. Beta Radiation effect on gasket edge and boot judged negligable (GE ltr. GP-85-76, 4/26/85).

5. Specified temp. 150°F (Max), 135°F (Avg.), 60°F (Min.).

6. Qualified temp.
150°F-12 months - 127°F (Min.)
140°F-463 months - 5 months

ATTACHMENT TO EESS NO. M001-LS-031

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-AB-ZS-F022-A thru D	Reactor 100' Pltfm. udr. RC vl. (inside drywell) RM 4220	Provides signal on closing of the MSIV to the Reactor Protection System (RPS) to scram the reactor.	2a	Inside drywell, M41-1
1-AB-ZS-F028-A thru D	RB 102' Rm#4316	"	"	Outside drywell, M-41-1

Prepared by I. Nag Date

Reviewed by C.W. Yale Date 10/20/85

165

S.E.T. NO: M780A-HT-012
REV. NO: 1
DATE: 7/31/85

HOPE CREEK GENERATING STATION

EQUIPMENT EVALUATION SUMMARY SHEET
HUMIDITY TRANSMITTING SYSTEM

(1) SYSTEM
FRVS
(2) TAG NO.
SEE ATTACHED SHEET
(3) COMPONENT
HUMIDITY TRANSMITTING SYSTEM
(4) MANUFACTURER
NUTHERM
(5) MODEL NO.
DWG.#1023-55667-33
(REF.A, TABLE 2)
(6) FUNCTION
SEE ATTACHED SHEET
(7) ACCURACY
a) SPECIFIED ±1% MA.
b) ACTUAL ±1% MA.
(Pg.27 & Att.1 Att.1)
(8) LOCATION
SEE ATTACHED SHEET
(9) ABOVE FLOOD LEVEL
YES X NO ___
(10) SEISMICALLY TESTED
YES X REF. C
NO ___
(11) SURVEILLANCE REQD.
YES X REF. C
NO ___

M-83-1, M-84-1

PARAMETERS	ENVIRONMENT SPECIFIED	ENVIRONMENT QUALFIIED	DOCUMENTATION REFERENCE SPECIFIED	DOCUMENTATION REFERENCE QUALIFIED	QUALIF. METHOD	OPEN ITEMS	MARGIN	REMARKS
OPERATING TIME	100 days	100 days	Ref.A App.B	Ref.C Table 4B, Pg.46 & 54	Test and Analysis	None	Adequate	Adequate margin provided in temp.
TEMP. (°F)	148°F	>180°F	"	"	Test	None	>32°F	
PRESSURE (PSIG.)	0	0	"	Ref.C Pg.31	Test	None	Adequate	Excess Temp. margin provided.
RELATIVE HUMIDITY (%)	100%	>80%	"	Ref.C,Pgs. 12-15,Table 4B&Pg.54	Test	None	Not req'd	
FLOODING/ FROTH	N/A	N/A	N/A	N/A	N/A	None	Not req'd	
RADIATION (RADS)	203E6 RG 1.1E6 RB	>2.2E6 RG	Ref.B Table#6	Ref.C,Tble 1 App.IV and Pg.43	Test	None	>.17E6 RG	Note #1
AGING	40 years @100°F	40 years @123°F	Ref.A, App.B,Ref.B Table #6	Ref.C, Pgs.38-42 & Table 4A	Test and Analysis	None	Not req'd	Gasket replacement required at 5 year intervals (Ref.A, Pg.9)
SPRAY	N/A	N/A	N/A	N/A	N/A	None	Not req'd	

DOCUMENTATION REFERENCE:

A. Technical Specification 10855-M780A(Q) Rev. 14, Dtd.5/85

B. Environmental Design Criteria 10855-D7.5, Rev.2, Dtd.10/84.

C. Nutherm Qualification Report BPS-1449, Rev.2, Dtd.4/26/85. (10855-M780A(Q)-205-2 and -1)

NOTES

1. Beta Qualification Report M780A.

165

ATTACHMENT TO EESS NO. M780A-HT-012

TAG NO. (Item 2)	LOCATION (Item 8)	FUNCTION (Item 6)	NUREG-0588 APPENDIX-E CATEGORY	REMARKS
1-GU-MT-9379 A thru F 1-GU-ME-9379 A thru F	A-RB 132' Rm#4410 B-RB 178' Rm#4617 C-RB 132' Rm#4411 D-RB 162' Rm#4615 E-RB 162' Rm#4614 F-RB 178' Rm#4616	Moisture transmitter senses moisture in the FRVS filter train and provides signal for alarm and heater control.	2a	M-83-1, M/R Sheet A-63
1-GU-MT-9425 A and B 1-GU-ME-9425 A and B	A-RB 145' Rm#4511 B-RB 145' Rm#4512	"	2a	M-84-1, M/R Sheet A-63

