GULF STATES UTILITIES COMPANY
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February 15, 1985
RBG- 20,162
File Nos. G9.5, G9.19.2,
G9.20.8

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

Dear Mr. Denton:

River Bend Station - Unit 1
Docket No. 50-458

To assist the Nuclear Regulatory Commission's (NRC) Equipment Qualification Branch (EQB) reviewer in developing Section 3.11 of the River Bend Station (RBS) Safety Evaluation Report (SER) and to address in part SER Open Item No. (5), changes to the RBS Environmental Qualification Document (EQD) are enclosed (Attachment 1). Revised System Component Evaluation Worksheets (SCEWs) and temperature and pressure profiles are provided in Attachment 2. Several of these changes address questions from the January 29-31, 1985 NRC Environmental Qualification Audit. The enclosed revisions to the EQD will be included in a future amendment.

In accordance with 10CFR50.49(i) Gulf States Utilities Company (GSU) is providing justification for interim operation (JIO's) for Class 1E electrical components located in a harsh environment for which qualification is not complete (Attachment 3). As a result of recent analyses and tests, further review is required on a few electrical components. The EQB reviewer will be appraised on the status of these reviews by February 28, 1985.

On September 10, 1984 GSU submitted it's master list for safety-related mechanical equipment located in a harsh environment as requested in SER Section 3.11.3(6). Representative mechanical equipment qualification (MEQ) packages were provided to the NRC reviewer on January 11, 1985.

Sincerely,

for J. E. Booker
Manager-Engineering
Nuclear Fuels & Licensing
River Bend Nuclear Group

A049
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JEB/RJK/je

Attachments

ATTACHMENT 1

REVISED ENVIRONMENTAL

QUALIFICATION DOCUMENT TEXT

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SECTION 2

ENVIRONMENTAL CONDITIONS

The indoor environmental design conditions which have been used to establish the design basis for RBS are specified for normal, abnormal, and accident conditions. The environmental data for temperature, pressure, humidity, and radiation are defined for each building zone.

Environmental zones are classified as either harsh or mild. The classification of mild environmental zones is in compliance with 10CFR50.49(c). There is no significant change in environmental conditions, except radiation, in these zones. Additionally, for a zone to be classified as mild, the total integrated dose for 40 yr plus 180 days post-accident service is no more than 10^4 rads.

Tables 2-1 and 2-2, ~~and 2-3~~ list and describe the harsh and mild environmental zones. Illustrations of the physical zones are provided on the environmental zone maps, Figures 2-1 through 2-4.

2.1 TEMPERATURE, PRESSURE, HUMIDITY ENVIRONMENT

The plant ventilation/air-conditioning system is designed to maintain maximum normal operating temperature and pressure conditions for all normal reactor operating modes, including startup, power range, hot standby, shutdown, and refueling. The humidity is generally uncontrolled. Normal conditions are assumed to prevail until an abnormal or accident condition occurs, in which case the abnormal or accident condition prevails for the specified duration. Following the abnormal or accident condition, normal conditions are again assumed to exist.

Abnormal operating conditions are any reasonably expected or anticipated deviations from normal conditions (excluding accident conditions). Abnormal operating conditions include:

1. Transients that result from main steam line isolation (loss of condenser vacuum, turbine trip, and MSIV closure including a stuck open relief valve).

2. Transients caused by a single failure of one division of redundant essential HVAC equipment.

3. Transients caused by the loss of nonessential drywell HVAC equipment as the result of a loss of offsite power.

The abnormal temperatures calculated for the auxiliary building under condition 2 above envelop conservative design maxima that have a low probability of occurrence since they are associated with normal plant operating modes that prevail for less than 1 percent of the plant operating time (i.e., residual heat removal, steam condensing, and shutdown cooling). Equipment in the auxiliary building will not be qualified for these temperatures since the plant can be shut down using redundant equipment that is not affected by the postulated abnormal event. The drywell temperatures associated with condition 3 above are enveloped by the applicable accident conditions; however, their effect on the qualified life of equipment generally is not considered. Following the occurrence of abnormal temperatures in the auxiliary building or the drywell, a review will be performed to ensure that equipment remains qualified. Requalification may be based on actual temperatures recorded during the event.

Accident conditions, defined as the failure of high-energy and moderate-energy piping, are postulated in accordance with NRC Regulatory Guide 1.46, Branch Technical Positions MEB 3-1 and APCSB 3-1.

TABLE 2-1

HARSH ENVIRONMENTAL ZONE DESCRIPTIONS

Zone	Description
Drywell	
DW-1	Outside RPV Shield Wall, Outside DW-2 (El 81'-3/4" to 162'-3")
DW-2	Outside RPV Shield Wall, to a radius of 17'-0" from RPV centerline (El 110'-0" to 122'-0")
DW-3	Under RPV (El 73'-1/4" to 102'-0")
DW-4	Drywell Dome (El 162'-3" to 175'-3 3/4")
DW-5	Outside RPV Skirt (El 100'-8" to 108'-6")
DW-6	Between RPV Insulation and Primary (Biological) Shield Wall (El 108'-6" to 147'-6")
Containment	
CT-1	Upper Containment Dome (El 235'-0" to 256'-3")
CT-2	Immediately Above Suppression Pool (El 90'-0" to 114'-0")
CT-3	HCU Floor (El 114'-0" to 141'-0")
CT-4	SLCS Areas (El 141'-0" to 162'-3")
CT-5	WCS Area - Backwash Receiving Tank and Pump Cubicles (El 141'-0" and 162'-3")
CT-5A	Walkway Adjacent to Zone CT-5
CT-6	Drywell Personnel Hatch Area (El 130'-7")
CT-7	WCS Heat Exchanger Cubicle (El 147'-3" to 181'-10")
CT-7A	Walkway Adjacent to Zone CT-7
CT-8	Fuel Transfer Tube, Isolation Valve Room (El 128'-1 3/4")
CT-9	Inside Main Steam Tunnel (El 114'-0")
CT-10	SFC Pipe and Valve Room (El 130'-7" and El 162'-3")
CT-11	WCS - Filter Cubicles (El 162'-3")
CT-SP	Suppression Pool (El 70'-0" to 90'-0")
CT-G*	General Area (El 114'-0", 141'-0", 162'-3", and 186'-3")
Annulus	
AN-1	All Areas El 114'-0" and Above
AN-2	All Areas Immediately Below El 114'-0"
AN-3	Vicinity of SFC Piping (El 114'-0" to 141'-0", AZ-155° to 185°)

TABLE 2-1 (Cont)

Zone	Description
Auxiliary Building	
Elevation: 70'-0"	
AB-070-1	CSL Area
AB-070-2	RHS-P1A Pump Room
AB-070-3*	ICS Pump Room
AB-070-4	RHS-P1C Pump Room
AB-070-5	RHS-P1B Pump Room
AB-070-6	HPCS Pump Room
AB-070-7	Elevator Area
AB-070-8	RPCCW Area
AB-070-G	General Area
Elevation: 95'-9"	
AB-095-1	CSL Hatch Area
AB-095-2	RHS Heat Exchanger Area (West)
AB-095-3*	WCS Area
AB-095-4	Hoist Area
AB-095-5	RHS Heat Exchanger Area (East)
AB-095-6	HPCS Hatch Area
AB-095-7	Elevator Area
AB-095-8	RPCCW Area
AB-095-9	CRD Work Area
AB-095-10*	Main Steam Tunnel
AB-095-G	General Area
Elevation: 114'-0"	
AB-114-1	MCC Area (West)
AB-114-2*	Main Steam Tunnel (North)
AB-114-3	MCC Area (East)
AB-114-4	Post Accident Sampling Station
AB-114-5	Elevator Room
AB-114-6	RPCCW Area
AB-114-7*	Main Steam Tunnel (Loops)
AB-114-8	RHS Equipment Removal Cubicle
AB-114-G	General Area
Elevation: 141'-0"	
AB-141-1	Equipment Area (West)
AB-141-2	Equipment Area (East)
AB-141-3	Elevator Area

TABLE 2-1 (Cont)

Zone	Description
AB-141-4	RPCCW Area
AB-141-5	Standby Gas Treatment Filter (West)
AB-141-6	Standby Gas Treatment Area (East)
AB-141-G	General Area
Elevation: 170'-0"	
AB-170-1	Annulus Mixing System Fan Area
AB-170-2	Continuous Filter Room
AB-170-3	Elevator Machine Room
Fuel Building	
Elevation: 70'-0"	
FB-070-1	Fuel Pool Cooling Pumps and Heat Exchanger
FB-070-2	SFT Drain Tank Area
FB-070-3	Backwash Receiving Room
FB-070-4	Fuel Pool Purification
Elevation: 95'-0"	
FB-095-1	Fuel Pool Demineralizer Filter and Tank Rooms
FB-095-2	SFC Heat Exchanger Cubicles
FB-095-G	General Area
Elevation: 113'-0"	
FB-113-1	Cask Loading and Shipping Area
FB-113-3	Pipe Chase
FB-113-4	Fuel Transfer Tube Mid-Support Room
FB-113-G	General Area
Elevation: 131'-3"	
FB-131-1	Pipe Chase
Elevation: 148'-0"	
FB-148-1	Charcoal Filter Rooms
FB-148-G	General Area

TABLE 2-1 (Cont)

Zone	Description
Radwaste Building	
Elevation: 65'-0"	
RW-065-1	Tank Rooms
RW-065-2	Valve and Pump Rooms
RW-065-G	General Area
Elevation: 90'-0"	
RW-090-1	Tank Area
RW-090-2	Valve and Pump Rooms
Elevation: 106'-0"	
RW-106-4	Cask Fill and Storage Area
RW-106-5	Valve and Pump Area
RW-106-6	Waste Sludge Tank Area
RW-106-G	General Area
Elevation: 117'-0", 120'-0", and 128'-6"	
RW-117-1	Valve and Pump Area
RW-117-2	Filter and Demineralizer Cubicles
RW-120-1	Valve and Pump Room
RW-128-1	Clean Cask Storage
Elevation: 136'-0"	
RW-136-1	Bridge Crane Area
RW-136-2	Evaporator and Reboiler Areas
RW-136-3	Laundry Room
RW-136-4	Flat Bed Filter and Pump Area
Elevation: 166'-0"	
RW-166-1	HVW Filter Room
RW-166-2	Evaporator Area
Turbine Building Including Off-Gas Area	
Elevation: 67'-6"	
TB-067-1	Heater Bay Cubicles
TB-067-3	Turbine and Condenser Area

TABLE 2-1 (Cont)

Zone	Description
Elevation:	95'-0"
TB-095-1	Heater Bay Cubicles
TB-095-2	Moisture Separator and Reheat Area
TB-095-3	Turbine and Condenser Area
TB-095-4	Air Ejector Cubicle
TB-095-5	Decontamination Area
TB-095-6	Steam Packing Exhauster Area
Elevation:	123'-6" and 180'-0"
TB-123-1	Moisture Separator and Reheat Area
TB-123-2	Turbine Shield Wall Well Area
TB-123-3	Steam Seal Evaporator Cubicle
TB-123-4	Radwaste Reboiler Cubicle
TB-123-5	HVT Filter Room
TB-123-G	General Area
TB-180-G	Area Immediately Below Turbine Building Roof
Elevation:	67'-6"
OG-067-1	Condensate Demineralizer Regeneration Area
Elevation:	95'-0"
OG-095-1	Condensate Demineralizer Area
OG-095-G	General Area
Elevation:	123'-6"
OG-123-1	Sample Rooms
OG-123-2	Off-Gas Equipment Areas
OG-123-3	Charcoal Adsorber Cubicle
Elevation:	148'-6"
OG-148-1	Charcoal Adsorbers
OG-148-2	Holdup Pipe Room
OG-148-3	Filter Area

TABLE 2-1 (Cont)

Zone	Description
Piping Tunnels	
PT-1	Standby Service Water Tower Tunnel
PT-2	Tunnel Bordered by AB, RB, and RW Buildings
PT-3	AB Tunnel
PT-4	Tunnel Bordered by AB, CB, and DG Buildings
PT-6	Tunnel Bordered by TB and NJ Buildings
PT-7	Tunnel Bordered by RW and AC Buildings
PT-8	Tunnel Bordered by FB Building
PT-9	Tunnel Bordered by FB and RB Buildings

*Contains high-energy piping; failure is postulated.

TABLE 2-2

MILD ENVIRONMENTAL ZONE DESCRIPTIONS

Zone	Description
Auxiliary Building	
AB-170-G	General Area
Fuel Building	
Elevation: 70'-0"	
FB-070-G	General Area
Elevation: 113'-0"	
FB-113-2	Fuel Handling - Operating Floor
Elevation: 148'-0"	
FB-148-2	Equipment Area
Control Building	
Elevation: 70'-0"	
CB-070-1	Cable Vault Area
CB-070-2	HVAC Rooms
CB-070-G	General Area
Elevation: 98'-0"	
CB-098-1	Switchgear Area
CB-098-2	Mechanical Equipment Rocm
CB-098-G	General Area
Elevation: 115'-0"	
CB-115-1	HVAC Rooms
CB-115-G	General Area
Elevation: 116'-0"	
CB-116-1	Battery Room
CB-116-2	Cable Vent and Switchgear, Inverter Rooms
CB-116-G	General Area

TABLE 2-2 (Cont)

Zone	Description
Elevation: 136'-0"	
CB-136-1	Control Room
CB-136-G	General Area
Radwaste Building	
Elevation: 90'-0"	
RW-090-G	General Area
Elevation: 106'-0"	
RW-106-1	Solid Waste Treatment Area
RW-106-2	Solid Waste Compacting and Storage Area
RW-106-3	Sample Room
Elevation: 117'-0"	
RW-117-G	General Area
Elevation: 136'-0"	
RW-136-G	General Area
Elevation: 166'-0"	
RW-166-G	General Area
Turbine Building Including Off-Gas Area	
Elevation: 67'-6"	
TB-067-2	Sample Room
TB-067-4	Reactor Feed Pump Area
TB-067-G	General Area
Elevation: 95'-0"	
TB-095-G	General Area

TABLE 2-2 (Cont)

Zone	Description
Elevation: 123'-6"	
TB-123-6	Passageway
Elevation: 67'-6"	
OG-067-G	General Area
Elevation: 123'-6"	
OG-123-G	General Area
Elevation: 148'-6"	
OG-148-G	General Area
Diesel Generator Building	
Elevation: 70'-0"	
DG-070-1	Diesel Fuel Tank Area
Elevation: 98'-0"	
DG-098-1	Diesel Operating Area
DG-098-2	Diesel Generator Control Rooms
DG-098-G	General Area
Elevation: 126'-0"	
DG-126-1	
Normal Switchgear Building	
Elevation: 67'-6", 98'-0", and 123'-6"	
NS-067-1	Cable Tray Room
NS-098-1	Normal Switchgear and Load Center
NS-098-2	Passageway - Normal Switchgear
NS-123-1	Battery Rooms
NS-123-2	Computer Rooms
NS-123-3	Mechanical Equipment and Switchgear Rooms
NS-123-4	Passageway - Normal Switchgear

TABLE 2-2 (Cont)

Zone	Description
Auxiliary Boiler Building	
Elevation: 95'-0" and 123'-6"	
BA-095-1	Auxiliary Boiler Area
BA-095-2	Switchgear Area
BA-123-1	Deaerator Area
Auxiliary Control Building	
Elevation: 95'-0"	
AC-095-1	Hot Machine Shop
AC-095-2	Passageway
AC-095-3	Decontamination Room
AC-095-4	I & C Electrical Hot Shop
Elevation: 123'-6"	
AC-123-1	Mechanical Equipment
AC-123-2	Passageway
AC-123-3	Auxiliary Control Room
Standby Service Water Pumphouse	
SW-1	Standby Service Water Pump Rooms
SW-2	Transformer Rooms
SW-3	Remote Air Intake Room
SW-4	Fan Deck Area
Administration Complex	
AD-1	Office Building
AD-2	Warehouse
AD-3	Cafeteria/Lockers/Offices
AD-4	Lab/Health Physics/Decontamination Areas
AD-5	Mechanical Room
AD-6	Machine Shops
AD-7	Electrical Load Center
AD-8	Primary Access Point
AD-9	Auxiliary Access Point
AD-10	Technical Support Center (TSC)

TABLE 2-2 (Cont)

Zone	Description
Fire Pumphouse Building	
FP-1	Fire Pumphouse
Makeup Water Intake Structure	
MK-1	Battery Rooms
MK-2	Pump Room
MK-3	Switchgear Room
Circulating Water Pumphouse	
CW-1	Circulating Water Pumphouse
MG Set Building	
MG-1	MG Set
Water Treatment Building	
WT-1	Water Treatment
Transformer Yard 2A	
TY-1	Fire Protection Sprinkler Building
Hypochlorite Area	
HA-1	Switchgear House
Blowdown Area	
BP-1	Blowdown Pit
Cooling Tower	
CL-1	Switchgear House (1A)
CL-2	Switchgear House (1B)
CL-3	Switchgear House (1C)
CL-4	Switchgear House (1D)
Clarifier Area	
CA-1	Switchgear House
CA-2	Tank Room

TABLE 2-2 (Cont)

Zone	Description
Demineralized Water Building	
DI-1	Demineralized Water Pumphouse
Piping Tunnels	
PT-5	Tunnel Bordered by NS and CB Buildings

2.3 CHEMICAL ENVIRONMENT

Engineered Safety Feature (ESF) systems are designed to perform their safety functions in the temperature, pressure, and humidity conditions.

River Bend Station does not utilize any chemical additives to the water recirculated by the ECCS during normal or accident conditions.

Following an accident, the containment and drywell atmospheres are maintained below 4 percent (by volume) hydrogen, as discussed in FSAR Section 6.2.5.

The water in these systems is not chemically inhibited. The maximum limits for the suppression pool water are compatible with those of the primary coolant and are listed as follows:

Parameter	Reactor Water Limits Shutdown Condition	Pressure Suppression Pool Water Quality Expected	Suppression Pool Water Maximum Limit
Conductivity	≤10 umho/cm @ 25°C	≤3 umho/cm @ 25°C	≤10 umho/cm @ 25°C
Chlorides (as Cl-)	≤0.5 ppm	≤0.2 ppm	≤0.2 ppm
pH	5.3 to 8.6 @ 25°C	5.3 to 8.6 @ 25°C	5.3 to 8.6 @ 25°C
Total suspended solids		≤1 ppm	≤5 ppm

During reactor shutdown cooling, the RHR system is lined up with the reactor coolant pressure boundary (RCPB). The shutdown cooling piping and equipment in the RHR system are flushed with demineralized water from the condensate storage tank prior to commencing shutdown cooling.

2.4 SUBMERGENCE

The approach to the design of RBS is to locate devices above expected submergence levels. Flood levels have been determined for the buildings, and for compartments within the buildings, for the natural phenomena and accident conditions that could cause flooding.

Equipment located inside the drywell and containment that will be submerged during normal plant operation and as a result of a design basis accident is identified in the Equipment Qualification Master List in Appendix A and the corresponding System Component Evaluation Work (SCEW) sheets in Appendix B. Equipment located inside the containment is designed and qualified to perform its intended function while submerged. Equipment located inside the drywell that is subjected to submergence is not required to perform an active safety function. Evaluation has demonstrated that subsequent failure of this equipment is without significant consequences.

Equipment located in the containment below elevation 109 ft will be submerged for a duration of up to 7 sec during suppression pool swell following a LOCA. This equipment is qualified to withstand the submergence conditions to which it is exposed.

For areas outside the containment, flooding analyses were performed as described in FSAR Appendix 3C. These analyses demonstrate that electrical equipment required for safe shutdown of the plant either is located above submergence levels or protective measures (e.g., curbs) are provided to prevent submergence.

Non-Class 1E electrical equipment supplied from Class 1E power sources are identified in FSAR Table 8.3-7. This equipment, as described in FSAR Section 8.3.1.4.3, is electrically separated. Redundant Class 1E systems are not degraded as a result of submergence of non-Class 1E electrical equipment.

TABLE 3.1-2

ACCIDENT/SYSTEM MATRIX

Accidents	Systems Required to Mitigate Accident														
	C-1 HPCS	C-2 LPCS	C-3 PCI	C-4 ADS	C-5 RCIC	C-6 CIS	C-7 RPS	C-8 MSI	C-9 LSV	C-10 RPCS	C-11 NMS	C-12 SPCM	C-13 SWP	C-14 SLS	C-15 ASCM
1. Steam Line Break Outside Containment	X	X	X	X	X	X	X						X	X	X
2. Feedwater Line Break Outside Containment	X	X	X	X	X	X	X						X	X	X
3. LOCA	X	X	X	X		X	X	X	X			X	X	X	
4. High Energy Line Break Outside Containment (RWCU/RCIC)						X	X						X		
5. Rod Drop	X	X	X	X	X	X	X			X	X		X	X	X
6. Fuel Handling													X		
7. Recirculation Pump Seizure	X	X	X	X	X		X						X	X	X
8. Recirculation Pump Shaft Break	X	X	X	X	X		X						X	X	X
9. Main Condenser Gas Treatment System Failure				X	X		X						X	X	X

TABLE 3.1-2 (Cont)

Accidents	Systems Required to Mitigate Accident																
LDS PAM	C-16 GTS	C-17 HVR	C-18 CMS	C-19 CPM	C-20 H2R	C-21 SFC	C-22 EGF	C-23 EGA	C-24 SPS	C-25 HVK	C-26 HVC	C-27 HVF	C-28 HVP	C-29 HVY	C-30 RMS	C-31	C-32
1. Steam Line Break Outside Containment	X	X	X			X	X	X	X	X	X	X	X	X	X		
2. Feedwater Line Break Outside Containment						X	X	X	X	X	X	X	X	X	X		
3. LOCA	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
4. High Energy Line Break Outside Containment (RWCU/RCIC)	X	X				X	X	X	X	X	X			X	X	X	
5. Rod Drop	X	X	X			X	X	X	X	X	X	X	X	X	X		
6. Fuel Handling						X	X	X	X	X	X	X	X	X	X		
7. Recirculation Pump Seizure	X	X	X			X	X	X	X	X	X	X	X	X	X		
8. Recirculation Pump Shaft Break	X	X	X			X	X	X	X	X	X	X	X	X	X		
9. Main Condenser Gas Treatment System Failure		X	X			X	X	X	X	X	X	X	X	X	X		

TABLE 3.1-2 (Cont)

Accidents	Systems Required to Mitigate Accident				
	C-33 HVN	C-34 CCP	C-35 SSR	C-36 CPP	C-37 CES
1. Steam Line Break Outside Containment					X
2. Feedwater Line Break Outside Containment					X
3. LOCA	X	X	X	X	X
4. High Energy Line Break Outside Containment (RWCU/FCIC)					X
5. Rod Drop					X
6. Fuel Handling					X
7. Recirculation Pump Seizure					X
8. Recirculation Pump Shaft Break					X
9. Main Condenser Gas Treatment System Failure					X

TABLE 3.1-2 (Cont)

RBS BOP ELECTRICAL EQUIPMENT
EMRGC CROSS-REFERENCE CODES

Due to a field length limitation in the computerized equipment master list, the following shall be used.

EMRGCN	EQUIVALENT EMRGCN
C-6 and 34	C-101
C-6 and 18	C-102
C-3 and 15	C-103
C-12 and 15	C-104
C-3, 6, 12, and 15	C-105
C-6 and 24	C-106
C-3, 6, and 15	C-107
C-3, 12, and 15	C-108
C-2 and 6	C-109
C-6 and 33	C-110
C-6, 9, and 33	C-111
C-9 and 33	C-112
C-6 and 17	C-113
C-6 and 9	C-114
C-6 and 21	C-115
C-4 and 6	C-116
C-6 and 13	C-117
C-6 and 8	C-118
C-6, 12 and 15	C-119
C-3 and 6	C-120

3.2 POST-ACCIDENT OPERABILITY TIME

Equipment must be qualified for the length of time it is required to perform its safety function and must remain in a safe mode after the function is performed. The length of time the equipment is required to function following the onset of an accident is its post-accident operability time (PAOT).

The required PAOT is determined by an analysis of the functional performance requirements for each applicable event. For each device, the required active function time, based upon the intended safety function, is determined. The determined operability time ranges from very short periods, where safety functions are performed early in the event and subsequent actions are not called for, to longer periods of time where process variables are stabilized. For long periods of required operability, the parameters selected to environmentally qualify needed products assure the capability to bring the reactor to, and maintain a safe shutdown condition.

The PAOT is stated in the EQD Master List (Appendix A).

SECTION 4

QUALIFICATION METHODOLOGY

4.1 HARSH ENVIRONMENT

4.1.1 BOP Equipment

4.1.1.1 Electrical

The methodology established for the RBS equipment qualification program is in accordance with the guidelines provided in NUREG-0588 for Category I plants, and in compliance with the regulation of 10CFR50.49. The methodology consists of developing the temperature, pressure, humidity, and radiation dose levels for normal, abnormal, and accident conditions. Post-accident operability time is developed to assure that the equipment will be qualified to maintain a safety function during a post-accident event.

These requirements are included in the procurement specification for the electrical equipment important to safety. The specification mandates that the qualification will be accomplished in accordance with IEEE 323-1974 and in accordance with the quality assurance program referenced in 10CFR50 Appendix B.

Based on these requirements the equipment manufacturer develops an equipment qualification program.

The environmental qualification documents for the equipment are obtained for engineering evaluation from equipment vendors, equipment manufacturers and/or testing facilities. These documents, in the form of qualification procedures, reports, and supplementary information, are evaluated in accordance with NUREG-0588 and IEEE 323-1974. Review of these documents includes assurance that they are technically adequate and conform to the environmental qualification requirements of the applicable emergency conditions, operability times, and service conditions.

Each reviewed vendor qualification document is referenced on the System Component Evaluation Work (SCEW) sheet.

Aging

The effects of age are documented as part of the qualification program.

Arrhenius aging methodology is the preferred method for evaluating equipment aging and in general is used as a basis for determining qualified life. When other methods are used, appropriate justification is provided. The thermal aging methodology used for qualifying BOP safety-related devices is described in the qualification test reports referenced in the SCEW sheets.

Prior to simulating seismic and DBA event, equipment or its age-sensitive components were preconditioned to their end-of-qualified life condition.

If it was known that aging improved performance capability, new or partially aged devices were used in testing.

Advanced life conditioning was accomplished by applying an appropriate combination of operational and environmental cycling to simulate the expected service listed in the equipment specification and by subjecting the device to physical and chemical stresses that are known to degrade the device. Normal cycling of in-plant conditions was performed in any combination aging procedure.

In the case where accelerated aging was used, the procedure employed considered the expected application and design life of the device being tested.

Synergistic effects were considered when these effects were known to have a significant effect on equipment performance.

Where required, a maintenance or replacement schedule consistent with qualified life is provided as part of the support documentation and is referenced on the SCEW sheets.

When type testing was selected as the qualification method, the type test was run on the device(s) in a specified sequence that was set down as part of the written test procedure. All sequential testing was performed on the same

unit(s), including aging. The sequence recommended in IEEE 323-1974, paragraph 6.3.2, is used where an alternate sequence can be justified technically; this justification can be documented in the qualification reports. The test specimen has been subjected to all normal manufacturing and QA procedures and is representative of the devices supplied.

Margin

Margins are not included in the parameters given in the equipment specifications. However, the specification does include an insert which requires that margin be added to comply with IEEE 323-1974 requirements.

Qualification type test results were reviewed to verify that adequate margin exists between the most severe specified service conditions for the equipment and the conditions used in type testing. Margins are in addition to any conservatism applied during the derivation of local environmental conditions of the equipment. Margin accounts for production variations of equipment and inaccuracies in test instrumentation. Increased levels of testing, number of test cycles, and test duration are among the methods used for ensuring adequate margin.

Some equipment is required by the design to perform its safety function only within the first 10 hrs of an accident. For this equipment in general, a time margin of at least 1 hr in excess of the time assumed in the accident analysis was used.

Dose Rate and Synergistic Effects

Qualification for radiation was based on the calculated total integrated dose. Safety-related electrical equipment qualified for use in a nuclear radiation environment was exposed to radiation which simulated the conservatively calculated integrated dose (normal and accident) that the equipment is expected to withstand prior to completion of its intended safety function. In general, a gamma radiation source, typically CO-60, is used to simulate expected radiation exposure. Where beta and gamma radiation exposure is expected, beta radiation is taken into account either during simulated exposure (directly or as a gamma equivalent) or during evaluation of the results. Reduction in the total beta dose was allowed only after considering appropriate shielding factors. If the beta radiation dose

contribution to the equipment or component was calculated to be less than 10 percent of the total gamma radiation dose to which the equipment or component had been qualified, then the equipment or component was considered qualified for the beta and gamma radiation environment.

Dose rate effects were considered when these effects were known to have a significant effect on equipment performance.

The dose rate, energy spectrum, or particle type was addressed to arrive at a gamma equivalent total dose to which the equipment must be exposed. Actual testing using dose rate, energy spectrum, or particle type as qualification parameters was not considered.

Therefore, synergistic effects involving dose rate are not addressed. However; where synergistic effects of radiation and temperature were identified prior to the initiation of qualification, they are included in the program.

4.1.1.2 Mechanical

The Mechanical Equipment Qualification (MEQ) Program provides a documented analysis of the nonmetallic materials, used in active safety-related mechanical equipment, to demonstrate that the environmental effects due to plant operation and postulated accidents would not degrade these materials in such a way as to prevent this equipment from performing its required safety function.

The MEQ Program details the environmental design conformance review of active safety-related mechanical equipment located in the harsh environment identified in Table 2-1. The conformance review includes nonmetallic subcomponents of active mechanical equipment.

Active safety-related mechanical equipment is detailed in Appendix A.3. Environmental conditions listed in the EDC are used as the basis for the MEQ review.

Generally, mechanical equipment has not been shown to be as sensitive to radiation exposure as electrical components. Metallic portions of the equipment are particularly resistant to radiation. Nonmetallic parts of mechanical equipment, while more sensitive to radiation and temperature, are used in the equipment so that the degradation of mechanical properties will not substantially affect the required active safety function of the component.

Methodology

The review consists of the following five-step process.

1. Identification of active safety-related mechanical equipment
2. Identification of nonmetallic components
3. Identification of environmental design conditions
4. Identification of nonmetallic material capabilities
5. Evaluation of environmental effects

The MEQ Program consists of analyses of active safety-related equipment located in systems required for the following functions:

1. Emergency reactor shutdown
2. Emergency core cooling (short term)
3. Reactor core cooling (long term post accident)
4. Primary containment isolation
5. Containment integrity
6. Prevention of release of radioactive material

To accomplish the above functions, complete systems and portions of systems are included in the MEQ Program.

Category I active mechanical equipment within those systems that are located in a harsh environment, and required for performance of the above functions, are included in the MEQ Program. The review is performed by using the specifications, SWEC drawings, vendor drawings, and manuals.

Each material identified is examined to determine the effect of the environmental conditions on the material

properties. For initial screening, it is conservatively chosen to use the threshold radiation level and maximum service temperature. Materials handbooks, textbooks, and industry and government reports are researched to obtain material data. In some cases vendor data are utilized to supplement the above sources.

A conservative initial screening of the nonmetallic components was made by the comparison of the material capabilities (threshold radiation level and maximum service temperature) with the maximum postulated environmental conditions. Those items which are not shown to be acceptable based on the comparison are evaluated in further detail considering:

1. Degree of material degradation.

2. Material properties affected.

3. Equipment/component function.

4. Degree of functional degradation.

Acceptance Criteria

In order to be considered acceptable, nonmetallic portions of mechanical equipment must either be shown to be acceptable for the plant environment by:

1. Exhibiting threshold radiation values and maximum service temperatures above the maximum postulated environmental conditions.

2. Demonstrating that the safety function of the component is not compromised and noted as "Justified."

4.1.2 NSSS Equipment

4.1.2.1 Electrical

The approach taken by General Electric to environmentally qualify safety-related equipment within the NSSS Scope of Supply for RBS to a level consistent with NUREG-0588 is described in the GE Licensing Topical Report NEDE-24326-1-P[4]. This report has been approved by the NRC. The methodology described in this report is consistent with applicable Regulations (10CFR50 Appendix A); applicable Regulatory Guides; and with applicable consensus national standards (ANSI and IEEE). The work performed under this guidance is controlled in a manner consistent with the commitments contained in the NRC-approved GE Licensing Topical Report on Quality Assurance.

The approach to qualification described in NEDE-24326-1-P[4] is predicated on type testing being the preferred approach. Depending upon either the unique characteristics of the specific devices or on the availability of other sources of qualification data, other approaches such as partial type test with justification by analysis, operating experience, analysis or combination of the above mentioned approaches may be used. For any of these approaches the eventual approach used is justified in the accompanying qualification report. This justification is based on the demonstrated ability of the product to meet its intended safety function.

Where type testing is performed, the approach taken is to assure the device is functional under normal conditions as well as under extremes of such conditions; the devices next age to an end-of-qualified life condition, next the device is subjected to dynamic simulation; next the device is subjected to design basis event conditions and post design basis event conditions; and lastly the device is inspected for failures which may not nave been apparent during the operational testing which occurs during each exposure to an environmental extreme. When a product is tested, where practical, the interface associated with the product is included in the test. The specific sequences of environments applied during the testing are determined, using engineering judgment, to best select the sequence to which the product would be subjected during actual installation. Furthermore, where synergisms between environments are known, these effects are taken into consideration during the planning and conduting of the

Using the RBS specific ambient environmental conditions, a qualification evaluation is performed as follows:

1. Define the environment that exists locally to all nonmetallic parts.

2. Examine part capability relative to the threshold for degradation. Parts for which the environmental exposure is less than the threshold require no further evaluation.

3. Parts that cannot be exempted by the evaluation under paragraph 2 are evaluated in detail. If failure can be tolerated, no further evaluation is required. If failure cannot be tolerated, acceptability is demonstrated by analysis or test data, or a combination of both, that proves the part will support the equipment safety function when exposed to normal, abnormal, and accident environments.

For each item shown on the ML a qualification evaluation report is prepared which includes the following information:

1. Summary statement of the results of the evaluation and qualification status.

2. Definition of any recommended maintenance or other conditions necessary to maintain qualification.

3. Definition of the applicable RBS environmental conditions.

4. Equipment safety function and function time.

5. Nonmetallic material lists related to the equipment item.

6. Analysis performed.

7. Reference material not commonly available.

4.2 MILD ENVIRONMENT

The RBS classification of mild environment zones complies with 10CFR50.49(c). Safety-related equipment in the zone is located outside the containment and is not subject to accident environments caused by a LOCA or pipe break. In these zones there is no significant change in environmental conditions, except radiation. Additionally, for a zone to be classified as mild, the total integrated dose for 40 yr plus 180 days post-accident service is no more than 10^4 rads. This value is conservative since organic compounds with the least radiation resistance have damage thresholds greater than 10^4 rads.

Most electronic components have a threshold damage level above 10^4 rads. Semiconductors, in particular, metal oxide semiconductor (MOS) devices, have a threshold damage level in the range of 10^3 to 10^4 rads. N-channel metal oxide semiconductor (NMOS) devices are most vulnerable to radiation damage; the failure dose can be as low as 10^3 rads (Si) (Reference 5). The damage is usually caused by total dose gamma radiation. No damage was identified due to β radiation. Semiconductor devices are resistant to β radiation since they are sealed in molded plastic, ceramic-to-metal, or glass-to-metal packages. Neutron radiation may cause damage in semiconductor devices; however, there is no neutron radiation in mild environment zones. Dose rate thresholds are higher than total dose damage threshold levels. The lowest threshold for dose rate upset is 10^5 rads (Si)/s for silicone-controlled rectifiers, and dose rate damage occurs above 10^6 rads (Si)/s (Reference 5). Since the maximum dose rate for these zones is much lower than the above threshold levels, no transient or permanent failures will occur in any mild environment zones due to dose rate effects.

Radiation effects on the above conditions in a mild environment are considered negligible because the calculated radiation doses for mild environment zones generally are less than 10^3 rads with the highest dose calculated to be 1,070 rads for the HVAC rooms.

The radiation required to produce one rad in silicon (Si) is 1.15 R in the energy range of 0.5 to 1.0 Mev (Reference 6). Therefore, semiconductor devices, including MOS devices, are considered qualified for the RBS specific radiation exposure.

Equipment located in the zones listed in Table 2-2 are not exposed to environmental conditions that may cause common mode failures due to environmental conditions during DBE. Immediate access following a DBE is not required other than normal and periodic maintenance. Therefore, these plant zones may be considered mild environment areas.

4.2.1 BOP Equipment

Safety-related equipment located in a mild environment meeting the following requirements is considered adequately qualified.

1. A Certificate of Compliance (C of C) which incorporates the qualification requirements specified and states that the functional requirements of the equipment subjected to the specified RBS environmental conditions have been met.

2. The C of C shall identify the supplied equipment by equipment mark number.

3. The equipment has been manufactured in accordance with a quality assurance program that meets the requirements of 10CFR50, Appendix B and states compliance with 10CFR21.

4. The requirements for any scheduled surveillance, maintenance calibration, periodic tests, and parts replacements necessary to maintain qualification.

4.2.2 NSSS Equipment

Safety-related NSSS vendor-supplied equipment that is located in a mild environment is considered qualified if:

1. The equipment manufacturer's design environmental parameters envelop the RBS specific environment.

2. The equipment manufacturer's design functional characteristics envelop the RBS application specific functional performance requirements.

SECTION 5

QUALIFICATION DOCUMENTATION

5.1 MASTER LIST

The master list of all equipment within the scope of the environmental qualification program is provided in Appendix A. The list is divided between electrical and mechanical equipment and between BOP and NSSS scopes of supply.

The electrical equipment master list contains all equipment requiring qualification in accordance with 10CFR50.49.

1. Equipment requiring qualification under 10CFR50.49b(1) includes all safety-related equipment required to perform its safety function in a harsh environment. Also included is equipment in any directly mechanically connected auxiliary systems with electrical components (e.g., cooling water or lubricating systems) which suprort the safety function of other safety-related equipment.

2. Equipment requiring qualification under 10CFR50.49b(2) includes all equipment electrically connected directly into the control or power circuitry of the safety-related equipment whose failure under postulated environmental conditions could adversely affect the safety function of other equipment. The identification of this equipment utilized, among other measures, review of applicable elementary wiring diagrams.

3. Equipment requiring qualification under 10CFR50.49b(3) includes all post-accident monitoring equipment in accordance with the RBS position to Regulatory Guide 1.97. For new and upgraded equipment with a required operation date after fuel load, qualification will be accomplished prior to the committed implementation date.

For each device, the Master List provides a summary of the key elements of the Environmental Qualification Program. Table 5.1-1 and Figure 5.1-1 contain the heading for the Master List, with a description of each entry. The first four characters of the device indicate the unit number and major system in which the device is used. The subsequent characters are used to further segregate the devices by specific type and number. Tables 5.1-2 and 5.1-3 define various codes used in the Master List.

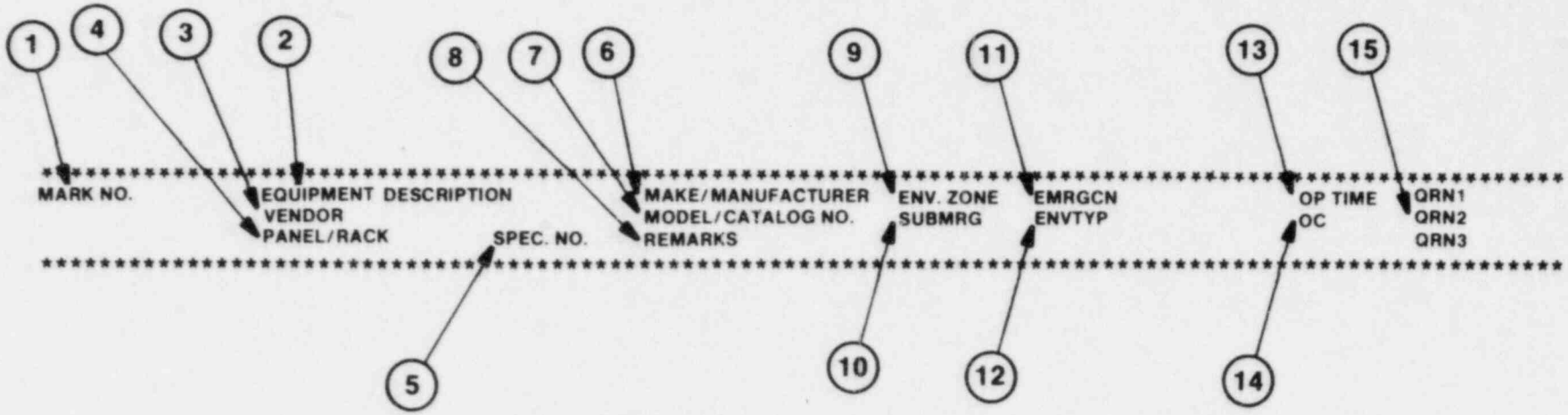
TABLE 5.1-1

ENVIRONMENTAL QUALIFICATION DATA MASTER LIST LEGEND

Number	Title	Description
1	MARK NO.	Indicates identifying number of SWEC equipment (the first four characters of which correspond to the unit number and major system in which the equipment is used).
2	EQUIPMENT DESCRIPTION	Brief description of equipment.
3	VENDOR	Indicates supplier filling purchase order.
4	PANEL/RACK	Mark Number of the panel/rack in which instruments are located.
5	SPEC. NO.	Indicates procurement specification number.
6	MAKE/MANUFACTURER	A four-digit code indicating the manufacturer (not necessarily the same as the vendor) (Table 5.1-2 of this document).
7	MODEL/ CATALOG NO.	Manufacturer's Identification Number.
8	REMARKS	Indicates where special notes or further data may be entered concerning the device and its qualification.

TABLE 5.1-1 (Cont)

Number	Title	Description
9	ENV ZONE	Indicates environmental condition associated with the device.
10	SUBMRG	Indicates if equipment is subjected to submergence.
11	EMRGCN	Indicates accident(s) by column number of Table 3.1-2 through which the device must be operable to perform the safety function, or not to fail in a manner detrimental to accident mitigation or plant safety.
12	ENVTYP	Indicates type of environment (i.e., harsh, mild).
13	OPTIME	Indicates period of time following the onset of an accident during which the device must remain capable of performing its safety function (operability time).
14	OC	Indicates the operability code category associated with the device with regard to Appendix E, NUREG 0588, Item 2.
15	QRN1 QRN2 QRN3	Indicates the summary reference number of the SCEW (System Component Evaluation Work sheet) applicable to the device.



NOTE: SEE TABLE 5.1-1 FOR DEFINITION

FIGURE 5.1-1

RBS EQD
MASTER LIST HEADING
FORMAT

RIVER BEND STATION

ENVIRONMENTAL QUALIFICATION DOCUMENT

5.2 SYSTEM COMPONENT EVALUATION WORK (SCEW) SHEET

A summary of qualification results for equipment within the scope of 10CFR50.49 is provided in the SCEW sheets (Appendix B). The SCEW sheet provides general information regarding the type of equipment, its function, specified environment, qualification environment, qualification method, and references to the documents that substantiate the qualification. The qualification method is designated as TEST-IDENT, TEST-SIM, EXP-AN, and AN-DATA, and corresponds to 10CFR50.49(f), 1 through 4, respectively. The SCEW sheet also identifies the specific equipment number, location (by environmental zone), and qualified life.

Associated with the SCEW sheets are graphs or tables of time-dependent environmental parameters such as temperature and pressure for both specified accident conditions and qualification test conditions. These profiles may be used for comparison of the applicable accident conditions and zones to the environment simulated in the qualification test.

The SCEW sheets are provided in Appendix B.

SECTION 6

MAINTENANCE AND SURVEILLANCE

6.1 MAINTENANCE AND SURVEILLANCE PROGRAM

The RBS Maintenance and Surveillance Program was developed to maintain Category I structures and safety-related systems and components at the quality required to perform their intended functions and withstand design basis events. The program ensures filing of documentation in an auditable and retrievable manner. The objectives of the maintenance and surveillance program, as related to qualification, are accomplished by reviewing qualification data, vendor manuals, NRC correspondence, S.E. reports, etc. This review identifies:

1. Components with a qualified life of less than 40 yr.

2. Components requiring part replacement to continue qualification.

3. Routine preventive maintenance or surveillance requirements for all equipment, regardless of qualified life.

4. Special interfaces and configurations.

The above requirements are incorporated into the existing preventive maintenance program which provides a computerized data base that includes performance frequency, assigned responsibility, applicable procedures, instructions, and requirements. The program allows access to equipment and maintenance history information. Additionally, it provides a means to identify material requirements to the Material Management System (MMS) for better inventory control. RBS has instituted a manual preventive scheduling tracking system using Visi-record cards as backup to the computer system. Based on a work order issued as a result of the preventive maintenance schedule, the appropriate department completes the required maintenance. Upon completion of each scheduled activity, a documented notification is made to indicate completion of the work; this is entered into the computer to facilitate rescheduling. The documented results are sent to the appropriate discipline for technical evaluation and possible alteration of maintenance and surveillance requirements. The initially developed maintenance and surveillance program will be modified during

plant life if additional information such as corrective maintenance frequency, surveillance testing, and industry/operating experience identifies any unanticipated degradation trends. Controls are established for such activities as procurement, storage, and station modification to prevent compromising qualification. Implementation of RBS procedures accomplishes the following:

1. Procurement of qualified components for the intended safety function.

2. Procurement of qualified spare parts and replacement components.

3. Assurance that the required maintenance during storage is properly performed and documented.

4. Control of station modifications to prevent compromising qualification.

5. Review of station modification packages and procurement documents to address equipment qualification concerns.

The RBS Quality Assurance program conforms to 10CFR50, Appendix B, and requires inspections, verifications, and audits to ensure that maintenance requirements are properly implemented in a timely manner. The RBS maintenance and surveillance program is consistent with NRC requirements and ensures that safety-related equipment is maintained and monitored under controls to assure continued qualifications throughout the life of the plant.

SECTION 7

REFERENCES

1. Title 10, Code of Federal Regulations, Paragraph 50.49, Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants. Federal Register, Vol. 48, No. 15. January 21, 1983.

2. Regulatory Guide 1.75, Physical Independence of Electric Systems, Rev. 2, September 1978.

3. Shirley, N.C. et al. General Electric Qualification Program, Licensing Topical Report NEDE-24326-1-P, January 1983.

4. General Electric Nuclear Energy Business Group, BWR Quality Assurance Program, NEDO-11209-04A, March 1978.

5. Rose, M.; Herrity, J.; Ruolie, N.; and Rasmussen, K. Design Guidelines for Transient Radiation Effects on Tactical Army Systems. IRT4331-06. June 12, 1981.