XI. PROGRAM STATUS

Status of the various elements of the Hope Creek E.Q. Program is as follows:

A. Mechanical

The review and approval of materials and components identified in Table 3.11-4 is complete.

B. Electrical

The electrical EQ program can be separated into the NSSS and balance-of-plant (BOP) portions. The NSSS program involves the review of 25 qualification reports which cover about 668 equipment items; the BOP program involves the review of about 106 qualification reports associated with equipment supplied on 32 purchase orders which cover about 1780 equipment items identified with specific tag numbers. There are also 7 purchase orders which involve equipment ordered in bulk and not identified with specific tag numbers; all of the bulk items are qualified.

Several purchase orders involve the qualification of assemblies such as motor-control centers and control panels. In some of these cases, several types of devices may be qualified although only the main assembly is counted as complete. For the purpose of reporting a percentage completion, the number of items identified with a specific tag number is used. All of these items are listed in Table 3.11-5.

As of the date of this report, 23 NSSS qualification reports have been produced which cover 625 equipment items. PSE&G has reviewed and accepted 19 reports which cover 585 items. The 4 reports which cover the remaining 40 items are expected to be completed by December 1, 1985.

The remaining items in the NSSS program are scheduled for completion during November, 1985. This equipment includes the safety-relief valves and the main steam isolation valves.

For the BOP program, 91 qualification reports have been reviewed and accepted covering 1704 equipment items. This represents 96% of the BOP electrical items in a harsh environment, including the bulk equipment items.

The remaining work includes the completion of testing, and preparation, review and approval of 15 reports on 5 purchase orders which involve 76 equipment items. All of this work is expected to be completed by December 1, 1985.

In addition to all of the items identified above, a significant amount of equipment has been qualified for use in a mild environment.

The total number of items currently qualified is tabulated on the attached summary sheet which also places the items in the appropriate NUREG-0588 categories. As of the date of this report, 2289 items are fully qualified; this reflects a 93.5% program completion.

NUREG 0588 IDENTIFICATION

TOTAL HARSH ENVIRONMENT ONLY

CATEGORY	TOTAL NO. COMPONENTS	TOTAL NO. QUALIFIED	PERCENT QUALIFIED
1. SWITCHGEAR	0	0	N/A
2. MOTOR CONTROL CENTERS	6	6	100
3. VALVE OPERATORS	1159	1116	96
4. MOTORS	20	20	100
5. LOGIC EQUIPMENT	8	8	100
6. CABLE	100	100	100
7. DG CONTROL EQUIPMENT	0	0	N/A
8. SENSORS	456	436	96
9. LEVEL SWITCHES	69	63	91
10. HEATERS	0	0	N/A
11. FANS	16	16	100
12. CONTROL BOARDS	49	35	71
13. INST RACKS & PANELS	263	243	92
14. CONNECTIONS (NOTE 1)	38	38	100
15. ELECTRICAL PENETRATIONS	40	40	100
16. SPLICES (NOTE 1)	5	5	100
17. TERMINAL BLOCKS (NOTE 1)	17	17	100
18. OTHER (NOTE 2)	202	146	72
TOTAL	2448	2289	93.5

NOTE 1: ITEMS ANOTATED WITH THIS NOTE CONSTITUTE TYPES OF ITEMS PURCHASED AND INSTALLED BY THE FIELD AND, AS SUCH TOTAL QUANTITY OF COMPONENTS PURCHASED AND INSTALLED IS NOT REPORTED.

NOTE 2: OTHER ITEMS INCLUDE EQUIPMENT NOT IDENTIFIABLE BY THE CATAGORY'S SHOWN ABOVE SUCH AS HYDROGEN RECOMBINERS, HYDROGEN ANALYSERS, CONTAINMENT GAS COMPRESSORS, ETC.