6. American Institute of Electrical Engineers (AIEE). Calculation of Absorbed Dose. December 1960.

ATTACHMENT 2

REVISED SYSTEM COMPONENT EVALUATION WORK (SCEW) SHEETS

EBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 211161-1
REV 2
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION							
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
EQUIP NO.: SEE SHEET 2	OP. TIME:	7 DAYS	>7 DAYS	3	2	AN+DATA	YES	NOTE-3
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	-
	NORMAL	140	140	1	2,5	AN+DATA	NA	
	ABNORMAL	140	140	1	2,5	AN+DATA	NA	NOTE-1,2
TYPE: (DESCRIPTION)	ACCIDENT	330	340	1	2	TEST-IDENT	YES	
HYDROGEN IGNITER ASSEMBLY	PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	-
	NORMAL	0.5	-0.5 TO 2.0	1	2	TEST-IDENT	NA	
	ABNORMAL	2.3	-14 TO 70	1	2	AN+DATA	NA	NOTE-1,2
MANUFACTURER: POWER SYSTEMS DIVISION	ACCIDENT	-8 TO 25	-14 TO 70	1	2	TEST-IDENT	YES	
	RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	-
MODEL: SEE SHEET 2	NORMAL	50	90	1	2	TEST-IDENT	NA	
	ABNORMAL	100	100	1	2	AN+DATA	NA	NOTE-1,2
SAFETY FUNCTION: - - -	ACCIDENT	100	100	1	2	TEST-IDENT	NA	
MAINTAIN ACCEPTABLE HYDROGEN	RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	-
LEVELS IN CONTAINMENT AND	NORM GAMMA						NA	
DRYWELL.	ACC GAMMA	5E7 TID	5E7	1,4	2	TEST-IDENT	YES	NOTE-4
OP. CODE: SEE SHEET 2	NORM BETA	5E4		1			NA	
	ACC BETA	5.3E8	1.1E9	1	2	TEST-IDENT	YES	
	NEUTRON						NA	
	SPRAY	7 SEC	7 DAYS	6	2	TEST-IDENT	YES	
ACCURACY - -	SUBMERGENCE	7 SEC	30 SEC	6	2	TEST-IDENT	YES	
SPEC: NA								
DEMO: NA								
ZONE NO.: SEE SHEET 2								
SUBMERGENCE: SEE NOTE-5								
SPRAY/FROTH: SEE NOTE-5								
DOCUMENTATION ACCEPTABILITY: ACCEPTABLE TO NUREG 0588,CAT I								
MAINT/SURVEILL - - - REFERENCE: 2								
QUALIFIED LIFE - - - (YEARS): SEE SHEET 2 REFERENCE: 2,4								

DOCUMENT REFERENCE:

1. CALCULATION NO. 12210-EQS-61, REV.0
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT, SPEC # 6211.161-992-019B
3. POST-ACCIDENT OPERABILITY PERIOD: SEE FAIP DOCUMENT NO. 245.600, REV.0
4. CALCULATION NO. 12210-EQS-40, REV.0
5. CALCULATION NO. 12210-EQS-41, REV.0
6. FSAR APPENDIX 6A, FIGURE 6A-10.2

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM

SRN 211161-1
REV. 1
SHEET NO. 2E
DATE 1-15-85

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBZONE	QUAL. LIFE	OPTIME OC
SRN 211161-1				
SPEC 211.161				
HCS HYDROGEN RECOMBINER				
1HCS*IGN25A	NONE/UNIQUE	CT-5A	40 YEARS	7 DAYS A
1HCS*IGN25B	NONE/UNIQUE	CT-5A	40 YEARS	7 DAYS A
1HCS*IGN26A	NONE/UNIQUE	CT-5	13.4 YEARS	7 DAYS A
1HCS*IGN26B	NONE/UNIQUE	CT-5	13.4 YEARS	7 DAYS A
1HCS*IGN27A	NONE/UNIQUE	CT-5A	40 YEARS	7 DAYS A
1HCS*IGN27B	NONE/UNIQUE	CT-5A	40 YEARS	7 DAYS A
1HCS*IGN28A	NONE/UNIQUE	DW-1	10.2 YEARS	7 DAYS A
1HCS*IGN28B	NONE/UNIQUE	DW-1	10.2 YEARS	7 DAYS A
1HCS*IGN29A	NONE/UNIQUE	DW-1	10.2 YEARS	7 DAYS A
1HCS*IGN29B	NONE/UNIQUE	DW-1	10.2 YEARS	7 DAYS A
1HCS*IGN30A	NONE/UNIQUE	DW-1	10.2 YEARS	7 DAYS A
1HCS*IGN30B	NONE/UNIQUE	DW-1	10.2 YEARS	7 DAYS A

RBS-ENVIRONMENTAL QUALIFICATION PROGRAM

SRN 211161-1
REV. 1
SHEET NO. 26
DATE 1-15-85

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - NORMAL ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBRG	QUAL. LIFE	CPTIME QC
SRN 211161-1				
SPEC 211.161				
HCS HYDROGEN RECOMBINER				
1HCS*IGN37A	NONE/UNIQUE	CT-G.	40 YEARS	7 DAYS A
1HCS*IGN37B	NONE/UNIQUE	CT-G	40 YEARS	7 DAYS A
1HCS*IGN38A	NONE/UNIQUE	CT-G	40 YEARS	7 DAYS A
1HCS*IGN38B	NONE/UNIQUE	CT-3	40 YEARS	7 DAYS A
1HCS*IGN39A	NONE/UNIQUE	CT-G	40 YEARS	7 DAYS A
1HCS*IGN39B	NONE/UNIQUE	CT-G	40 YEARS	7 DAYS A
1HCS*IGN40A	NONE/UNIQUE	DR-1	10.2 YEARS	7 DAYS A
1HCS*IGN40B	NONE/UNIQUE	DR-1	10.2 YEARS	7 DAYS A
1HCS*IGN41A	NONE/UNIQUE	DR-1	10.2 YEARS	7 DAYS A
1HCS*IGN41B	NONE/UNIQUE	DR-1	10.2 YEARS	7 DAYS A
1HCS*IGN42A	NONE/UNIQUE	DR-1	10.2 YEARS	7 DAYS A
1HCS*IGN42B	NONE/UNIQUE	DR-1	10.2 YEARS	7 DAYS A

RBS- ENVIRONMENTAL QUALIFICATION PROGRAM

SRN 211161-1
REV. 1
SHEET NO. 21
DATE 1-15-85

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBRG	QUAL. LIFE	OPTIME OC
SRN 211161-1				
SPEC 211.161				
HCS HYDROGEN RECOMBINER				
1HCS*IGN49A	NONE/UNIQUE	DH-1	10.2 YEARS	7 DAYS A
1HCS*IGN49B	NONE/UNIQUE	DH-1	10.2 YEARS	7 DAYS A
1HCS*IGN50A	NONE/UNIQUE	DH-1	10.2 YEARS	7 DAYS A
1HCS*IGN50B	NONE/UNIQUE	DH-1	10.2 YEARS	7 DAYS A
1HCS*IGN51A	NONE/UNIQUE	DH-1	10.2 YEARS	7 DAYS A
1HCS*IGN51B	NONE/UNIQUE	DH-1	10.2 YEARS	7 DAYS A

NOTES

1. The abnormal conditions listed apply only to the hydrogen igniters which are located outside the drywell in the containment.

2. Normal condition envelops abnormal condition. Hydrogen igniters are not required to operate under abnormal conditions. Time at abnormal conditions will have a negligible effect on qualified life.

3. Test includes 6-percent margin. See Reference 2 for qualification of additional margin using Arrhenius methodology.

4. Specified value based on 10.6-year qualified life and includes margin on accident conditions.

5. Equipment in containment below 109 ft is subject to submergence, and between 109 ft and 120 ft is subject to spray/froth as a result of pool swell. Equipment subjected to these conditions are identified on Sheet 2. See Reference 6.

NOTES

1. For complete environmental conditions, see the documents referenced.

2. Terminal head gasket must be replaced with a new gasket whenever head cover is removed in order to maintain qualification.

3. Factory certification testing of RTDs has demonstrated accuracy of <±1.0°F. The qualification type testing has shown an accuracy of ±1.2°F. A review of the setpoint calculation is in progress to determine whether ±1.2°F is an acceptable accuracy.

4. PYCO Test Report No. 16346-82N is the basis for qualification of these devices. (See Reference 2.)

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 215252-2
REV 2
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION						
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN: DEMO	REMARKS
EQUIP NO.: SEE SHEET 2	OP.TIME:	100 DAYS	>100 DAYS	3	2,4	AN+DATA	YES	NOTE-3
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
	NORMAL	122	140	1	2,5	AN+DATA	NA	NOTE-5
	ABNORMAL	NA	NA	NA	NA	NA	NA	
TYPE: (DESCRIPTION)	ACCIDENT	200	212	1	2	TEST-SIM	YES	NOTE-6
UNIT COOLER MOTOR	PRESS(PSIG)	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
	NORMAL	-0.10" H20	-3.0	1	2	AN+DATA	NA	NOTE-2
	ABNORMAL	NA	NA	NA	NA	NA	NA	
MANUFACTURER: WESTINGHOUSE	ACCIDENT	2.8	3.45	1	2	TEST-SIM	YES	
	RH (%):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
MODEL: SEE SHEET 2	NORMAL	90	100	1	2	TEST-SIM	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
SAFETY FUNCTION: - - -	ACCIDENT	100	100	1	2	TEST-SIM	NA	
PROVIDE COOLING IN REACTOR	RADIATION:	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
CONTAINMENT OR AUXILARY	NORM GAMMA	3.3E7		1			NA	
BUILDING	ACC GAMMA	1.1E7	1.17E8	1	2	TEST-SIM	YES	NOTE-4
OP. CODE: SEE SHEET 2	NORM BETA	0		1				
	ACC BETA	500		1				
	NEUTRON	0		1				
	SPRAY	NA	NA	NA	NA	NA	NA	
ACCURACY - -	SUBMERGENCE	NA	NA	NA	NA	NA	NA	
SPEC: NA								
DEMO: NA								
ZONE NO.: SEE SHEET 2								
SUBMERGENCE:								
SPRAY/FROTH:								
EQUIPMENT NOT SUBJECTED TO SUBMERGENCE OR SPRAY/FROTH								
DOCUMENTATION ACCEPTABILITY: ACCEPTABLE TO NUREG 0588,CAT I								
MAINT/SURVEILL - - - REFERENCE: 2								
QUALIFIED LIFE - - - (YEARS): SEE SHEET 2 REFERENCE: 2,5								

DOCUMENT REFERENCE:

1. SPECIFICATION 215.252 REV.2, ADD.2
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT, SDDF # 6215.252-057-001F
3. POST-ACCIDENT OPERABILITY PERIOD: SEE PADP DOCUMENT NO. 245.600, REV.0
4. CALCULATION NO. 12210-EQS-20
5. CALCULATION NO. 12210-EQS-26

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 215400-1
REV 1
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)
HYDROGEN MIXING FAN MOTOR

MANUFACTURER: WESTINGHOUSE

MODEL: SEE SHEET 2

SAFETY FUNCTION: - - -
MIX H2 RICH AIR FROM DRYWELL WITH H2 FREE AIR IN CONTAINMENT
OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECTED TO SUBMERGENCE OR SPRAY/FROTH

DOCUMENTATION ACCEPTABILITY:
ACCEPTABLE TO NUREG 0588,CAT 1

MAINT/SURVEILL - - -
REFERENCE: 2

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 2,5

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
OP. TIME:	100 DAYS	>100 DAYS	3	2,4	AN+DATA	YES	NOTE-3
TEMP (F):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORMAL	90	140	1	2,5	AN+DATA	NA	NOTE-5
ABNORMAL	140	140	1	2,5	AN+DATA	NA	NOTE-5
ACCIDENT	165	212	1	2	TEST-SIM	YES	
PRESS (PSIG):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORMAL	-1.0" H2O	-7.0	1	2	AN+DATA	NA	NOTE-2
ABNORMAL	2.5	3.45	1	2	TEST-SIM	NA	
ACCIDENT	9.0	15.0	1	2	AN+DATA	YES	NOTE-2
RH (%):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORMAL	50	100	1	2	TEST-SIM	NA	
ABNORMAL	100	100	1	2	TEST-SIM	NA	
ACCIDENT	100	100	1	2	TEST-SIM	NA	
RADIATION:	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORM GAMMA						NA	
ACC GAMMA	1.89E7 TID	1.13E8	6	2	TEST-SIM	YES	NOTE-4
NORM BETA							
ACC BETA							
NEUTRON							
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:

1. SPECIFICATION 215.400, REV.0, ADD.8
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT, SDDF # 6215.400-071-020D
3. POST-ACCIDENT OPERABILITY PERIOD: SEE FADF DOCUMENT NO. 245.600, REV.0
4. CALCULATION NO. 12210-EQS-20
5. CALCULATION NO. 12210-EQS-26
6. CALCULATION NO. 12210-EQS-62

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COHERENT EVALUATION WORK SHEET

SRN 215400-2
REV 2
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)
VENTILATION AND FILTER FANS

MANUFACTURER: WESTINGHOUSE

MODEL: SEE SHEET 2

SAFETY FUNCTION: - - -
DRAW AIR THROUGH CLEANING
FILTERS, REMOVE HEAT, OR
THOROUGHLY MIX LEAKAGE OF GAS
OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECTED TO
SUBMERGENCE OR SPRAY/FROTH

DOCUMENTATION ACCEPTABILITY:
ACCEPTABLE TO NUREG 0588,CAT I

MAINT/SURVEILL - - -
REFERENCE: 2

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 2,5

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN: DEMO	REMARKS
OP. TIME:	100 DAYS	>100 DAYS	3	2,4	AN+DATA	YES	NOTE-3
TEMP (F):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORMAL	122	140	1	2,5	AN+DATA	NA	NOTE-5
ABNORMAL	124	140	1	2,5	AN+DATA	NA	NOTE-5
ACCIDENT	124	212	1	2	TEST-SIM	YES	
PRESS(PSIG)	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORMAL	-.25" H20	-3.0	1	2	AN+DATA	NA	NOTE-2
ABNORMAL	-.62" H20	-3.0	1	2	AN+DATA	NA	NOTE-2
ACCIDENT	-.62" H20	3.45	1	2	TEST-SIM	YES	
RH (%):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORMAL	90	100	1	2	TEST-SIM	NA	
ABNORMAL	45	100	1	2	TEST-SIM	NA	
ACCIDENT	90	100	1	2	TEST-SIM	NA	
RADIATION:	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORM GAMMA	700					NA	
ACC GAMMA	4.4E7	1.1E8	1	2	TEST-SIM	YES	NOTE-4
NORM BETA	0					NA	
ACC BETA	600					NA	
NEUTRON	0					NA	
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:
1. SPECIFICATION 215.400,REV.0, ADD.0
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
SDDF # 6215.400-071-030
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
FAQF DOCUMENT NO. 245.600, REV.0
4. CALCULATION NO. 1221-E05-20
5. CALCULATION NO. 1221-E05-26

EQS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 219/11-2
REV 1
DATE 21-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)
SOLENIOD VALVE WITH POSITION
SWITCHES

MANUFACTURER: TROP

MODEL: SEE SHEET 2

SAFETY FUNCTION: - - -
ISOLATION FROM MAIN AIR SUPPLY
& INFLATE SEALS TO PRESSURE
BOUNDRY
QF. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECTED TO
SUBMERGENCE OR SPRAY/FROTH

DOCUMENTATION ACCEPTABILITY:
ACCEPTABLE TO NUREG 0588,CAT I

MAINT/SURVEILL - - -
REFERENCE: SEE REFERENCE 2

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 2

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
OP. TIME:	1 HR	1 YEAR	3	2	TEST-SIM	YES	
TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORMAL	122	140	1	2	TEST-SIM	NA	
ABNORMAL	133	140	1	2	TEST-SIM	NA	
ACCIDENT	135	345	1	2	TEST-SIM	YES	
PRESS (PSIG):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORMAL	-0.25" H20	ATMOS	1	2	TEST-SIM	NA	
ABNORMAL	-0.67" H20	ATMOS	1	2	TEST-SIM	NA	
ACCIDENT	2.1	66	1	2	TEST-SIM	YES	
RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORMAL	90	99	1	2	TEST-SIM	NA	
ABNORMAL	36	100	1	2	TEST-SIM	NA	
ACCIDENT	100	100	1	2	TEST-SIM	NA	
RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	- -
NORM GAMMA	9E5	2.27E7	1	2	TEST-SIM	NA	
ACC GAMMA	2E6 TID	1.126E8	1	2	TEST-SIM	YES	
NORM BETA			1	2		NA	
ACC BETA			1	2		NA	
NEUTRON			1	2		NA	
SPRAY	NA	NA				NA	
SUBMERGENCE	NA	NA				NA	

DOCUMENT REFERENCE:
1. SPECIFICATION 219.711, REV.3 / ERDCR NO. P-3034
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
SDOF # 5219.711-[illegible]-060
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
FAQP DOCUMENT NO. 45.600, REV.0

KBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 224520-2
REV 2
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)

RECOMBINER UNIT

MANUFACTURER: WESTINGHOUSE

MODEL: SEE SHEET 2

SAFETY FUNCTION: - - -
REMOVE HYDROGEN FROM
CONTAINMENT ATMOSPHERE

OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECTED TO
SUBMERGENCE OR SPRAY/FROTH
CONDITIONS

DOCUMENTATION ACCEPTABILITY:
ACCEPTABLE TO NUREG 0588,CAT I

MAINT/SURVEILL - - -
REFERENCE: NOT REQUIRED

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 9

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN: DEMO	REMARKS
OP. TIME:	100 DAYS	11 MON.	3	4	TEST-IDENT	YES	
TEMP (F):	- - - - - -	- - - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE 1
NORMAL	90	155	1	2,5	TEST-IDENT	NA	
ABNORMAL	140	155	1	2,5	TEST-IDENT	NA	
ACCIDENT	165	380	1	2,5	TEST-IDENT	YES	
PRESS(PSIG)	- - - - - -	- - - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE 1
NORMAL	-1.0" WG	ATMOS	1	2,5	TEST-IDENT	NA	
ABNORMAL	2.3	70	1	2,5	TEST-IDENT	NA	NOTE 2
ACCIDENT	9.0	70	1	2,5	TEST-IDENT	YES	
RH (%):	- - - - - -	- - - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE 1
NORMAL	50	100	1	7	AN + DATA	NA	
ABNORMAL	100	100	1	7	TEST-IDENT	NA	
ACCIDENT	100	100	1	7	TEST-IDENT	NA	
RADIATION:	- - - - - -	- - - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE 1
NORM GAMMA	9ES		1				
ACC GAMMA	1.8E8TID	2E8	1	6	TEST-IDENT	YES	
NORM BETA							
ACC BETA							
NEUTRON							
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:
1. SPECIFICATION 224.520 THRU ADD.# 7 & ERDER NO. P-12,910A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
SDDF # 6224.520-214-0018 TO 0098 &
WESTINGHOUSE LTR. #PI-82-0166, DATED 4/27/82
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
PADP DOCUMENT NO. 245.600, REV. 0
4. SDDF # 6224.520-214-006B
5. SDDF # 6224.520-214-005B
6. SDDF # 6224.520-214-004B
7. SDDF # 6224.520-214-003B
8. SDDF # 6224.520-214-001P
9. NRC LETTER DATED 6/22/78 FROM J.F.STOLTZ (NRC) TO T.M.ANDERSON (W)

KBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 225220-1
REV 1
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION							
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN: DEMO	REMARKS
EQUIP NO.: SEE SHEET 2								
	OP. TIME:	100 DAYS	>100 DAYS	3	2	TEST-IDENT	YES	
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
	NORMAL	122	137	1	2	TEST-IDENT	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
TYPE: (DESCRIPTION)	ACCIDENT	122	184	1	2	TEST-IDENT	YES	
	PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
HEATER	NORMAL	ATMOS	ATMOS	1	2	TEST-IDENT	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
MANUFACTURER: NUTHERM	ACCIDENT	ATMOS	ATMOS	1	2	TEST-IDENT		NOTE-2
	RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
MODEL: SEE SHEET 2	NORMAL	90	95	1	2	TEST-IDENT	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
SAFETY FUNCTION: - - -	ACCIDENT	90	95	1	2	TEST-IDENT	NA	
LIMIT RELATIVE HUMIDITY OF AIR ENTERING FILTER UNIT	RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
	NORM GAMMA						NA	
OP. CODE: SEE SHEET 2	ACC GAMMA	3.3E6 TID	1.1E7	4	2	TEST-IDENT	YES	
	NORM BETA							
	ACC BETA							
	NEUTRON							
	SPRAY	NA	NA	NA	NA	NA	NA	
ACCURACY - -	SUBMERGENCE	NA	NA	NA	NA	NA	NA	
SPEC: NA								
DEMO: NA								
ZONE NO.: SEE SHEET 2								
SUBMERGENCE:	DOCUMENT REFERENCE:							
SPRAY/FROTH:	1. SPECIFICATION 225.220 THRU ADD.# 8 & E&DCR NO. P-12,903A							
	2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,							
EQUIPMENT NOT SUBJECTED TO	SDDF # 6225.220-115-026A							
SUBMERGENCE OR SPRAY/FROTH	3. POST-ACCIDENT OPERABILITY PERIOD: SEE							
CONDITIONS	PADP DOCUMENT NO. 245.600, REV.0							
	4. CALCULATION NO. 12210-PR(C)-552							
DOCUMENTATION ACCEPTABILITY:								
ACCEPTABLE TO NUREG 0588,CAT I								
MAINT/SURVEILL - - -								
REFERENCE: 2								
QUALIFIED LIFE - - -								
(YEARS): SEE SHEET 2								
REFERENCE: 2								

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 225220-2
REV 1
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION							
				DOCUMENT REFERENCE				
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	SPECIFIED	QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
EQUIP NO.: SEE SHEET 2	OP. TIME:	100 DAYS	>100 DAYS	3	2	AN + DATA	YES	
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
	NORMAL	122	137	1	2	AN + DATA	NA	
TYPE: (DESCRIPTION)	ABNORMAL	NA	NA	NA	NA	NA	NA	
	ACCIDENT	122	184	1	2	AN + DATA	YES	
FLOW SWITCH	PRESS (PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
	NORMAL	ATMOS	ATMOS	1	2	AN + DATA	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
MANUFACTURER: CEMCO	ACCIDENT	ATMOS	ATMOS	1	2	AN + DATA		NOTE 2
	RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
MODEL: SEE SHEET 2	NORMAL	90	95	1	2	AN + DATA	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
SAFETY FUNCTION: - - -	ACCIDENT	90	95	1	2	AN + DATA	NA	
INDICATE AIR FLOW THROUGH	RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
FILTER UNIT	NORM GAMMA						NA	
	ACC GAMMA	3.3E6 TID	2.5E7	4	2	TEST-IDENT	YES	
OP. CODE: SEE SHEET 2	NORM BETA							
	ACC BETA							
	NEUTRON							
	SPRAY	NA	NA	NA	NA	NA	NA	
ACCURACY - -	SUBMERGENCE	NA	NA	NA	NA	NA	NA	
SPEC: NA								
DEMO: NA								

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECTED TO SUBMERGENCE OR SPRAY/FROTH CONDITIONS

DOCUMENTATION ACCEPTABILITY: ACCEPTABLE TO NUREG 0588,CAT I

MAINT/SURVEILL - - -
REFERENCE: 2

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 2

DOCUMENT REFERENCE:

1. SPECIFICATION 225.220 THRU ADD.# 0 & EMDCR NO. P-12,903A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
SDDF # 6225.220-115-026A
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
FAQF DOCUMENT NO. 245.600, REV.0
4. CALCULATION NO. 1210-PR(C)-552

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 225220-3
REV 1
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION							
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN: DEMO	REMARKS
EQUIP NO.: SEE SHEET 2	OP. TIME:	100 DAYS	>100 DAYS	3	2	AN + DATA	YES	
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
	NORMAL	122	137	1	2	AN + DATA	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
TYPE: (DESCRIPTION)	ACCIDENT	122	184	1	2	AN + DATA	YES	
	PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
TEMPERATURE SWITCH	NORMAL	ATMOS	ATMOS	1	2	AN + DATA	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
MANUFACTURER: FENWAL	ACCIDENT	ATMOS	ATMOS	1	2	AN + DATA		NOTE 2
	RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
MODEL: SEE SHEET 2	NORMAL	90	95	1	2	AN + DATA	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
SAFETY FUNCTION: - - -	ACCIDENT	90	95	1	2	AN + DATA	NA	
OVER TEMPERATURE	RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
AUTO RESET	NORM GAMMA						NA	
	ACC GAMMA	9.3E5 RID	1.3E6	4	2	TEST-IDENT	YES	
OP. CODE: SEE SHEET 2	NORM BETA							
	ACC BETA							
	NEUTRON							
	SPRAY	NA	NA	NA	NA	NA	NA	
ACCURACY - -	SUBMERGENCE	NA	NA	NA	NA	NA	NA	
SPEC: NA								
DEMO: NA								

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECTED TO SUBMERGENCE OR SPRAY/FROTH CONDITIONS

DOCUMENTATION ACCEPTABILITY: ACCEPTABLE TO NUREG 0588,CAT I

MAINT/SURVEIL - - -
REFERENCE: 2

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 2

DOCUMENT REFERENCE:
1. SPECIFICATION 225.220 THRU ADD.# 8 & EMDCR NO. P-12,903A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
SDDF # 6225.220-115-026A
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
FAUF DOCUMENT NO. 34.600, REV.0
4. CALCULATION NO. 12210-PR(C)-552

KRS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 225220-4
REV 1
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)

TEMPERATURE SWITCH

MANUFACTURER: FENWAL

MODEL: SEE SHEET 2

SAFETY FUNCTION: - - -
OVER TEMPERATURE
MANUAL RESET

OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECTED TO SUBMERGENCE OR SPRAY/FROTH CONDITIONS

DOCUMENTATION ACCEPTABILITY: ACCEPTABLE TO NUREG 0588,CAT I

MAINT/SURVEILL - - -
REFERENCE: 2

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 2

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN: DEMO	REMARKS
OP. TIME:	100 DAYS	>100 DAYS	3	2	AN + DATA	YES	
TEMP (F):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE 1
NORMAL	122	137	1	2	AN + DATA	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	122	184	1	2	AN + DATA	YES	
PRESS(PSIG)	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE 1
NORMAL	ATMOS	ATMOS	1	2	AN + DATA	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	ATMOS	ATMOS	1	2	AN + DATA		NOTE 2
RH (%):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE 1
NORMAL	90	95	1	2	AN + DATA	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	90	95	1	2	AN + DATA	NA	
RADIATION:	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE 1
NORM GAMMA						NA	
ACC GAMMA	9.3E5 TID	1.3E6	4	2	TEST-IDENT	YES	
NORM BETA							
ACC BETA							
NEUTRON							
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:

1. SPECIFICATION 225.220 THRU ADD.# 8 & E&DCR NO. P-12,903A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT, SDDF # 6225.220-115-026A
3. POST-ACCIDENT OPERABILITY PERIOD: SEE PAOF DOCUMENT NO. 245.600, REV.0
4. CALCULATION NO. 1220-PR(C)-552

PRS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 225220-5
REV 1
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)

HEATER

MANUFACTURER: NUTHERM

MODEL: SEE SHEET 2

SAFETY FUNCTION: - - -
LIMIT RELATIVE HUMIDITY OF AIR ENTERING FILTER UNIT

OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECTED TO SUBMERGENCE OR SPRAY/FROTH CONDITIONS

DOCUMENTATION ACCEPTABILITY: ACCEPTABLE TO NUREG 0588,CAT I

MAINT/SURVEILL - - -
REFERENCE: 2

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 2

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
OP.TIME:	100 DAYS	100 DAYS	3	2	TEST-IDENT	YES	
TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORMAL	96	137	1	2	TEST-IDENT	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	124	184	1	2	TEST-IDENT	YES	
PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORMAL	-0.25" WG	ATMOS	1	2	TEST-IDENT	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	-0.62" WG	ATMOS	1	2	TEST-IDENT		NOTE 2
RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORMAL	55	95	1	2	TEST-IDENT	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	45	95	1	2	TEST-IDENT	NA	
RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORM GAMMA	7E2		1			NA	
ACC GAMMA	1E5 TID	1.1E5	1	2	TEST-IDENT	YES	
NORM BETA							
ACC BETA							
NEUTRON							
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:
1. SPECIFICATION 225.220 THRU ADD.# 8 & E*DCR NO. P-12,903A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT, SDDF # 6225.230-115-026A
3. POST-ACCIDENT OPERABILITY PERIOD: SEE PAOP DOCUMENT NO. 245.600, REV.0

EBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 225220-6
REV 1
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2
SYSTEM: SEE SHEET 2
TYPE: (DESCRIPTION)
FLOW SWITCH
MANUFACTURER: CEMCO
MODEL: SEE SHEET 2
SAFETY FUNCTION: - - -
INDICATE AIR FLOW THROUGH
FILTER UNIT
OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECTED TO
SUBMERGENCE OR SPRAY/FROTH
CONDITIONS

DOCUMENTATION ACCEPTABILITY:
ACCEPTABLE TO NUREG 0588,CAT I

MAINT/SURVEILL - - -
REFERENCE: 2

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 2

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	DUAL METHOD	MARGIN: DEMO	REMARKS
OP.TIME:	100 DAYS	2100 DAYS	3	2	AN + DATA	YES	
TEMP (F):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE 1
NORMAL	96	137	1	2	AN + DATA	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	124	184	1	2	AN + DATA	YES	
PRESS(PSIG)	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE 1
NORMAL	-0.26" WG	ATMOS	1	2	AN + DATA	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	-0.62" WG	ATMOS	1	2	AN + DATA		NOTE 2
RH (%):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE 1
NORMAL	55	95	1	2	AN + DATA	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	45	95	1	2	AN + DATA	NA	
RADIATION:	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE 1
NORM GAMMA	7E2		1			NA	
ACC GAMMA	1E5 TID	2.5E7	1	2	TEST-IDENT	YES	
NORM BETA							
ACC BETA							
NEUTRON							
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:
1. SPECIFICATION 225.220 THRU ADD.# 8 & E&DCR NO. P-12,903A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
SDDF # 6225.220-115-026A
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
PADF DOCUMENT NO. 245.600, REV.0

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 225220-7
REV 1
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)
TEMPERATURE SWITCH

MANUFACTURER: FENWAL

MODEL: SEE SHEET 2

SAFETY FUNCTION: - - -
OVER TEMPERATURE
AUTO RESET

OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECTED TO SUBMERGENCE OR SPRAY/FROTH CONDITIONS

DOCUMENTATION ACCEPTABILITY: ACCEPTABLE TO NUREG 0588,CAT I

MAINT/SURVEILL - - -
REFERENCE: 2

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 2

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
OP.TIME:	100 DAYS	>100 DAYS	3	2	AN + DATA	YES	
TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORMAL	96	137	1	2	AN + DATA	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	124	184	1	2	AN + DATA	YES	
PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORMAL	-0.25" WG	ATMOS	1	2	AN + DATA	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	-0.62" WG	ATMOS	1	2	AN + DATA		NOTE 2
RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORMAL	55	95	1	2	AN + DATA	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	45	95	1	2	AN + DATA	NA	
RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORM GAMMA	7E2		1				
ACC GAMMA	1E5 TID	1.3E6	1	2	TEST-IDENT	YES	
NORM BETA							
ACC BETA							
NEUTRON							
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:
1. SPECIFICATION 225.220 THRU ADD.# 8 & E&DCR NO. P-12,903A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
SDDF # 6225.220-115-026A
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
FAOP DOCUMENT NO. 245.600, REV.0

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 225220-8
REV 1
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)

TEMPERATURE SWITCH

MANUFACTURER: FENWAL

MODEL: SEE SHEET 2

SAFETY FUNCTION: - - -
OVER TEMPERATURE
MANUAL RESET

OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECTED TO
SUBMERGENCE OR SPRAY/FROTH
CONDITIONS

DOCUMENTATION ACCEPTABILITY:
ACCEPTABLE TO NUREG 0588,CAT I

MAINT/SURVEILL - - -
REFERENCE: 2

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 2

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN: DEMO	REMARKS
OP.TIME:	100 DAYS	>100 DAYS	3	2	AN + DATA	YES	
TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORMAL	96	137	1	2	AN + DATA	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	124	184	1	2	AN + DATA	YES	
PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORMAL	-0.25" WG	ATMOS	1	2	AN + DATA	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	-0.62" WG	ATMOS	1	2	AN + DATA		NOTE 2
RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORMAL	55	95	1	2	AN + DATA	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	45	95	1	2	AN + DATA	NA	
RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORM GAMMA	7E2		1			NA	
ACC GAMMA	1E5 TID	1.3E6	1	2	TEST-IDENT	YES	
NORM BETA							
ACC BETA							
NEUTRON							
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:
1. SPECIFICATION 225.220 THRU ADD.# 8 & E&DCR NO. P-12,903A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
SDDE # 6225.220-115-026A
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
FAOP DOCUMENT NO. 245.600, REV.0

228243_1
228241_5
228216_1
228214_1
228212_1

EEQ - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN
REV 2
DATE 21-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION							
				DOCUMENT REFERENCE				
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	SPECIFIED	QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
EQUIP NO.: SEE SHEET 2	OP. TIME:	100 DAYS	100 days	3	2,4	TEST - SIM	YES	-NOTE 3
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	-
	NORMAL	140	140	1	2,4	TEST - SIM	NA	
	ABNORMAL	260	300	1	2,4	AN + DATA	NA	
TYPE: (DESCRIPTION)	ACCIDENT	350	340	1	2,4	TEST - SIM	YES	
MOV-AC/HY INSULATED MOTOR IN-	PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	-
SIDE CONTAINMENT-SEE NOTE 6	NORMAL	.5	ATMOS	1	2,4	TEST - SIM	NA	
	ABNORMAL	5	105	1	2,4	AN + DATA	NA	
MANUFACTURER: LIMITORQUE	ACCIDENT	+25 TO -8	105	1	2,4	TEST - SIM	YES	
	RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	-
MODEL: SEE SHEET 2	NORMAL	100	100	1	2,4	TEST - SIM	NA	
	ABNORMAL	100	100	1	2,4	AN + DATA	NA	
SAFETY FUNCTION: - - -	ACCIDENT	STEAM	STEAM	1	2,4	TEST - SIM	NA	
VALVES MUST OPEN AND/OR CLOSE	RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	-
AS REQUIRED	NORM GAMMA						NA	
	ACC GAMMA	1.77E7	2.04E8	1	2	TEST - SIM	YES	-NOTE 5
OP. CODE: SEE SHEET 2	NORM BETA						NA	
	ACC BETA						NA	
	NEUTRON						NA	
	SPRAY	7 seconds	24 HOURS	5	6,4	TEST - SIM	NA	-NOTE 1
ACCURACY - -	SUBMERGENCE	100 DAYS	SEE NOTE 2	5	2,4	AN + DATA	NA	-NOTE 1, 2
SPEC: NA								
DEMO: NA								
ZONE NO.: SEE SHEET 2								
SUBMERGENCE:								
SPRAY/BOOTH:								
SEE NOTE 1, PAGE 3								
DOCUMENTATION ACCEPTABILITY:								
ACCEPTABLE TO NUREG 0588,CAT								
MAINT/SURVEIL - - -								
REFERENCE: 2								
QUALIFIED LIFE -								
(YEARS): SEE SHEET 2								
REFERENCE: 4 (SEE NOTE 4)								

DOCUMENT REFERENCE:

1. SPECIFICATIONS 228.212, 228.214, 228.216, 228.241 & 228.243
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
   SDDF # 6228.212-047-068D
   6228.214-059-010D
   6228.216-050-017D
   6228.241-092-009B
   6228.243-105-001C
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
   EQDP DOCUMENT NO. 24.600, REV.0
4. CALCULATION NO. 12210-EDS-4
5. FSAR, APPENDIX 6A, FIGURE 6A-10.2
6. SDDF # 6228.212-047-072A

NOTES

1. Equipment in the drywell below el 105 ft 3 in. is subject to submergence as a result of reverse vent clearing. The five valves subject to this condition are identified on Sheet No. 2, pages 2A, 2B, and 2C.

   Equipment in containment below el 109 ft 0 in. is subject to submergence, and equipment between 109 ft 0 in. and 120 ft 0 in. is subject to spray/froth as a result of pool swell. One valve is subject to the spray/froth condition and is identified on Sheet No. 2, page 2G.

2. The valves subject to submergence have no safety function and are not required to cycle following an accident. Valve position will be unaffected by submergence.

3. Operability period extended from 30 days of tested value to 100 days by Arrhenius calculation. See Reference 4.

4. Extension of qualified life past 2 years will be based on the results of the GE Phase 3 testing program for Limitorque actuators.

5. Combined radiation for gamma, beta, and neutron for 20 years of qualified life plus accident, including applicable beta and neutron reduction, is 177 megarads.

6. Refer to Sheet No. 2 for the motor details.

RBS Environmental Qualification Program

SRN 228218-3
REV 1
SHEET NO. 2
DATE 1-15-85

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. / REMARKS	ENV. ZONE / SUBZONE	QUAL. LIFE	OPTIME / QC
SRN 228218-3				
SPEC 228.218				
CSH CORE SPRAY - HIGH PRESSURE				
1CSH*SOV103	NP 8316 WITH 1E22*AOVF005 N/R FOR SAFETY FUNCTION	DW-1	11.4 YEARS	N/R B
CSL CORE SPRAY - LOW PRESSURE				
1CSL*SOV103	NP 8316 WITH 1E21*AOVF006 N/R FOR SAFETY FUNCTION	DW-1	11.4 YEARS	N/R B
ICS REACTOR CORE ISOLATION COOLING				
1ICS*SOV103	NP 8316 WITH 1E51*AOVF063 N/R FOR SAFETY FUNCTION	DW-4	11.4 YEARS	N/R B
RHS RESIDUAL HEAT REMOVAL SYSTEM				
1RHS*SOV5A	NP 8316 WITH 1E12*AOVF041A N/R FOR SAFETY FUNCTION	DW1	11.4 YEARS	N/R B
1RHS*SOV5B	NP 8316 WITH 1E12*AOVF041B N/R FOR SAFETY FUNCTION	DW1	11.4 YEARS	N/R B
1RHS*SOV5C	NP 8316 WITH 1E12*AOVF041C N/R FOR SAFETY FUNCTION	DW1	11.4 YEARS	N/R C

KRS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SKN 241211-1
REV 1
DATE 17-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION						
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
EQUIP NO.: SEE SHEET 2	OP. TIME:	100 DAYS	100 DAYS	3	2	AN+DATA		NOTE-2
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - - -	- - - - - -	- - - -	- - - - - -	- - - - - -	- - -	NOTE-1
	NORMAL	120	248	1	2	TEST-SIM	NA	
	ABNORMAL	140	248	1	2	TEST-SIM	NA	
TYPE: (DESCRIPTION) ELECTRICAL PENETRATION	ACCIDENT	165	370	1	2	TEST-SIM	YES	
	PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
	NORMAL	-3" H2O	14	1	2	TEST-SIM	NA	
MANUFACTURER: CONAX	ABNORMAL	2.3	14	1	2	TEST-SIM	NA	
	ACCIDENT	9	75	1	2	TEST-SIM	YES	
MODEL: SEE SHEET 2	RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
	NORMAL	100	100	1	2	TEST-SIM	NA	
SAFETY FUNCTION: - - -	ABNORMAL	100	100	1	2	TEST-SIM	NA	
CONTAINMENT INTEGRITY & CIRCUIT AVAILABILITY	ACCIDENT	100	100	1	2	TEST-SIM	NA	
	RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
	NORM GAMMA	3.2E7		1	2	TEST-SIM	NA	
OP. CODE: SEE SHEET 2	ACC GAMMA	1.68E8 TID	2.2E8	1	2	TEST-SIM	YES	
	NORM BETA						NA	
	ACC BETA						NA	
	NEUTRON						NA	
ACCURACY - -	SPRAY	NA	NA	NA	NA	NA	NA	
SPEC: NA	SUBMERGENCE	NA	NA	NA	NA	NA	NA	
DEMO: NA								
ZONE NO.: SEE SHEET 2								
SUBMERGENCE:	DOCUMENT REFERENCE:							
SPRAY/FROTH:	1. SPECIFICATION 241.211, REV.1, ADD.2 / E&DCR P21,756A							
	2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,							
EQUIPMENT NOT SUBJECTED TO SUBMERGENCE OR SPRAY/FROTH	SDDF # 6241.211-156-003D & 003C							
	3. POST-ACCIDENT OPERABILITY PERIOD: SEE							
	PAOP DOCUMENT NO. 245.600, REV.0							
DOCUMENTATION ACCEPTABILITY: ACCEPTABLE TO NUREG 0588,CAT I								
MAINT/SURVEILL - - - REFERENCE: NOT REQUIRED								
QUALIFIED LIFE - - - (YEARS): SEE SHEET 2 REFERENCE: 2								

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 237160-1
REV 1
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)
PUMP MOTOR

MANUFACTURER: WESTINGHOUSE

MODEL: SEE SHEET 2

SAFETY FUNCTION: - - -
TO FILL SYSTEM PUMPS &
DISCHARGE PIPING TO AVOID
WATER HAMMER EFFECTS
OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECT TO
SUBMERGENCE OR SPRAY/FROTH

DOCUMENTATION ACCEPTABILITY:
ACCEPTABLE TO NUREG 0588,CAT I

MAINT/SURVEILL - - -
REFERENCE: 2

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 2

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
OP.TIME:	100 DAYS	100 DAYS	3	2	TEST-IDENT	YES	
TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORMAL	122	266	1	2	TEST-IDENT	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	280	356	1	2,4	TEST-IDENT	YES	NOTE-2
PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORMAL	ATMOS	ATMOS	1	2	TEST-IDENT	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	2.1	ATMOS	1	2	TEST-IDENT	-	NOTE-3
RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORMAL	90	100	1	2	TEST-IDENT	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	100	100	1	2	TEST-IDENT	NA	
RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORM GAMMA	6E3						
ACC GAMMA	1E7 TID	2E8	1	2	TEST-SIM	YES	NOTE-4
NORM BETA							
ACC BETA							
NEUTRON							
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:
1. SPECIFICATION 237.160 ADD.6 / EMDCR P12,967
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
   SDDF # 6237.160-108-001F
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
   PADF DOCUMENT NO. 245.600, REV.0
4. CALCULATION NO. 12210-EDS-44

RBS-ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

SRN 241211-1
REV 1
DATE 12-21-94
SHEET No. 2A

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBRG	QUAL. LIFE	OPTIME OC
SRN 241211-1				
SPEC 241.211				
RCP ELECTRICAL PENETRATIONS				
1RCP*LVC05	7437-10002	CT-G	40 YRS	100D A
1RCP*LVC06	7437-10002	CT-5A	40 YRS	100D A
1RCP*LVC10A	7437-10002	CT-G	40 YRS	100D A
1RCP*LVC11A	7437-10002	CT-G	40 YRS	100D A
1RCP*LVC13A	7437-10002	CT-G	40 YRS	100D A
1RCP*LVC18	7437-10002	CT-G	40 YRS	100D A
1RCP*LVC18A	7437-10005	CT-G	40 YRS	100D A
1RCP*LVC19A	7437-10002	CT-G	40 YRS	100D A
1RCP*LVC20A	7437-10002	CT-G	40 YRS	100D A

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM

SRN 241211-1
REV 1
DATE 12-21-84
SHEET NO 28

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBMRG	QUAL. LIFE	OPTIME OC
SRN 241211-1				
SPEC 241.211				
RCP ELECTRICAL PENETRATIONS				
1RCP*LVC21	7437-10002	CT-G	40 YRS	100D A
1RCP*LVP03	7437-10001	CT-G	40 YRS	100D A
1RCP*LVP03A	7437-10001	CT-G	40 YRS	100D A
1RCP*LVP04	7437-10001	CT-5A	40 YRS	100D A
1RCP*LVP04A	7437-10004	CT-5A	40 YRS	100D A
1RCP*LVP07	7437-10001	CT-G	40 YRS	100D A
1RCP*LVP07A	7437-10001	CT-G	40 YRS	100D A
1RCP*LVP08	7437-10001	CT-5A	40 YRS	100D A
1RCP*LVP08A	7437-10001	CT-5A	40 YRS	100D A

RBS-ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

SRN 241211-1
REV 1
DATE 12-21-84
SHEET NO. 2C

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBLRG	QUAL. LIFE	OPTIME OC
SRN 241211-1				
SPEC 241.211				
RCP ELECTRICAL PENETRATIONS				
1RCP*LVP09	7437-10001	CT-G	40 YRS	100D A
1RCP*LVP09A	7437-10005	CT-G	40 YRS	100D A
1RCP*LVP16	7437-10001	CT-G	40 YRS	100D A
1RCP*LVP16A	7437-10001	CT-G	40 YRS	100D A
1RCP*LVP22	7437-10001	CT-G	40 YRS	100D A
1RCP*LVP22A	7437-10001	CT-G	40 YRS	100D A

RBS-ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

SAN 241211-2
REV 1
DATE 12-21-84
SHEET NO. 2A

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBRG	QUAL. LIFE	OPTIME OC
SRN 241211-2				
SPEC 241.211				
RCP ELECTRICAL PENETRATIONS				
1RCP*LVI05A	7437-10003	CT-G	40 YRS	100D A
1RCP*LVI06A	7437-10003	CT-5A	40 YRS	100D A
1RCP*LVI11	7437-10003	CT-G	40 YRS	100D A
1RCP*LVI12	7437-10003	CT-G	40 YRS	100D A
1RCP*LVI12A	7437-10003	CT-G	40 YRS	100D A
1RCP*LVI14	7437-10003	CT-G	40 YRS	100D A
1RCP*LVI14A	7437-10003	CT-G	40 YRS	100D A
1RCP*LVI15	7437-10003	CT-G	40 YRS	100D A
1RCP*LVI15A	7437-10003	CT-G	40 YRS	100D A

RBS-ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

SAN 241211-2
REV 1
DATE 12-2-84
SHEET NO. 28

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBHRG	QUAL. LIFE	OPTIME QC
SRN 241211-2				
SPEC 241.211				
RCP ELECTRICAL PENETRATIONS				
1RCP*LVI17B	7437-10003	CT-G	40 YRS	100D A
1RCP*LVI17C	7437-10003	CT-G	40 YRS	100D A
1RCP*LVI21A	7437-10003	CT-G	40 YRS	100D A
1RCP*NHS10	7437-10004	CT-G UNDER TENS	40 YRS	100D A
1RCP*NHS13	7437-10004	CT-G	40 YRS	100D A
1RCP*NHS19	7437-10004	CT-G	40 YRS	100D A
1RCP*NHS20	7437-10004	CT-G	40 YRS	100D A

RBS-ENVIRONMENTAL QUALIFICATION PROGRAM

SRN 241211-3
REV 1
DATE 12-21-94
SHEET NO. 2

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBRG	QUAL. LIFE	OPTIME OC
SRN 241211-3				
SPEC 241.211				
RCP ELECTRICAL PENETRATIONS				
1RCP*MVP01	7437-10CC0	CT-G	40 YRS	100D A
1RCP*MVP02	7437-10CC0	CT-G	40 YRS	100D A

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SEN 241232-1
REV 1
DATE 21-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)
5 KV POWER CABLES
EPR INSULATION
CSPE JACKET

MANUFACTURER: ANACONDA CO.

MODEL: NA

SAFETY FUNCTION: - - -
PROVIDE POWER TO
CLASS 1E EQUIPMENT

OP. CODE: SEE SHEET 2

ACCURACY - -
SEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:
CABLES NOT SUBJECTED TO
SUBMERGENCE OR SPRAY/FROTH

DOCUMENTATION ACCEPTABILITY:
ACCEPTABLE TO NUREG 0588,CAT I

MAINT/SURVEILL - - -
REFERENCE: NOTE 6

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 2

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
OP. TIME:	100 DAYS	130 DAYS	3	2	TEST-SIM	YES	
TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	
NORMAL	122	RATED 90F	1,4	2	AN+DATA	NA	NOTE 1
ABNORMAL	145	RATED 90C	1,4	2	AN+DATA	NA	NOTE 2
ACCIDENT	320	346	1,4	2	TEST-SIM	YES	NOTE 3
PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	
NORMAL	ATMOS	ATMOS	1,4	2	TEST-SIM	NA	NOTE 1
ABNORMAL	-0.62" W.G.	ATMOS	1,4	2	TEST-SIM	NA	
ACCIDENT	+13	113	1,4	2	TEST-SIM	YES	
RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	
NORMAL	90	100	1,4	2	AN+DATA	NA	NOTE 1
ABNORMAL	26	100	1,4	2	AN+DATA	NA	NOTE 4
ACCIDENT	ALL STEAM	STM+SPRAY	1,4	2	TEST-SIM	NA	NOTE 4
RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	
NORM GAMMA	8.3E7		1,4			NA	NOTE 1
ACC GAMMA	4.44?	?.0E8	1,4	2	TEST-SIM	YES	NOTE 5
NORM BETA	0		1,4			NA	
ACC BETA	6.0E2		1,4			YES	
NEUTRON	0		1,4			NA	
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:
1. SPECIFICATION 241.?32/ENDOR NO. P-?2.129
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
SDDF # 6241.?32-12?-0018,002B,002C,005A
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
EQUIP DOCUMENT NO. 24?.600, REV.0
4. SWEC CALC. NO. 12210-E05-34 (ENVIR. ENVELOPE)

EQG - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 241.234-1
REV 2
DATE 21-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION						
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN: DEMO	REMARKS
EQUIP NO.: SEE SHEET 2	OP. TIME:	100 DAYS	130 DAYS	3	2	TEST-SIM	YES	
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
	NORMAL	140	RATED 194	1,5	2	TEST-SIM	NA	
	ABNORMAL	140	RATED 266	1,5	2	AN+DATA	NA	
TYPE: (DESCRIPTION)	ACCIDENT	330	345	1,5	2	TEST-SIM	YES	
600 VOLT POWER CABLE	PRESS (PSIG)	- - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
ETHYLENE PROPYLENE INSULA-	NORMAL	1/2	ATMOS	1,5	2	TEST-SIM	NA	NOTE-2
TION H/PALON (CSPE) JACKET	ABNORMAL	2.3	8	1,5	2	AN+DATA	NA	NOTE-2
MANUFACTURER: OKONITE	ACCIDENT	25 TO -8	118 TO -11	1,5	2	AN+DATA	YES	
	RH (%):	- - - - -	- - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
MODEL: NA	NORMAL	100	100	1,5	2	AN+DATA	NA	NOTE-3
	ABNORMAL	100	100	1,5	2	AN+DATA	NA	NOTE-3
SAFETY FUNCTION: - - -	ACCIDENT	100	100	1,5	2	TEST-SIM	NA	
TO CONVEY ELECTRICAL POWER	RADIATION:	- - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
TO CLASS 1E EQUIPMENT	NORM GAMMA							
	ACC GAMMA	1.63E8 TID	2E8	1,4	2	TEST-SIM	YES	NOTE-4
OP. CODE: SEE SHEET 2	NORM BETA							
	ACC BETA							
	NEUTRON							
	SPRAY	NA	NA	NA	NA	NA	NA	
ACCURACY - -	SUBMERGENCE	NA	NA	NA	NA	NA	NA	
SPEC: NA								
DEMO: NA								
ZONE NO.: SEE SHEET 2								
SUBMERGENCE:								
SPRAY/FROTH:								
EQUIPMENT NOT SUBJECTED TO SUBMERGENCE OR SPRAY/FROTH								
DOCUMENTATION ACCEPTABILITY: ACCEPTABLE TO NUREG 0588,CAT I								
MAINT/SURVEILL - - - REFERENCE: NOTE-4								
QUALIFIED LIFE - - (YEARS): SEE SHEET 2 REFERENCE: 2,4								

DOCUMENT REFERENCE:
1. SPECIFICATION 241.234 / E&DCR P22.131A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT, SQUF # 6241.234-127-004A & 4B
3. POST-ACCIDENT OPERABILITY PERIOD: SEE EQUIP DOCUMENT NO. 245.600, REV.0
4. CALCULATION NO. 12210-EDS-29
5. CALCULATION NO. 12210-EDS-38

BECH - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 241240-1
REV 2
DATE 21-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)
600 CABLE CONTROL CABLE ETHYLENE PROPYLENE INSULATION HYPALON (CSPE) JACKET

MANUFACTURER: OKONITE

MODEL: NA

SAFETY FUNCTION:
TO CONTROL CLASS 1E EQUIPMENT

OP. CODE: SEE SHEET 2

ACCURACY
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECTED TO SUBMERGENCE OR SPRAY/FROTH

DOCUMENTATION ACCEPTABILITY:
ACCEPTABLE TO NUREG 0588,CAT I

MAINT/SURVEIL
REFERENCE: NOTE-4

QUALIFIED LIFE
YEARS: SEE SHEET 2
REFERENCE: 2,4

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	DUAL METHOD	MARGIN DEMO	REMARKS
OP. TIME:	100 DAYS	130 DAYS	3	2	TEST-SIM	YES	
TEMP (F):	- - -	- - -	- - -	- - -	- - -	- - -	NOTE-1
NORMAL	140	RATED 194	1,5	2	TEST-SIM	NA	
ABNORMAL	140	RATED 266	1,5	2	AN+DATA	NA	
ACCIDENT	330	341	1,5	2	TEST-SIM	YES	
PRESS (PSIG)	- - -	- - -	- - -	- - -	- - -	- - -	NOTE-1
NORMAL	.5	ATMOS	1,5	2	TEST-SIM	NA	NOTE-2
ABNORMAL	2.3	112	1,5	2	AN+DATA	NA	NOTE-2
ACCIDENT	25 TO -8	112 TO -11	1,5	2	AN+DATA	YES	
RH (%):	- - -	- - -	- - -	- - -	- - -	- - -	NOTE-1
NORMAL	100	100	1,5	2	AN+DATA	NA	NOTE-3
ABNORMAL	100	100	1,5	2	AN+DATA	NA	NOTE-3
ACCIDENT	100	100	1,5	2	TEST-SIM	NA	
RADIATION:	- - -	- - -	- - -	- - -	- - -	- - -	NOTE-1
NORM GAMMA:						NA	
ACC GAMMA	1.22E8 TID	2E8	1,4	2	TEST-SIM	YES	NOTE-4
NORM BETA							
ACC BETA							
NEUTRON							
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:
1. SPECIFICATION 241.240 / ORDER P22.130A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT, CODE # 241.240-157-0050 & 58
3. POST-ACCIDENT OPERABILITY PERIOD: SEE PAGE DOCUMENT NO. 245.600, REV.0
4. CALCULATION NO. 12210-ED5-30
5. CALCULATION NO. 12210-ED5-39

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 241242-1
REV 2
DATE 08-Feb-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION							
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
EQUIP NO.: SEE SHEET 2	OP.TIME:	100 DAYS	100 DAYS	3	2	TEST-SIM	YES	NOTE 4
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE 1
	NORMAL	122	194	1,6	2	TEST-SIM	NA	
	ABNORMAL	145	194	1,6	2	TEST-SIM	NA	
TYPE: (DESCRIPTION)	ACCIDENT	260	346	1,6	8,,9,10	TEST-SIM	YES	
300 VOLT INSTRUMENT CABLE	PRESS(PSIG)	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE 1
FIREWALL III,NEOPRENE JACKET	NORMAL	0	0	1,6	2	TEST-SIM	NA	
OVER FIREWALL III XLPE	ABNORMAL	-.02	0	1,6	2	TEST-SIM	NA	
MANUFACTURER: ROCKBESTOS	ACCIDENT	2.8	113	1,6	8,,9,10	TEST-SIM	YES	
	RH (%):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE 1
MODEL: FIREWALL III	NORMAL	90	100	1,6	5	TEST-SIM	NA	
	ABNORMAL	45	100	1,6	5	TEST-SIM	NA	
SAFETY FUNCTION: - - -	ACCIDENT	100	STEAM	1,6	8,,9,10	TEST-SIM	NA	
TRANSMISSION OF SIGNALS	RADIATION:	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	-
ASSOCIATED WITH SAFETY SYSTEMS	NORM GAMMA	8.3E7		1,6	2,4	TEST-SIM	NA	
	ACC GAMMA	4.0E1	2.0E8	1,6	2,4	TEST-SIM	YES	NOTE 3
OP. CODE: SEE SHEET 2	NORM BETA	0		1,6				
	ACC BETA	6.0E2		1,6	2,4	AN+DATA	YES	
	NEUTRON	0		1,6				
	SPRAY	NA	NA	NA	NA	NA	NA	
ACCURACY - -	SUBMERGENCE	NA	NA	NA	NA	NA	NA	NA
SPEC: NA								
DEMO: NA								
ZONE NO.: SEE NOTE 5								
SUBMERGENCE:								
SPRAY/FROTH:								
EQUIPMENT NOT SUBJECTED TO SUBMERGENCE OR SPRAY/FROTH								
DOCUMENTATION ACCEPTABILITY: ACCEPTABLE TO NUREG 0588,CAT I (NOTE 2)								
MAINT/SURVEILL :NOT REQUIRED REFERENCE:								
QUALIFIED LIFE - - - (YEARS): 40 REFERENCE: 2								

DOCUMENT REFERENCE:

1. SPECIFICATION 241.242,REV.0,ADDEN.7/E&DCR NO. P-22.191A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT, SDDF# 6241.242-158-001D
3. POST-ACCIDENT OPERABILITY PERIOD: SEE PAOP DOCUMENT NO. 245.600, REV.0
4. SWEC CALC. NO. 12210-EQS-31 (RAD. DOSES)
5. VENDOR SUPPLEMENTAL REPORT SDDF# 6421.242-158-001E
6. SWEC CALC. NO. 12210-EQS-51 (ENVIR. ENVELOPE)
7. LETTER #C4/12210/93/4YLWPC P.K.GUHA TO H.R.BOGUE; FEB.7,1985
8. 6241.242-158-008A
9. 6211.161-997-006A
10. VENDOR SUPPLEMENTAL REPORT SDDF# 6241.242-158-007A

RBS-ENVIRONMENTAL QUALIFICATION PROGRAM

SRN 241242-1
REV 1
SHEET NO. 2A
DATE 2-7-85

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBHRG	QUAL. LIFE	OPTIME OC
SRN 241242-1				
SPEC 241.242				
NGP CABLE				
1NGP61	NONE	VARIOUS	40yr	100D A
1NGP62	NONE	VARIOUS	40yr	100D A
1NGP70	NONE	VARIOUS	40yr	100D A
1NGP71	NONE	VARIOUS	40yr	100D A
1NGP72	NONE	VARIOUS	40yr	100D A
1NGP73	NONE	VARIOUS	40yr	100D A
1NGP75	NONE	VARIOUS	40yr	100D A
1NGP76	NONE	VARIOUS	40yr	100D A
1NGP77	NONE	VARIOUS	40yr	100D A
1NGP78	NONE	VARIOUS	40yr	100D A
1NGP80	NONE	VARIOUS	40yr	100D A
1NGP81	NONE	VARIOUS	40yr	100D A

RBS- ENVIRONMENTAL QUALIFICATION PROGRAM

SRN 241242-1
REV 1
SHEET NO. 23
DATE 1-7-85

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBIRG	QUAL. LIFE	OPTIME OC
SRN 241242-1				
SPEC 241.242				
NGP CABLE				
1NGP82	NONE	VARIOUS	40yr	100D A
1NGP84	NONE	VARIOUS	40yr	100D A
1NGP85	NONE	VARIOUS	40yr	100D A

NOTES

1. For complete environmental conditions, see the document referenced.

2. Qualification of Rockbestos cable is acceptable for River Bend Station. Documentation concerns identified in NRC notices are being rectified by a Rockbestos commitment to complete a generic requalification test. Reports are due by December 1985 (References 7 and 10).

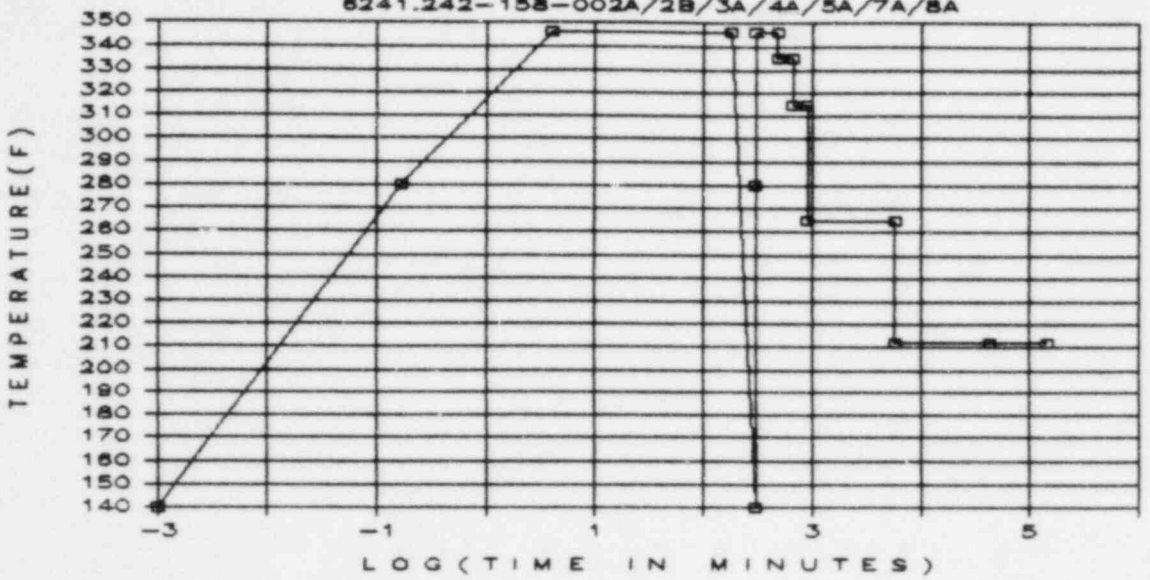
3. The qualified total integrated dose is 2E8 rads.

4. Margin demonstrated by higher temperature over the 100 days of test.

5. Use outside the primary containment in areas not subject to high energy line break. May be used in limited areas of short duration high temperature exposure. Also not used in zones FB-113-4, off-gas area, radwaste building.

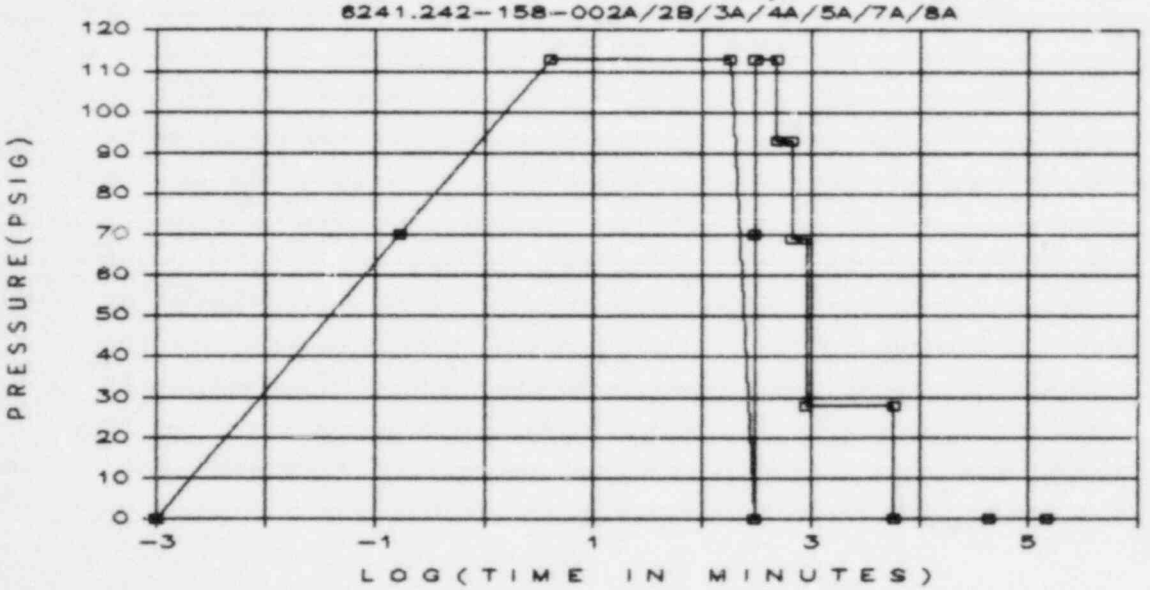
TEST PROFILE 241.242/3 SDDF NO.

6241.242-158-002A/2B/3A/4A/5A/7A/8A



TEST PROFILE 241.242/3 SDDF NO.

6241.242-158-002A/2B/3A/4A/5A/7A/8A



TEST PROFILE SPEC. 241.242/3 SDDF 6241.242/3-158-002A/2B/3A/4A/5A/7A/8A

TEMPERATURE

TIME	0	10SEC	4MIN	3HR	5HR	5HR,10SEC	5HR,4MIN	8HR	8.01HR	11HR	11.01 HR	15HR	15.01HR	4DAYS	4.01DAYS	30DAYS	100 DAYS
LOG (MINU	-3.00	-0.78	0.60	2.26	2.48	2.48	2.48	2.68	2.68	2.82	2.82	2.95	2.95	3.76	3.76	4.64	5.16
TEMP(F)	140	280	346	346	140	280	346	346	335	335	315	315	265	265	212	212	212
TIME(MIN)	0.001	0.1666	4	180	300	300.16	304	480	480	660	660.166	900	900.6	5760	5760.6	43200	144000

PRESSURE

TIME	0	10SEC	4MIN	3HR	5HR	5HR,10SEC	5HR,4MIN	8HR	8.01HR	11HR	11.01 HR	15HR	15.01HR	4DAYS	4.01DAYS	30DAYS	100 DAYS
LOG(MINUT	-3.00	-0.78	0.60	2.26	2.48	2.48	2.48	2.68	2.68	2.82	2.82	2.95	2.95	3.76	3.76	4.64	5.16
PRES(PSIG	0	70	113	113	0	70	113	113	93	93	69	69	28	28	0	0	0
TIME(MIN)	0.001	0.1666	4	180	300	300.16	304	480	480	660	660.166	900	900.6	5760	5760.6	43200	144000

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 241242-2
REV 2
DATE 08-Feb-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION							
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
EQUIP NO.: SEE SHEET 2	OP.TIME:	100 DAYS	100 DAYS	3	2	TEST-SIM	YES	NOTE 8
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
	NORMAL	140	194	1,5	2	TEST-SIM	NA	
	ABNORMAL	140	194	1,5	2	TEST-SIM	NA	
TYPE: (DESCRIPTION)	ACCIDENT	330	346	1,5	2,6	TEST-SIM	YES	
300 VOLT COAX. AND TWINAX	PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
INSTRUMENT CABLE,KXL 200 JAC-	NORMAL	0.5	0	1,5	2	TEST-SIM	NA	
KET OVER KXL 100/150 XLPE INS	ABNORMAL	2.3	0	1,5	2	AN+DATA	NA	NOTE 7
MANUFACTURER: ROCKBESTOS	ACCIDENT	25	113	1,5	2,6	TEST-SIM	YES	
	RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
MODEL: RSS-6	NORMAL	90	100	1,5	2	TEST-SIM	NA	
	ABNORMAL	100	100	1,5	2	TEST-SIM	NA	
SAFETY FUNCTION:	ACCIDENT	STEAM	STEAM	1,5	2,6	TEST-SIM	NA	
TRANSMISSION OF SIGNALS	RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	-
ASSOCIATED WITH SAFETY SYSTEMS	NORM GAMMA							
	ACC GAMMA	1.7E8 TID	2.0E8	4	2,4	TEST-SIM	YES	NOTE 3
OP. CODE: SEE SHEET 2	NORM BETA							
	ACC BETA							
	NEUTRON							
	SPRAY	NA	NA	NA	NA	NA	NA	NA
ACCURACY - -	SUBMERGENCE	NA	NA	NA	NA	NA	NA	NA
SPEC: NA								
DEMO: NA								
ZONE NO.: SEE NOTE 4								
SUBMERGENCE:	DOCUMENT REFERENCE:							
SPRAY/FROTH:	1. SPECIFICATION 241.242,REV.0,ADDEN.7/E&DCR NO. P-22.191A							
EQUIPMENT NOT SUBJECTED TO	2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,							
SUBMERGENCE OR SPRAY/FROTH	SDDF # 6241.242-158-002B							
	3. POST-ACCIDENT OPERABILITY PERIOD: SEE							
	PAOP DOCUMENT NO. 245.600, REV.0							
	4. SWEC CALC. NO. 12210-EQS-31 (RAD. DOSES)							
DOCUMENTATION ACCEPTABILITY:	5. SWEC CALC. NO. 12210-EQS-51 (ENVIR. ENVELOPE)							
ACCEPTABLE TO NUREG 0588,CAT I	6. VENDOR SUPPLEMENTAL REPORT SDDF# 6241.242-158-007A							
(NOTE 2)	7. LETTER# C4/12210/93/4YLWPC P.P.GUHA TO H.R.BOGUE; FEB. 7,1985							
MAINT/SURVEILL: NOT REQUIRED								
REFERENCE:								
QUALIFIED LIFE - - -								
(YEARS): 40								
REFERENCE: 2								

RBS-ENVIRONMENTAL QUALIFICATION PROGRAM

SRN 241242-2
REV 1
SHEET NO. 2
DATE 2-7-85

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBHRG	QUAL. LIFE	OPTIME OC
SRN 241242-2				
SPEC 241.242				
NGS CABLE				
1NGS40	NONE NOTE 5	VARIOUS	40yr	100D A
1NGS41	NONE	VARIOUS	40yr	100D A
1NGS42	NONE	VARIOUS	40yr	100D A
1NGS43	NONE	VARIOUS	40yr	100D A
1NGS44	NONE NOTE 6	VARIOUS	40yr	100D A
1NGS45	NONE	VARIOUS	40yr	100D A
1NGS46	NONE	VARIOUS	40yr	100D A

NOTES

1. For complete environmental conditions, see the document referenced.

2. Qualification of Rockbestos cable is acceptable for River Bend Station. Documentation concerns identified in NRC notices are being rectified by a Rockbestos commitment to complete a generic requalification test. Reports are due by December 1985 (References 6 and 7).

3. Both are total integrated doses. Specified value includes margin.

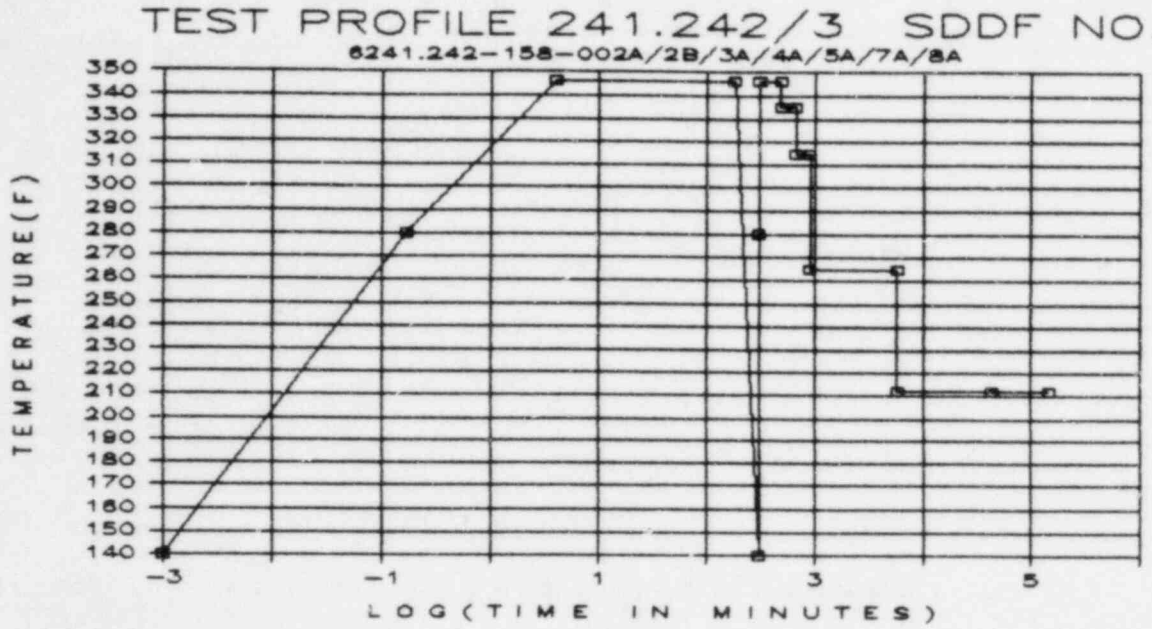
4. Used everywhere except zones DW-6, CT-8, FB-113-4, radwaste building, and off-gas area.

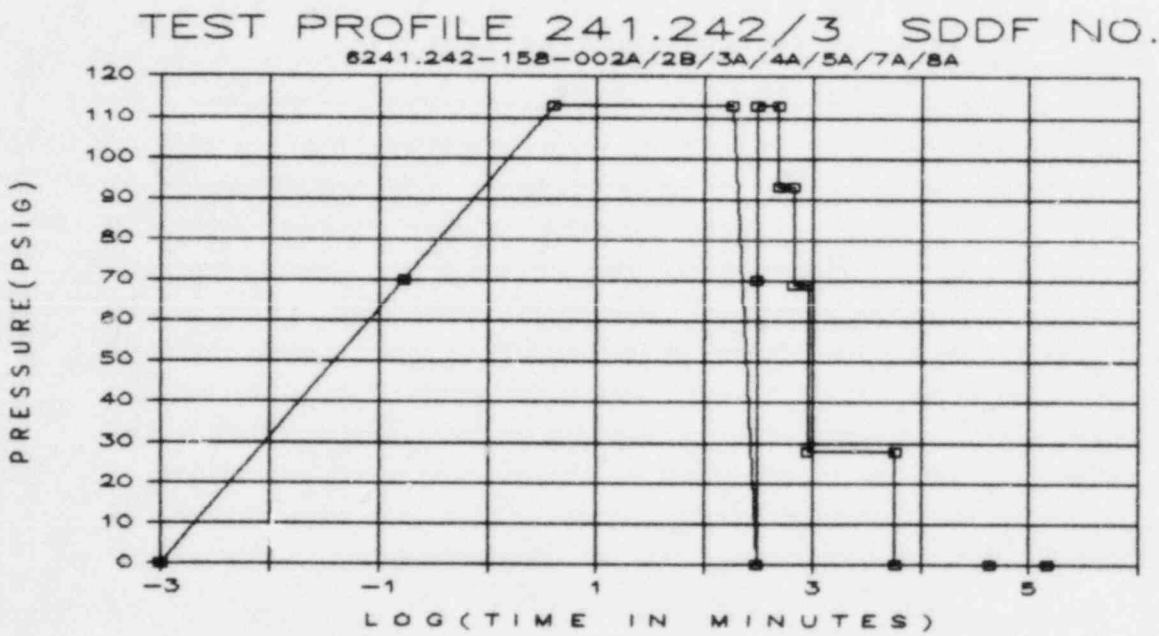
5. (INGS40) Six circuits will be exposed to a TID greater than 2E8. These will have a reduced life of 36 years. They are listed in Appendix A of Reference 4 .

6. (INGS44) Sixty-six circuits will be exposed to a TID greater than 2E8. These will have a reduced life of 32 years. They are listed in Appendix A of Reference 4.

7. Cables are qualified for 113 psig; therefore, 2.3 psig will not have any effect on cables.

8. Margin demonstrated by higher temperature over 100 days of test.





TEST PROFILE SPEC. 241.242/3 SDDF 6241.242/3-158-002A/2B/3A/4A/5A/7A/8A

TEMPERATURE

TIME	0	10SEC	4MIN	1HR	5HR	5HR,10SEC	5HR,4MIN	8HR	8.01HR	11HR	11.01 HR	15HR	15.01HR	4DAYS	4.01DAYS	30DAYS	100 DAYS
LOG (MINU	-3.00	-0.78	0.60	2.26	2.48	2.48	2.48	2.68	2.68	2.82	2.82	2.95	2.95	3.76	3.76	4.64	5.16
TEMP(F)	140	280	346	346	140	280	346	346	335	335	315	315	265	265	212	212	212
TIME(MIN)	0.001	0.1666	4	180	300	300.16	304	480	480	660	660.166	900	900.6	5760	5760.6	43200	144000

PRESSURE

TIME	0	10SEC	4MIN	1HR	5HR	5HR,10SEC	5HR,4MIN	8HR	8.01HR	11HR	11.01 HR	15HR	15.01HR	4DAYS	4.01DAYS	30DAYS	100 DAYS
LOG(MINUT	-3.00	-0.78	0.60	2.26	2.48	2.48	2.48	2.68	2.68	2.82	2.82	2.95	2.95	3.76	3.76	4.64	5.16
PRES(PSIG	0	70	113	113	0	70	113	113	93	93	69	69	28	28	0	0	0
TIME(MIN)	0.001	0.1666	4	180	300	300.16	304	480	480	660	660.166	900	900.6	5760	5760.6	43200	144000

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 241242_3
REV 2
DATE 08-Feb-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)
300 VOLT INSTRUMENT CABLE,
KC-486 NEOPRENE JACKET OVER
KXL-760 XLPE INSUL. & CPR SHLD
MANUFACTURER: ROCKBESTOS

MODEL: XLPE/NEOPRENE

SAFETY FUNCTION:
TRANSMISSION OF SIGNALS
ASSOCIATED WITH SAFETY SYSTEMS

OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:
EQUIPMENT NOT SUBJECTED TO
SUBMERGENCE OR SPRAY/FROTH

DOCUMENTATION ACCEPTABILITY:
ACCEPTABLE TO NUREG 0588,CAT I
(NOTE 2)

MAINT/SURVEILL: NOT REQUIRED
REFERENCE:

QUALIFIED LIFE - - -
(YEARS): 40
REFERENCE: 2

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
OP.TIME:	100 DAYS	100 DAYS	3	2,6,7	TEST-SIM	YES	NOTE 5
TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORMAL	140	194	1	2	TEST-SIM	NA	
ABNORMAL	140	194	1,5	2	TEST-SIM	NA	
ACCIDENT	330	346	1	2,6,7	TEST-SIM	YES	
PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORMAL	0.5	0	1	2	TEST-SIM	NA	
ABNORMAL	2.3	0	1,5	2	AN+DATA	NA	NOTE 6
ACCIDENT	25	113	1	2,6,7	TEST-SIM	YES	
RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORMAL	90	100	1	2	TEST-SIM	NA	
ABNORMAL	100	100	1	2	TEST-SIM	NA	
ACCIDENT	STEAM	STEAM	1	2,6,7	TEST-SIM	NA	
RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	-
NORM GAMMA			1,5			NA	
ACC GAMMA	1.7E8 TID	2E8	1,5	6,7	TEST-SIM	YES	NOTE 3
NORM BETA			1,5			NA	
ACC BETA			1,5			YES	
NEUTRON			1,5	2		NA	
SPRAY	NA	NA	NA	NA	NA	NA	NA
SUBMERGENCE	NA	NA	NA	NA	NA	NA	NA

DOCUMENT REFERENCE:
1. SPECIFICATION 241.242,REV.0.ADDEN. 7/E&DCR NO.P-22.191A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
SDDF # 6241.242-158-008A
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
PADP DOCUMENT NO. 245.600, REV.0
4. SWEC CALC. NO. 12210-EDS-31 (RAD. DOSES)
5. SWEC CALC. NO. 12210-EDS-51 (ENVIR. ENVELOPE)
6. SUPPLEMENTAL REPORT SDDF# 6241.242-158-007A
7. LETTER# C4/12210/93/4YLWPC P.T.GUHA TO H.R.BOGUE, FEB. 7,1985

SRN 241242-3
REV. 1
SHEET NO. 2
DATE 2-7-85

RBS-ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. / REMARKS	ENV. ZONE / SUBHRG	QUAL. LIFE	OPTIME / OC
SRN 241242-3				
SPEC 241.242				
NGP CABLE				
1NGP67	NONE	VARIOUS	40 yr	100D A
1NGP68	NONE	VARIOUS	40 yr	100D A
NGS CABLE				
1NGS57	NONE NOTE 4	VARIOUS	40 yr	100D A

NOTES

1. For complete environmental conditions, see the document referenced.

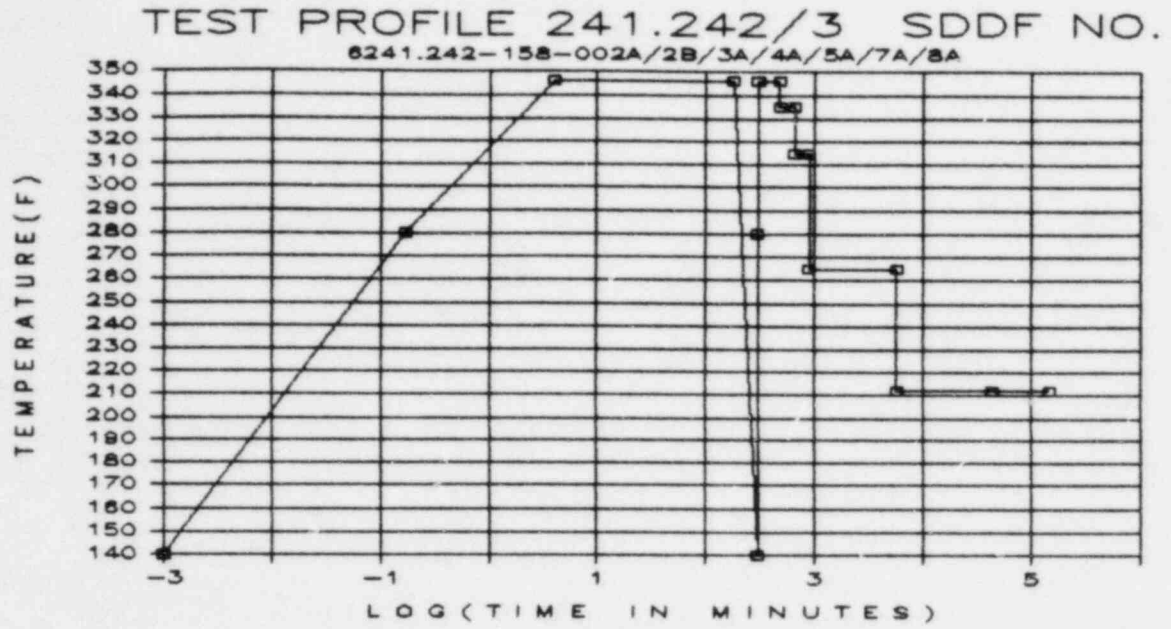
2. Qualification of Rockbestos cable is acceptable for River Bend Station. Documentation concerns identified in NRC notices are being rectified by a Rockbestos commitment to complete a generic requalification test. Reports are due by December 1985 (References 6 and 8).

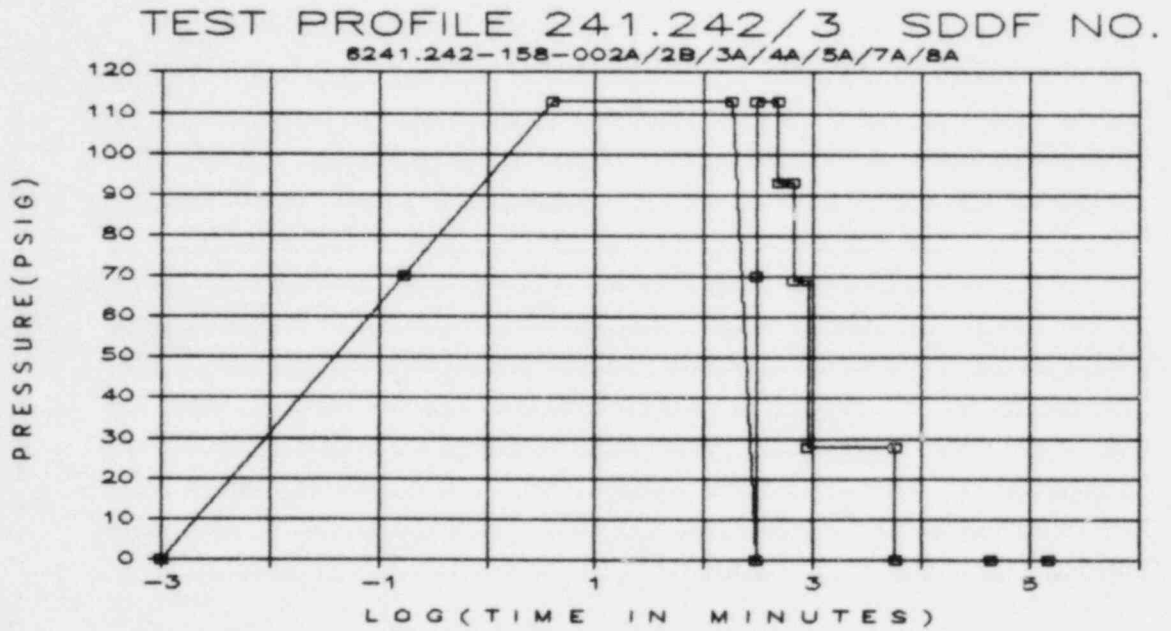
3. Total integrated dose with margin included.

4. (INGP67) All but one circuit will be exposed during 40-year life plus accident plus margin to less than 200 Mrads. The test exposure of 2E8 rads will qualify this circuit initially for 36 years. See Appendix A of Reference 4.

5. Margin demonstrated by higher temperature over 100 days of test.

6. Cables are qualified for 113 psig; therefore, 2.3 psig will not have any effect on cables.





TEST PROFILE SPEC. 241.242/3 SDDF 6241.242/3-158-002A/2B/3A/4A/5A/7A/8A

TEMPERATURE

TIME	0	10SEC	4MIN	3HR	5HR	5HR,10SEC	5HR,4MIN	8HR	8.01HR	11HR	11.01 HR	15HR	15.01HR	4DAYS	4.01DAYS	30DAYS	100 DAYS
LOG (MINU	-3.00	-0.78	0.60	2.26	2.48	2.48	2.48	2.68	2.68	2.82	2.82	2.95	2.95	3.76	3.76	4.64	5.16
TEMP(F)	140	280	346	346	140	280	346	346	335	335	315	315	265	265	212	212	212
TIME(MIN)	0.001	0.1666	4	180	300	300.16	304	480	480	660	660.166	900	900.6	5760	5760.6	43200	144000

PRESSURE

TIME	0	10SEC	4MIN	3HR	5HR	5HR,10SEC	5HR,4MIN	8HR	8.01HR	11HR	11.01 HR	15HR	15.01HR	4DAYS	4.01DAYS	30DAYS	100 DAYS
LOG(MINUT	-3.00	-0.78	0.60	2.26	2.48	2.48	2.48	2.68	2.68	2.82	2.82	2.95	2.95	3.76	3.76	4.64	5.16
PRES(PSIG	0	70	113	113	0	70	113	113	93	93	69	69	28	28	0	0	0
TIME(MIN)	0.001	0.1666	4	180	300	300.16	304	480	480	660	660.166	900	900.6	5760	5760.6	43200	144000

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 241243-1
REV 2
DATE 08-Feb-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)
THRMOCOUPLE EXTENSION WIRE
KC-486 NEOPRENE JACKET OVER
KYL 760 XLPE INSULATION
MANUFACTURER: ROCKBESTOS

MODEL: NA

SAFETY FUNCTION: - - -
TRANSMISSION OF SIGNAL
ASSOCIATED WITH SAFTEY SYSTEMS

OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE NOTE 4
SUBMERGENCE:
SPRAY/FROTH:
EQUIPMENT NOT SUBJECTED TO
SUBMERGENCE OR SPRAY/FROTH

DOCUMENTATION ACCEPTABILITY:
ACCEPTABLE TO NUREG 0588,CAT I
(NOTE-2)

MAINT/SURVEILL - - -
REFERENCE: NOT REQUIRED

QUALIFIED LIFE - - -
(YEARS): 40
REFERENCE: 2

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
OP.TIME:	100 DAYS	100 DAYS	3	9	TEST-SIM	YES	NOTE 6
TEMP (F):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORMAL	122	194	1	2	TEST-SIM	NA	
ABNORMAL	145	194	1	2	TEST-SIM	NA	
ACCIDENT	260	346	1	4,8,9	TEST-SIM	YES	
PRESS(PSIG)	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORMAL	0	ATMOS	1	2	TEST-SIM	NA	
ABNORMAL	-.02	ATMOS	1	4,8	TEST-SIM	NA	
ACCIDENT	2.8	113	1	4,8,9	TEST-SIM	YES	
RH (%):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORMAL	100	100	1	2	TEST-SIM	NA	NOTE-5
ABNORMAL	45	100	1	9	TEST-SIM	NA	
ACCIDENT	100	STEAM	1	4,8,9	TEST-SIM	NA	
RADIATION:	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	
NORM GAMMA	8.3E7	2E8	6	2,5	TEST-SIM	NA	
ACC GAMMA	40		6			YES	NOTE-3
NORM BETA	0		6			NA	
ACC BETA	600		6			YES	
NEUTRON	0		6			NA	
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:

1. SPECIFICATION _241.243 REV.1, ADD.4 / E&DCR P22,194A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT, SDDF # 6241.243-162-002A
3. POST-ACCIDENT OPERABILITY PERIOD: SEE PAOP DOCUMENT NO. 245.600, REV.0
4. SUPPLEMTAL REPORT SDDF# 6241.243-162-003A
5. CALCULATION NO. 12210-E0S-32 (RADIATION)
6. CALCULATION NO. 12210-E0S-56 (ENVIRONMENTAL)
7. LETTER# C4/12210/93/4YLWPC F.F.GUHA TO H.R.BOGUE; FEB. 5,1985
8. 6241.243-162-004A
9. 6241.243-162-005A

RBS-ENVIRONMENTAL QUALIFICATION PROGRAM

SRN 241243-1
REV 1
SHEET NO. 2
DATE 2-7-85

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBHRG	QUAL. LIFE	OPTIME OC
SRN 241243-1				
SPEC 241.243				
NGS CABLE				
1NGS01	NONE	VARIOUS	40yr	100D A
1NGS02	NONE	VARIOUS	40yr	100D A
1NGS03	NONE	VARIOUS	40yr	100D A
1NGS05	NONE	VARIOUS	40yr	100D A
1NGS61	NONE	VARIOUS	40yr	100D A

NOTES

1. For complete environmental conditions, see the document referenced.

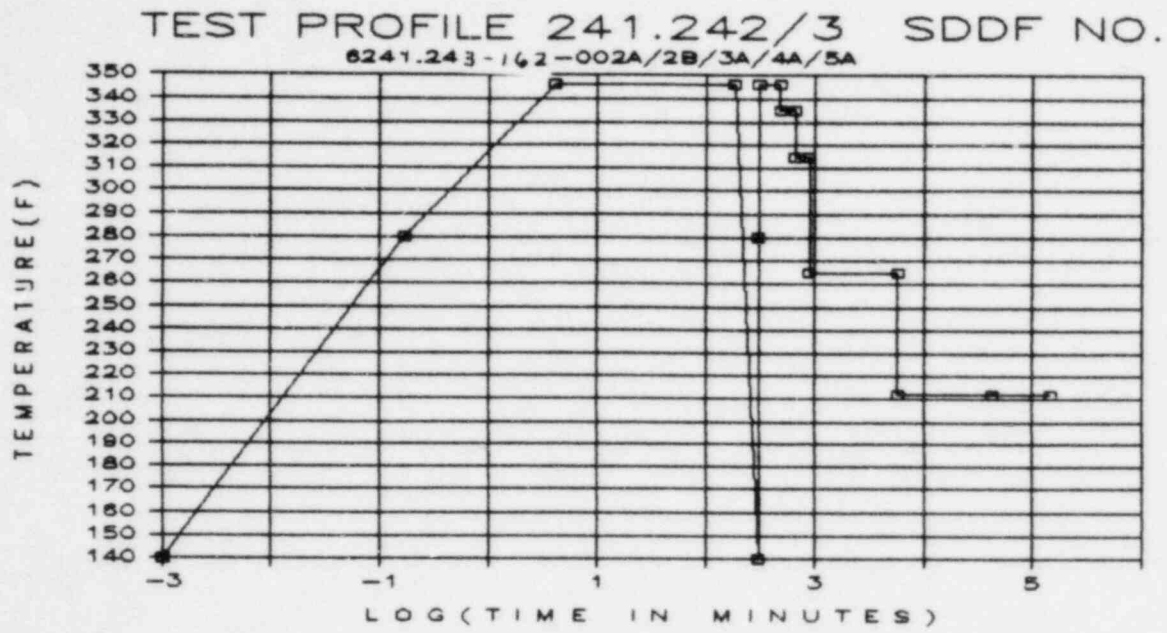
2. Qualification of Rockbestos cable is acceptable for River Bend Station. Documentation concerns identified in NRC notices are being rectified by a Rockbestos commitment to complete a generic requalification test. Reports are due by December 1985 (References 4 and 7).

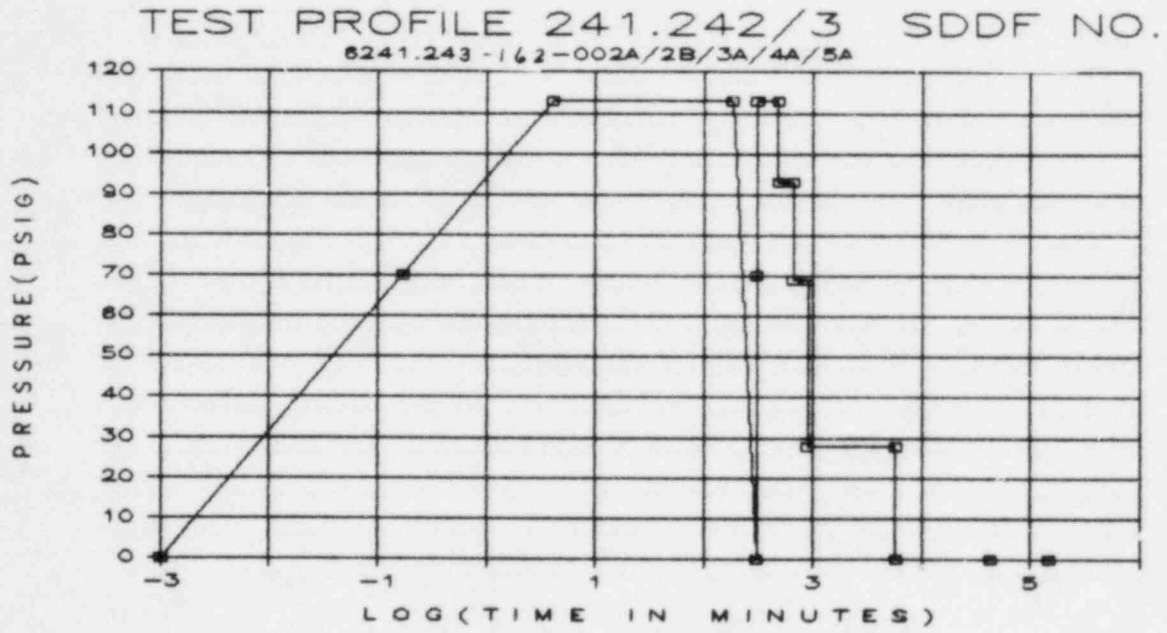
3. Qualified total integrated dose is 2E8 rads.

4. Used outside the primary containment in areas not subject to high energy line break. Also not used in zone FB-113-4 and off-gas area.

5. Tested submerged.

6. Margin demonstrated by higher temperatures over 100 days of test.





TEST PROFILE SPEC. 241.242/3 SDDF 6241.242/3-162-002A/2B/3A/4A/5A

TEMPERATURE

TIME	0	10SEC	4MIN	3HR	5HR	5HR,10SEC	5HR,4MIN	8HR	8.01HR	11HR	11.01 HR	15HR	15.01HR	4DAYS	4.01DAYS	30DAYS	100 DAYS
LOG (MINU	-3.00	-0.78	0.60	2.26	2.48	2.48	2.48	2.68	2.68	2.82	2.82	2.95	2.95	3.76	3.76	4.64	5.16
TEMP(F)	140	280	346	346	140	280	346	346	335	335	315	315	265	265	212	212	212
TIME(MIN)	0.001	0.1666	4	180	300	300.16	304	480	480	660	660.166	900	900.6	5760	5760.6	43200	144000

PRESSURE

TIME	0	10SEC	4MIN	3HR	5HR	5HR,10SEC	5HR,4MIN	8HR	8.01HR	11HR	11.01 HR	15HR	15.01HR	4DAYS	4.01DAYS	30DAYS	100 DAYS
LOG(MINUT	-3.00	-0.78	0.60	2.26	2.48	2.48	2.48	2.68	2.68	2.82	2.82	2.95	2.95	3.76	3.76	4.64	5.16
PRES(PSIG	0	70	113	113	0	70	113	113	93	93	69	69	28	28	0	0	0
TIME(MIN)	0.001	0.1666	4	180	300	300.16	304	480	480	660	660.166	900	900.6	5760	5760.6	43200	144000

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 241243-2
REV 2
DATE 08-Feb-95
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION						
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
EQUIP NO.: SEE SHEET 2	OP.TIME:	100 DAYS	100 DAYS	3	9	TEST-SIM	YES	
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
	NORMAL	140	194	1	2	TEST-SIM	NA	
	ABNORMAL	140	194	6	2	TEST-SIM	NA	
TYPE: (DESCRIPTION)	ACCIDENT	330	346	1	8,9,4	TEST-SIM	YES	
THRMOCOUPLE EXTENSION WIRE	PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
KC-486 NEOPRENE JACKET OVER	NORMAL	0.5	ATMOS	1	2	TEST-SIM	NA	
KYL 760 XLPE INSUL & SHLD	ABNORMAL	2.3	ATMOS	6	8,4	AN+DATA	NA	NOTE 6
MANUFACTURER: ROCKBESTOS	ACCIDENT	25 TO -8	113	1	8,9,4	TEST-SIM	YES	
	RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
MODEL: NA	NORMAL	90	100	1	2	TEST-SIM	NA	NOTE-5
	ABNORMAL	100	100	6	9	TEST-SIM	NA	
SAFETY FUNCTION: - - -	ACCIDENT	STEAM	STEAM	1	8,9,4	TEST-SIM	NA	
TRANSMISSION OF SIGNAL	RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	
ASSOCIATED WITH SAFTEY SYSTEMS	NORM GAMMA						NA	
	ACC GAMMA	1.7E8 TID	2E8	5	2	TEST-SIM	YES	NOTE-3
OP. CODE: SEE SHEET 2	NORM BETA						NA	
	ACC BETA						YES	
	NEUTRON						NA	
	SPRAY	NA	NA	NA	NA	NA	NA	
ACCURACY - -	SUBMERGENCE	NA	NA	NA	NA	NA	NA	
SPEC: NA								
DEMO: NA								
ZONE NO.: SEE NOTE-4								
SUBMERGENCE:								
SPRAY/FROTH:								
EQUIPMENT NOT SUBJECTED TO SUBMERGENCE OR SPRAY/FROTH								
DOCUMENTATION ACCEPTABILITY: ACCEPTABLE TO NUREG 0588,CAT I (NOTE-2)								
MAINT/SURVEILL - - - REFERENCE: NOT REQUIRED								
QUALIFIED LIFE - - - (YEARS): 40 REFERENCE: 2								

DOCUMENT REFERENCE:

1. SPECIFICATION _241.243 REV.1, ADD.4 / E&DCR P22,194A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT, SDDF # 6241.243-162-002A
3. POST-ACCIDENT OPERABILITY PERIOD: SEE PAOP DOCUMENT NO. 245.600, REV.0
4. SUPPLEMENTAL REPORT SDDF# 6241.243-162-003A
5. CALCULATION NO. 12210-E0S-32 (RADIATION)
6. CALCULATION NO. 12210-E0S-56 (ENVIRONMENTAL)
7. LETTER# C4/12210/93/4YLWPC P.F.GUHA TO H.R.BOGUE; FEB. 5,1985
8. 6241.243-162-004A
9. 6241.243-162-005A

SRN 241243-2
REV. 1
SHEET NO. 2
DATE 2-7-85

RBS-ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. / REMARKS	ENV. ZONE / SUBHRG	QUAL. LIFE	OPTIME / OC
SRN 241243-2				
SPEC 241.243				
NGS CABLE				
1NGS06	NONE	VARIOUS	40yr	100D / A
1NGS60	NONE	VARIOUS	40yr	100D / A

NOTES

1. For complete environmental conditions, see the document referenced.

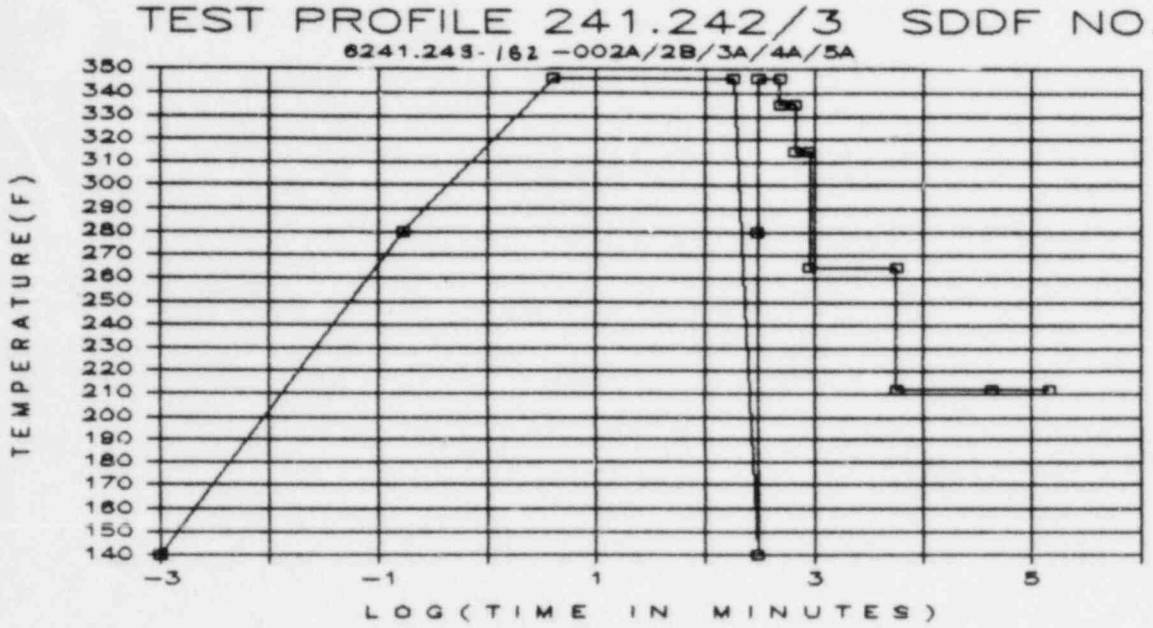
2. Qualification of Rockbestos cable is acceptable for River Bend Station. Documentation concerns identified in NRC notices are being rectified by a Rockbestos commitment to complete a generic requalification test. Reports are due by December 1985 (References 4 and 7).

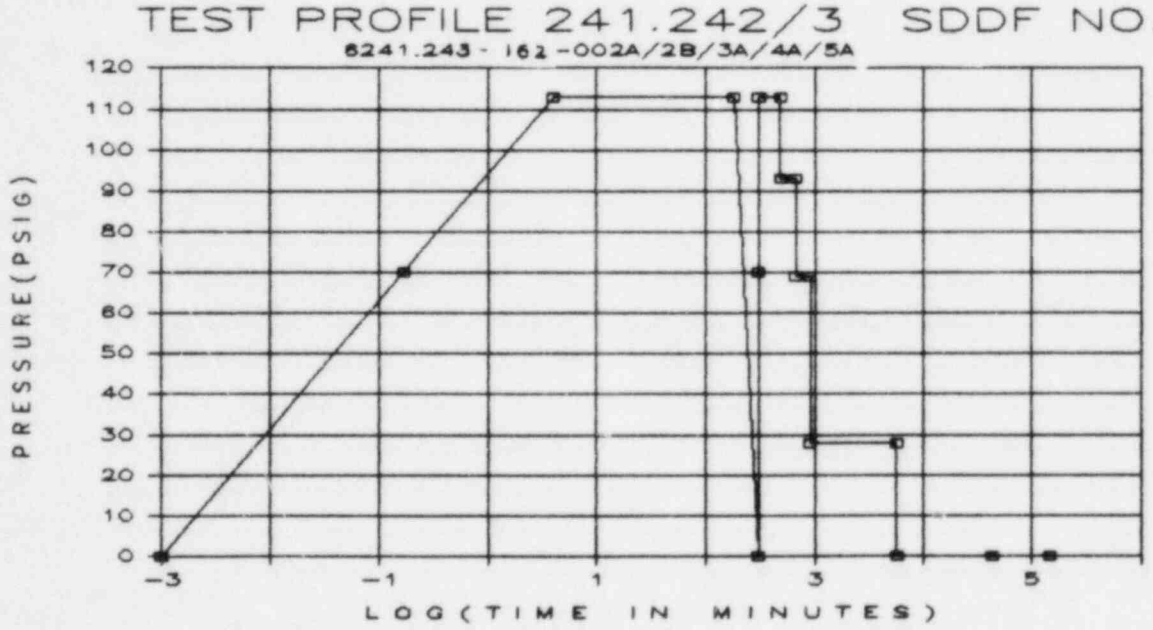
3. These are total integrated dose values. Specified value includes margin.

4. Used everywhere except zones DW-6, CT-8, FB-113-4, radwaste building, and off-gas area.

5. Tested submerged.

6. Cables are qualified for 113 psig; therefore, 2.3 psig will not have any effect on cables.





TEST PROFILE SPEC. 241.242/3 SDDF 6241.242/3-162-002A/2B/3A/4A/5A

TEMPERATURE

TIME	0	10SEC	4MIN	3HR	5HR	5HR,10SEC	5HR,4MIN	8HR	8.01HR	11HR	11.01 HR	15HR	15.01HR	4DAYS	4.01DAYS	30DAYS	100 DAYS
LOG (MINU	-3.00	-0.78	0.60	2.26	2.48	2.48	2.48	2.68	2.68	2.82	2.82	2.95	2.95	3.76	3.76	4.64	5.16
TEMP(F)	140	280	346	346	140	280	346	346	335	335	315	315	265	265	212	212	212
TIME(MIN)	0.001	0.1666	4	180	300	300.16	304	480	480	660	660.166	900	900.6	5760	5760.6	43200	144000

PRESSURE

TIME	0	10SEC	4MIN	3HR	5HR	5HR,10SEC	5HR,4MIN	8HR	8.01HR	11HR	11.01 HR	15HR	15.01HR	4DAYS	4.01DAYS	30DAYS	100 DAYS
LOG(MINUT	-3.00	-0.78	0.60	2.26	2.48	2.48	2.48	2.68	2.68	2.82	2.82	2.95	2.95	3.76	3.76	4.64	5.16
PRES(PSIG	0	70	113	113	0	70	113	113	93	93	69	69	28	28	0	0	0
TIME(MIN)	0.001	0.1666	4	180	300	300.16	304	480	480	660	660.166	900	900.6	5760	5760.6	43200	144000

GAI – ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 241246-1
REV 2
DATE 21-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)
SPECIAL INSTRUMENT CABLES
CROSS LINKED POLYETHYLENE
INSULATION

MANUFACTURER: BRAND-REX CO.

MODEL: NA

SAFETY FUNCTION: - - -
SERVING CLASS 1E EQUIPMENT

OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:
CABLES NOT SUBJECTED TO
SUBMERGENCE OR SPRAY/FROTH

DOCUMENTATION ACCEPTABILITY:
ACCEPTABLE TO NUREG 0588,CAT I

MAINT/SURVEILL - - -
REFERENCE: NOTE 5

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 2

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
OP. TIME:	100 DAYS	110 DAYS	5	2	AN+DATA	YES	NOTE 6
TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORMAL	140	RATED 75C	1,5	2	AN+DATA	NA	NOTE 2
ABNORMAL	140	RATED 75C	1,5	2	AN+DATA	NA	NOTE 2
ACCIDENT	340	346	1,5	2	TEST-SIM	YES	
PRESS (PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORMAL	0.5	10	1,5	2	TEST-SIM	NA	
ABNORMAL	2.3	10	1,5	2	TEST-SIM	NA	
ACCIDENT	+25 TO -8	+130 TO -3	1,5	2	AN+DATA	YES	
RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORMAL	100	100	1,5	2	AN+DATA	NA	NOTE 3
ABNORMAL	100	100	1,5	2	AN+DATA	NA	NOTE 3
ACCIDENT	ALL STEAM	SIM+SPRAY	1,5	2	TEST-SIM	NA	
RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE 1
NORM GAMMA						NA	
ACC GAMMA	2E8	2E8	4	2	TEST-SIM	YES	NOTE 4 & 5
NORM BETA						NA	
ACC BETA						NA	
NEUTRON						NA	
SPRAY	NO	NA	NA	NO	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:
1. SPECIFICATION 241.246/E3DCR NO. P-22.128A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
SDDF # A241.246-299-001A,001B,004B
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
PQDP DOCUMENT NO. 241.A00, REV.0
4. SWEC CALC. NO. 12210-E0P-33 (RAD. DOSES)
5. SWEC CALC. NO. 12210-E0P-35 (ENVIR. ENVELOPE)

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 242132-1
REV 1
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION							
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN: DEMO	REMARKS
EQUIP NO.: SEE SHEET 2	OP.TIME:	100 DAYS	>100 DAYS	3	2	AN+DATA	YES	NOTE-2
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
	NORMAL	122	165	1	4	AN+DATA	NA	
	ABNORMAL	NA	NA	1	2	NA	NA	
TYPE: (DESCRIPTION)	ACCIDENT	150	165	1	4	AN+DATA	YES	NOTE-3
15kVA WALL MOUNTED DRY TYPE	PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
TRANSFORMER	NORMAL	0	14	1	2	TEST-IDENT	NA	
	ABNORMAL	NA	14	1	2	NA	NA	
MANUFACTURER: SOUTHERN	ACCIDENT	2.1	14	1	2	TEST-IDENT	YES	
TRANSFORMER CO.	RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
MODEL: SEE SHEET 2	NORMAL	90	100	1	2	TEST-IDENT	NA	
	ABNORMAL	NA	NA	1	2	NA	NA	
SAFETY FUNCTION: - - -	ACCIDENT	100	100	1	2	TEST-IDENT	NA	
PROVIDE CONTROL POWER	RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
FOR CAT.1 EQUIPMENT	NORM GAMMA	700		1	2		NA	
	ACC GAMMA	9E5	1E6	1,5	2	AN+DATA	YES	
OP. CODE: SEE SHEET 2	NORM BETA	0		1	2		NA	
	ACC BETA	500		1	2		YES	
	NEUTRON	0		1	2		NA	
	SPRAY	NA	NA	NA	NA	NA	NA	
ACCURACY - -	SUBMERGENCE	NA	NA	NA	NA	NA	NA	
SPEC: NA								
DEMO: NA								
ZONE NO.: SEE SHEET 2								
SUBMERGENCE:								
SPRAY/FROTH:								
EQUIPMENT NOT SUBJECT TO SUBMERGENCE OR SPRAY/FROTH								
DOCUMENTATION ACCEPTABILITY: ACCEPTABLE TO NUREG 0588,CAT I								
MAINT/SURVEILL - - - REFERENCE: NOT REQUIRED								
QUALIFIED LIFE - - - (YEARS): SEE SHEET 2 REFERENCE: 4								

DOCUMENT REFERENCE:

1. SPECIFICATION 242.132 REV.0, ADD.3 / E&DCR P22.124
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT, SDDF # 6242.132-290-004C
3. POST-ACCIDENT OPERABILITY PERIOD: SEE PADF DOCUMENT NO. 245.600, REV.0
4. FOR QUALIFIED 40 YR. LIFE AT 165F, REFER TO CALCULATION NO. 12210-E05-22
5. FOR GAMMA RADIATION DURING ACCIDENT SEE CALCULATION NO. 12210-PR(C)-576

NOTES

1. For complete environmental conditions, see the document referenced.

2. Transformer is qualified to 165°F for more than 40 years.

3. Reference 4 provides justification for a qualification temperature of 165°F. Actual test temperature is 149°F.

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)
CONTROL RELAY BOARD

MANUFACTURER: EM

MODEL: SEE SHEET 2

SAFETY FUNCTION: - - -
NOT REQUIRED FOR SAFETY

OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECT TO
SUBMERGENCE OR SPRAY/FROTH

DOCUMENTATION ACCEPTABILITY:
ACCEPTABLE TO NUREG 0588,CAT I

MAINT/SURVEILL - - -
REFERENCE: NOT REQUIRED

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 2

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN: DEMO	REMARKS
OP. TIME:	N.R.	N.A.	3	2	NA	NA	
TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORMAL	104	104	1	2	TEST-SIM	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	NA	NA	NA	NA	NA	NA	
PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORMAL	ATMOS.	ATMOS	1	2	TEST-SIM	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	NA	NA	NA	NA	NA	NA	
RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORMAL	40	50	1	2	TEST-SIM	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	NA	NA	NA	NA	NA	NA	
RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORM GAMMA	7E3 TID	1E4	1	2	TEST-SIM	NA	
ACC GAMMA					NA	NA	
NORM BETA					NA	NA	
ACC BETA					NA	NA	
NEUTRON					NA	NA	
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:
1. SPECIFICATION 6242.444 ADD.4 / E&DCR P40,746
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
SQDF # 6242.444-275-002A, -041A AND -042A
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
FAQF DOCUMENT NO. 24%,600, REV.0

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 242491-1
REV 2
DATE 13-Feb-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION							
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
EQUIP NO.: SEE SHEET 2	OP.TIME:	100 DAYS	>100 DAYS	3	2,4	AN+DATA	YES	
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
	NORMAL	122	134	1	2	TEST-IDENT	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
TYPE: (DESCRIPTION)	ACCIDENT	165	186	1	2,4	TEST-IDENT	YES	NOTE-2
TERMINAL CABINET	PRESS(PSIG)	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
TERMINAL BOARDS	NORMAL	ATMOS	ATMOS	1	2	TEST-IDENT	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
MANUFACTURER: GE	ACCIDENT	2.8	ATMOS	1	2	AN+DATA	-	NOTE-3
	RH (%):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
MODEL: SEE SHEET 2	NORMAL	90	98	1	2	TEST-IDENT	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
SAFETY FUNCTION: - - -	ACCIDENT	100	98	1	2	TEST-IDENT	NA	NOTE-4
LOW VOLTAGE CONTROL	RADIATION:	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
TERMINATIONS & CKT CONTINUITY	NORM GAMMA			1	2			
	ACC GAMMA	1.2E6 TID	1.2E6	1	2	AN+DATA	YES	NOTE-5
OP. CODE: SEE SHEET 2	NORM BETA			1	2			
	ACC BETA			1	2			
	NEUTRON			1	2			
	SPRAY	NA	NA	NA	NA	NA	NA	
ACCURACY - -	SUBMERGENCE	NA	NA	NA	NA	NA	NA	
SPEC: NA								
DEMO: NA								
ZONE NO.: SEE SHEET 2								
SUBMERGENCE:								
SPRAY/FROTH:								
EQUIPMENT NOT SUBJECT TO SUBMERGENCE OR SPRAY/FROTH								
DOCUMENTATION ACCEPTABILITY: ACCEPTABLE TO NUREG 0588,CAT I								
MAINT/SURVEILL - - - REFERENCE: NOT REQUIRED								
QUALIFIED LIFE - - - (YEARS): SEE SHEET 2 REFERENCE: 2								

DOCUMENT REFERENCE:

1. SPECIFICATION _242.491 ADD.3 / E&DCR P22.152
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT, SDDF # 6242.491-310-002C
3. POST-ACCIDENT OPERABILITY PERIOD: SEE PAOP DOCUMENT NO. 245.600, REV.0
4. CALCULATION NO. 12210-E0S-27

NOTES

1. For complete environmental conditions, see the document referenced.

2. Terminal blocks are tested at 125°C for operation, and an accident temperature of 165°F will not affect its operation. 186°F (85.5°C) temperature is used for operability period of 100 days plus margin.

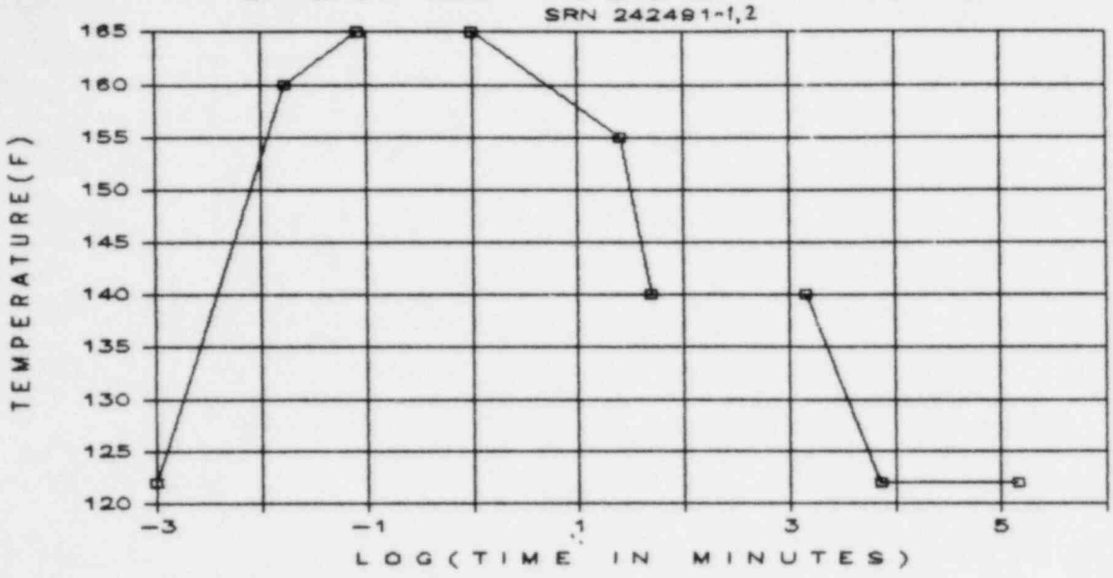
3. Specified pressure will have no effect on terminal board operation.

4. Ninety-eight percent tested RH covers the 100-percent specified value for noncondensing relative humidity. Margin is not applicable.

5. Specified and qualified radiation values include both gamma and beta. Specified value includes margin.

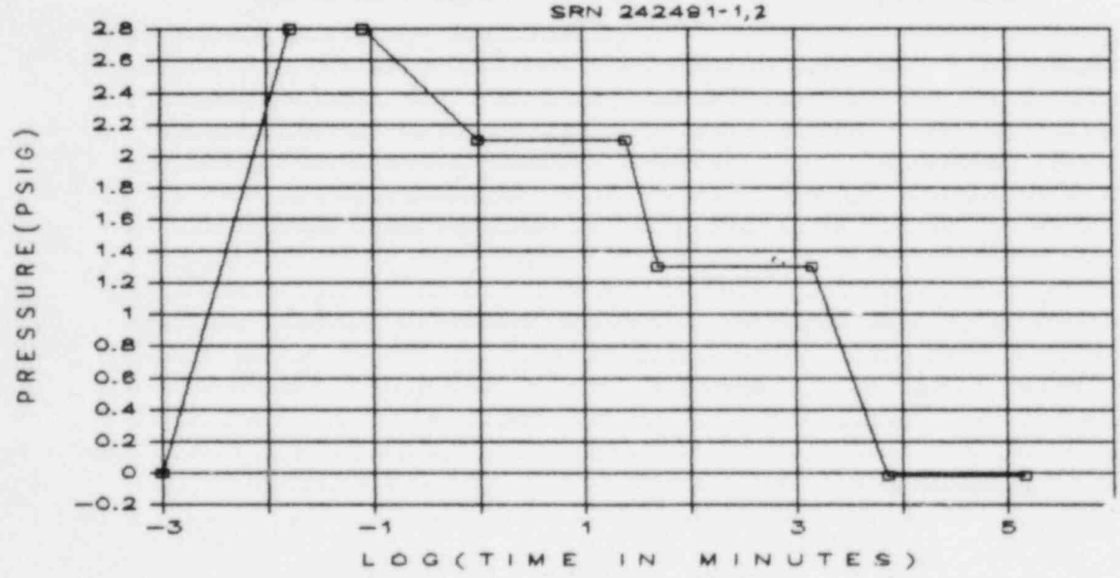
SPECIFIED ACCIDENT PROFILE

SRN 242491-1,2



SPECIFIED ACCIDENT PROFILE

SRN 242491-1,2



SPECIFIED ACCIDENT CONDITIONS FOR SPECIFICATION: 242.491 SRN NO. 242491-1,2

TEMPERATURE

TIME	0	1SEC	5SEC	60SEC	1500SEC	3000SEC	1DAY	5DAYS	100 DAYS
LOG (MINU	-3.00	-1.78	-1.08	0.00	1.40	1.70	3.16	3.86	5.16
TEMP(F)	122	160	165	165	155	140	140	122	122
TIME(MIN)	0.001	0.016666	0.083333	1	25	50	1440	7200	144000

PRESSURE

TIME	0	1SEC	5SEC	60SEC	1500SEC	3000SEC	1DAY	5DAYS	100 DAYS
LOG(MINUT	-3.00	-1.78	-1.08	0.00	1.40	1.70	3.16	3.86	5.16
PRES(PSIG	0	2.8	2.8	2.1	2.1	1.3	1.3	-0.018	-0.018
TIME(MIN)	0.001	0.016666	0.083333	1	25	50	1440	7200	144000

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 242491-2
REV 1
DATE 13-Feb-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)
TERMINAL CABINET SPLICE
SEE NOTE-2

MANUFACTURER: RAYCHEM

MODEL: SEE SHEET 2

SAFETY FUNCTION: - - -
LOW VOLTAGE CONTROL
TERMINATION & CKT CONTINUITY

OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECT TO
SUBMERGENCE OR SPRAY/FROTH

DOCUMENTATION ACCEPTABILITY:
ACCEPTABLE TO NUREG 0588,CAT I

MAINT/SURVEILL - - -
REFERENCE: NOT REQUIRED

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 2

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN: DEMO	REMARKS
OP.TIME:	100 DAYS	>100 DAYS	3	2	TESY-IDENT	YES	
TEMP (F):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORMAL	122	130	1	2	TESY-IDENT	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	165	360	1	2	TEST-IDENT	YES	
PRESS(PSIG)	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORMAL	ATMOS	ATMOS	1	2	TEST-IDENT	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	2.8	70	1	2	TEST-IDENT	YES	
RH (%):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORMAL	90	100	1	2	TEST-IDENT	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	100	100	1	2	TEST-IDENT	NA	
RADIATION:	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORM GAMMA							
ACC GAMMA	1.2E6 TID	2E8	1	2	TES -IDENT	YES	NOTE-3
NORM BETA							
ACC BETA							
NEUTRON							
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

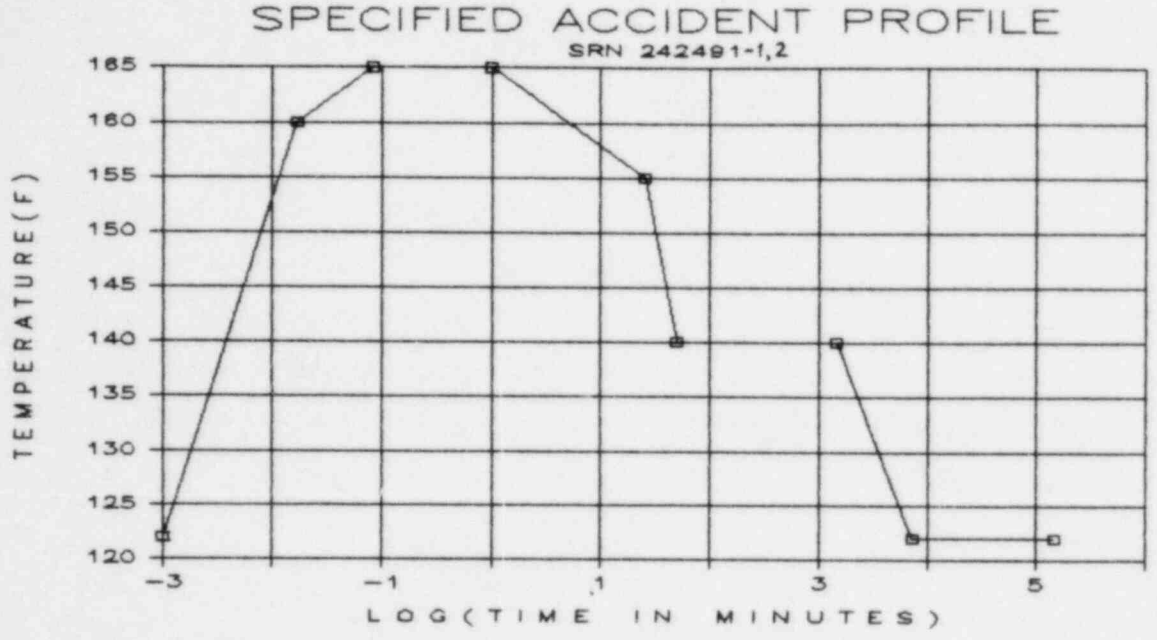
DOCUMENT REFERENCE:
1. SPECIFICATION _242.491 ADD.3 / E&DCR P22,152
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
SDDF # 6211.161-997-015A & 016A
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
PADP DOCUMENT NO. 245.600, REV.0

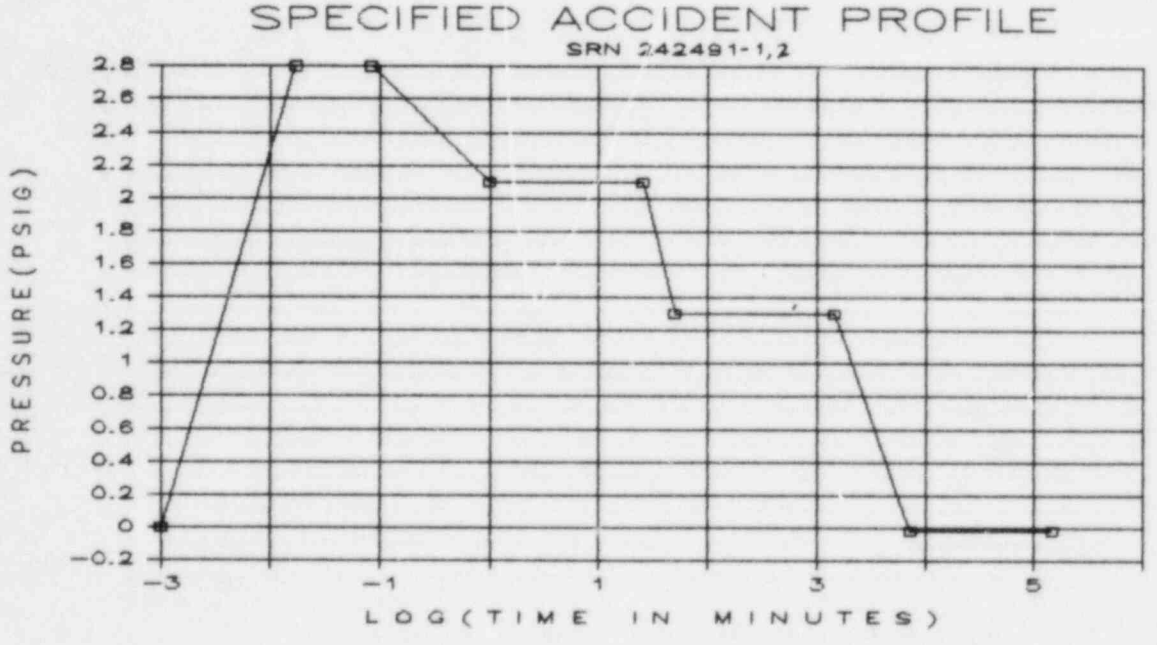
RBS-ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

SRN 242 491-2
REV 1
SHEET NO 2
DATE 1-15-85

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBNRG	QUAL. LIFE	OPTIME OC
SRN 242491-2				
SPEC 242.491				
RCP ELECTRICAL PENETRATIONS				
1RCP*TCA05				
1RCP*TCA07	SPLICE HVT/WC3F	AB-114-6	40 YRS	100D A
1RCP*TCA11	SPLICE HVT/WC3F	AB-114-5	40 YRS	100D A
1RCP*TCA13	SPLICE HVT/WC3F	AB-141-4	40 YRS	100D A
1RCP*TCA14	SPLICE HVT/WC3F	AB-141-4	40 YRS	100D A
1RCP*TCA16	SPLICE HVT/WC3F	AB-141-3	40 YRS	100D A
1RCP*TCF02	SPLICE HVT/WC3F	AB-141-3	40 YRS	100D A
	SPLICE HVT/WC3F	FB-113-G	40 YRS	100D A





SPECIFIED ACCIDENT CONDITIONS FOR SPECIFICATION: 242.491 SRN NO. 242491-1,2

TEMPERATURE

TIME	0	1SEC	5SEC	60SEC	1500SEC	3000SEC	1DAY	5DAYS	100 DAYS
LOG (MINU	-3.00	-1.78	-1.08	0.00	1.40	1.70	3.16	3.86	5.16
TEMP(F)	122	160	165	165	155	140	140	122	122
TIME(MIN)	0.001	0.016666	0.083333	1	25	50	1440	7200	144000

PRESSURE

TIME	0	1SEC	5SEC	60SEC	1500SEC	3000SEC	1DAY	5DAYS	100 DAYS
LOG(MINUT	-3.00	-1.78	-1.08	0.00	1.40	1.70	3.16	3.86	5.16
PRES(PSIG	0	2.8	2.8	2.1	2.1	1.3	1.3	-0.018	-0.018
TIME(MIN)	0.001	0.016666	0.083333	1	25	50	1440	7200	144000

RBS-ENVIRONMENTAL QUALIFICATION PROGRAM

SRN 242 491-3
REV 1
SHEET NO 2A
DATE 1-15-85

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBHRG	QUAL. LIFE	OPTIME OC
SRN 242491-3				
SPEC 242.491				
RCP ELECTRICAL PENETRATIONS				
1RCP*TCR01A	SPLICE HVT/WCSF	CT-G	40 YRS	100D A
1RCP*TCR01F	SPLICE HVT/WCSF	CT-G	40YRS	100D A
1RCP*TCR02A	SPLICE HVT/WCSF	CT-G	40YRS	100D A
1RCP*TCR02F	SPLICE HVT/WCSF	CT-G	40YRS	100D A
1RCP*TCR03A	SPLICE HVT/WCSF	CT-G	40YRS	100D A
1RCP*TCR03F	SPLICE HVT/WCSF	CT-G	40YRS	100D A
1RCP*TCR04A	SPLICE HVT/WCSF	CT-G	40YRS	100D A
1RCP*TCR04F	SPLICE HVT/WCSF	CT-G	40YRS	100D A
1RCP*TCR05A	SPLICE HVT/WCSF	CT-G	40YRS	100D A
1RCP*TCR06A	SPLICE HVT/WCSF	CT-G	40YRS	100D A
1RCP*TCR07A	SPLICE HVT/WCSF	CT-G	40YRS	100D A
1RCP*TCR08A	SPLICE HVT/WCSF	CT-G	40YRS	100D A

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM

SRN 242 491-3
REV 1
SHEET NO 2B
DATE 1-15-85

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBNRG	QUAL. LIFE	OPTIME OC
SRN 242491-3				
SPEC 242.491				
RCP ELECTRICAL PENETRATIONS				
1RCP*TCR09A	SPLICE HVT/WCSF	CT-G	40 YRS	100D A
1RCP*TCR10A	SPLICE HVT/WCSF	CT-G	40YRS	100D A
1RCP*TCR11A	SPLICE HVT/WCSF	CT-7A	40 YRS	100D A
1RCP*TCR12A	SPLICE HVT/WCSF	CT-7A	40YRS	100D A
1RCP*TCR13A	SPLICE HVT/WCSF	CT-7A	40 YRS	100D A
1RCP*TCR14A	SPLICE HVT/WCSF	CT-5A	40 YRS	100D A
1RCP*TCR15A	SPLICE HVT/WCSF	CT-5A	40 YRS	100D A
1RCP*TCR16A		CT-5A	40 YRS	100D A

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 242533-1
REV 0
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION
EQUIP NO.: SEE SHEET 2
SYSTEM: SEE SHEET 2
TYPE: (DESCRIPTION) 480V LOAD CENTER
MANUFACTURER: POWELL ELECTRICA
MODEL: SEE SHEET 2
SAFETY FUNCTION: - - - PROVIDE 480V POWER TO CLASS 1E LOADS
OP. CODE: SEE SHEET 2
ACCURACY - - SPEC: NA DEMO: NA
ZONE NO.: SEE SHEET 2 SUBMERGENCE: SPRAY/FROTH:
EQUIPMENT NOT SUBJECT TO SUBMERGENCE OR SPRAY/FROTH
DOCUMENTATION ACCEPTABILITY: _____ NUREG 0588,CAT I QUALIFICATION IN PROGRESS NOTE-2
MAINT/SURVEILL - - - REFERENCE:
QUALIFIED LIFE - - - (YEARS): SEE SHEET 2 REFERENCE:

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
OP.TIME:	100 DAYS		3	2			NOTE-2
TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORMAL	114		1	2	NA		
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	ATMOS		1	2			NOTE-2
PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORMAL	ATMOS		1	2	NA		
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	2.1		1	2			NOTE-2
RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORMAL	90		1	2	NA		
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	100		1	2			NOTE-2
RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORM GAMMA	7E2		1	2	NA		
ACC GAMMA	2.05E4 TID		1	2			NOTE-2
NORM BETA			1	2			
ACC BETA			1	2			
NEUTRON			1	2			
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:

1. SPECIFICATION 242.533 REV.1, ADD.1 / E&DCR P21427A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
   SDDF # 6242.533-265-012A
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
   PAOP DOCUMENT NO. 245.600, REV.0

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 242533-2
REV 1
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)
TRANSFORMER FOR 480V LOAD CENTER

MANUFACTURER: SOUTHERN TRANSFORMER

MODEL: SEE SHEET 2

SAFETY FUNCTION: - - -
PROVIDE 480V POWER

OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECT TO SUBMERGENCE OR SPRAY/FROTH

DOCUMENTATION ACCEPTABILITY:
ACCEPTABLE TO NUREG 0588,CAT I

MAINT/SURVEIL - - -
REFERENCE: NOT REQUIRED

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 2

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN: DEMO	REMARKS
OP. TIME:	100 DAYS	180 DAYS	3	2	TEST-SIM	YES	
TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORMAL	114	114	1	2	TEST-SIM	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	135	155	1	2	TEST-SIM	YES	
PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORMAL	ATMOS	ATMOS	1	2	TEST-SIM	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	2.1	0	1	2	TEST-SIM	YES	NOTE-3
RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORMAL	90	100	1	2	TEST-SIM	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	100	100	1	2	TEST-SIM	NA	
RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
NORM GAMMA	7E2		1	2	EXP+AN	NA	
ACC GAMMA	2.05E4 TID	4E8	1	2	EXP+AN	YES	NOTE-2
NORM BETA			1	2		NA	
ACC BETA			1	2		NA	
NEUTRON			1	2		NA	
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:
1. SPECIFICATION 242.533 REV.1, ADD.1 / EMDCR P21427A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
SDDF # 6242.533-265-0118
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
PADF DOCUMENT NO. 245.600, REV.0

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM

SRN 242533-2
REV 1
SHEET NO. 3
DATE 11/29/84

NOTES

1. For complete environmental conditions, see documents referenced.

2. Threshold of radiation degradation exceeds 4E8 rads. See Reference 2.

3. Heat dissipation and dielectric strength are pressure-dependent characteristics. Both improve with increased pressure. See Reference 2. Testing at 0 psig versus 2.1 psig is conservative and adequately accounts for margin.

EPS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 247250-1
REV 1
DATE 21-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)
RADIOACTIVITY ELEMENT
(WIDE RANGE GAS MONITOR)

MANUFACTURER: GA TECH.

MODEL: SEE SHEET 2

SAFETY FUNCTION: - - -
MONITOR RADIATION

OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECTED TO
SUBMERGENCE OR SPRAY/FROTH

DOCUMENTATION ACCEPTABILITY:
NUREG 0588,CAT I
ACCEPTABLE FOR ALL ITEMS
EXCEPT SAMPLE PUMP MOTOR.
SEE NOTES 4 AND 5

MAINT/SURVEILL - -
REFERENCE: 2 (NOTE-7)

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 2

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN: DEMO	REMARKS
OP. TIME:	100 DAYS	100 DAYS	3	2	TEST-SIM	YES	
TEMP (F):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORMAL	117	131	1	2	TEST-SIM	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	131	131	1	2	TEST-SIM	NA	NOTE-2
PRESS (PSIG)	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORMAL	ATMOS	ATMOS	1	2	TEST-SIM	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	2	ATMOS	1	2	AN+DATA		NOTE-3
RH (%):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORMAL	90	95	1	2	TEST-SIM	NA	
ABNORMAL	NA	NA	NA	NA	NA	NA	
ACCIDENT	100		1				NOTE-4
RADIATION:	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORM GAMMA	7E2		1			NA	
ACC GAMMA	1.9E3	5E5	1	2	AN+DATA	YES	NOTE-6
NORM BETA	0		1			NA	
ACC BETA	4.5E2		1			YES	
NEUTRON	0		1			NA	
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:
1. SPECIFICATION 247250 REV.0, ADD.1 / E&DCR NO.P40,957A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
   SWDF # 6247.250-329-044C
   6247.250-329-019B
   6247.250-329-091A
   6247.250-329-091C
   6247.250-329-092C
   6247.250-329-023
   6247.250-329-091D
   6247.250-329-123A
   6247.250-329-092B
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
   PUMP DOCUMENT NO. 247500, REV.0
4. CALCULATION NO. 1221-ES-213

SRN 247250-1
REV 1
SHEET NO. 2
DATE 1-2-85

RBS- ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBRG	QUAL. LIFE	OPTIME QC
SRN 247250-1				
SPEC 247.250				
RMS RADIATION MONITORING				
1RMS*REX125	RD-52, RD-72	AB-170-1	40 YEARS	100D A
1RMS*RE125	RD-52, RD-72 REG.G.1.97	AB-170-1	40 YEARS	100D A

NOTES

1. For complete environmental conditions, see the document referenced.

   All temperature sensitive electronics are located in 2 inch thick lead box.

2. The short duration of the temperature transient will not increase device temperature beyond qualified limits. See Reference 4.

3. The monitor has no components that are pressure sensitive. A variation of 2 psig will have no effect on them.

4. Vendor is to provide justification that the monitor can withstand 100-percent RH.

5. Sample pump motor qualification is incomplete. Vendor is to prepare a quote and plan for testing motors to establish a qualified life at plant operating conditions.

6. Qualified total integrated dose exceeds specified integrated dose plus margin.

7. In accordance with Reference 2, GA Technologies will provide the necessary maintenance and surveillance schedule needed to maintain 40 years of qualified life.

EES - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 247250-2
REV 1
DATE 21-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION						
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
EQUIP NO.: SEE SHEET 2	OP. TIME:	100 DAYS	100 DAYS	3	2	TEST-SIM	YES	
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
	NORMAL	96	131	1	2	TEST-SIM	NA	
	ABNORMAL	122	131	1	2	TEST-SIM	NA	
TYPE: (DESCRIPTION)	ACCIDENT	122	131	1	2	TEST-SIM	YES	
RADIOACTIVITY ELEMENT	PRES (PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
(WIDE RANGE GAS MONITOR)	NORMAL	-0.25" H20	ATMOS	1	2	TEST-SIM	NA	
	ABNORMAL	-0.62" H20	ATMOS	1	2	TEST-SIM	NA	
MANUFACTURER: GA TECH.	ACCIDENT	-0.62" H20	ATMOS	1	2	TEST-SIM	YES	
	RH %:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
MODEL: SEE SHEET 2	ABNORMAL	5%	95	1	2	TEST-SIM	NA	
	ABNORMAL	38	95	1	2	TEST-SIM	NA	
SAFETY FUNCTION: - - -	ACCIDENT	38	95	1	2	TEST-SIM	NA	
MONITOR RADIATION	RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
	NORM GAMMA	7E2		1			NA	
	ACC GAMMA	2E3	YES	1	2	AN+DATA	YES	NOTE-2
OP. CODE: SEE SHEET 2	NORM BETA	0		1			NA	
	ACC BETA	6E2		1			YES	
	NEUTRON	0		1			NA	
	SPRAY	NO	NA	NA	NA	NA	NA	
ACCURACY - -	SUBMERGENCE	NO	NA	NA	NA	NA	NA	
SPEC: NA								
DEMO: NA								
ZONE NO.: SEE SHEET 2								
SUBMERGENCE:								
SPRAY/FROTH:								
EQUIPMENT NOT SUBJECTED TO SUBMERGENCE OR SPRAY/FROTH								
DOCUMENTATION ACCEPTABILITY:								
_____ NUREG 0588,CAT I								
ACCEPTABLE FOR ALL ITEMS EXCEPT SAMPLE PUMP MOTOR. SEE NOTE 4								
MAINT/SURV ILL - - -								
REFERENCE: 2 (NOTE-3)								
QUALIFIED LIFE - - -								
YEAR(S): SEE SHEET 2								
REFERENCE: 2								

DOCUMENT REFERENCE:

1. SPECIFICATION 247250 REV.0, ADD.1 / I&DCR NO.F40,957A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
   GADF # 6247.250-329-044C
   6247.250-329-023E
   6247.250-329-091A
   6247.250-329-091C
   6247.250-329-022C
   6247.250-329-019B
   6247.250-329-021B
   6247.250-329-121A
   6247.250-329-022B
3. POST-ACCIDENT OPERABILITY PERIOD: SEE GADF DOCUMENT NO. 247.600, REV.0

SRN 247250-2
REV 1
SHEET NO. 2
DATE 1-2-85

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBRG	QUAL. LIFE	OPTIME OC
SRN 247250-2				
SPEC 247.250				
RMS RADIATION MONITORING				
1RMS*REX5A	RD-52, RD-72	FB-148-G	40 YEARS	100D A
1RMS*RE5A	RD-52, RD-72 REG.G.1.97	FB-148-G	40 YEARS	100D A

PRS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 247250-3
REV 1
DATE 21-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION							
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN: DEMO	REMARKS
EQUIP NO.: SEE SHEET 2	OP. TIME:	1 HR	6 HRS	3	2	TEST-SIM	YES	
SYSTEM: SEE SHEET 2	TEMP (F):	- - -	- - -	- - -	- - -	- - -	- - -	NOTE-1
	NORMAL	122	171	1	2	TEST-SIM	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
TYPE: (DESCRIPTION)	ACCIDENT	122	131	1	2	TEST-SIM	YES	NOTE-6
RADIOACTIVITY ELEMENT	PRESS (PSIG)	- - -	- - -	- - -	- - -	- - -	- - -	NOTE-1
(GAS MONITOR)	NORMAL	ATMOS	ATMOS	1	2	TEST-SIM	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
MANUFACTURER: GA TECH	ACCIDENT	ATMOS	ATMOS	1	2	TEST-SIM	YES	NOTE-6
	RH (%):	- - -	- - -	- - -	- - -	- - -	- - -	NOTE-1
MODEL: SEE SHEET 2	NORMAL	40	95	1	2	TEST-SIM	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
SAFETY FUNCTION: - - -	ACCIDENT	40	95	1	2	TEST-SIM	NA	NOTE-6
MONITOR RADIATION	RADIATION:	- - -	- - -	- - -	- - -	- - -	- - -	NOTE-1
	NORM GAMMA	8E2		1			NA	
	ACC GAMMA	*6.8	1.1E3	1	2	AN+DATA	YES	NOTE-2
OP. CODE: SEE SHEET 2	NORM BETA	0		1			NA	
	ACC BETA	6.6		1			YES	NOTE-3
	NEUTRON	0		1			NA	
	SPRAY	NA	NA	NA	NA	NA	NA	
ACCURACY - -	SUBMERGENCE	NA	NA	NA	NA	NA	NA	
SPEC: NA								
DEMO: NA								
ZONE NO.: SEE SHEET 2								
SUBMERGENCE:	DOCUMENT REFERENCE:							
SPRAY/FROTH:	1. SPECIFICATION 247.250 REV.0, ADD.1 / E&DCR NO.P40,957A							
	2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,							
EQUIPMENT NOT SUBJECTED TO	SDRF # 6247.250-329-023B							
SUBMERGENCE OR SPRAY/FROTH	6247.250-329-023E							
	6247.250-329-091A							
	6247.250-329-091C							
DOCUMENTATION ACCEPTABILITY:	6247.250-329-019B							
NUREG 0588,CAT I	6247.250-329-091B							
ACCEPTABLE FOR ALL ITEMS	6247.250-329-045B, 044C							
EXCEPT SAMPLE PUMP MOTOR.	3. POST-ACCIDENT OPERABILITY PERIOD: SEE							
SEE NOTE 4	EAOP DOCUMENT NO. 245.600, REV.0							
MAINT/SURVEILL - - -								
REFERENCE: 2 (NOTE-5)								
QUALIFIED LIFE - - -								
(YEARS): SEE SHEET 2								
REFERENCE: 2								

Form 44

SRN 247250-3
REV 1
SHEET NO. 2
DATE 1-2-85

RBS- ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBHRS	QUAL. LIFE	OPTIME CC
SRN 247250-3				
SPEC 247.250				
RMS RADIATION MONITORING				
1RMS*RE11A	RD-52	AB-170-2	40 YEARS	1 HR A
1RMS*RE11B	RD-52	AB-170-2	40 YEARS	1 HR A

NOTES

1. For complete environmental conditions, see the document referenced.

2. Operability period of the monitor is 1 hour. TID of gamma for 6 hours is 6.8 rads; TID of gamma for 180 days is 2.2E2. The technical basis for placement of this equipment in operability Code C after 6 hours will be addressed in the EQD.

3. Operability period of the monitor is 1 hour. TID of beta for 6 hours is 6.6 rads; TID of beta for 180 days is 4.5E2. The technical basis for placement of this equipment in operability Code C after 6 hours will be addressed in the EQD.

4. Sample pump motor qualification is incomplete. Vendor is to prepare a quote and plan for testing motors to establish a qualified life at plant operating conditions.

5. In accordance with Reference 2, GA Technologies will provide the necessary maintenance and surveillance schedule needed to maintain 40 years of qualified life.

6. Specified accident conditions are for LOCA. Justification for the technical basis for placement of this equipment in operability Code C during HELB will be addressed in the EQD.

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION							
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN: DEMO	REMARKS
EQUIP NO.: SEE SHEET 2	OP.TIME:	N/A	NA	3	2	NA	YES	
SYSTEM: SEE SHEET 2	TEMP (F):							NOTE-1
	NORMAL	90	131	1	2	TEST-SIM	NA	
	ABNORMAL	140	151	1	2	AN+DATA	NA	NOTE-2
TYPE: (DESCRIPTION) RADIOACTIVITY ELEMENT [PICKING MONITOR]	ACCIDENT	NA	NA	NA	NA	NA	NA	
	PRESS(PSIG)							NOTE-1
	NORMAL	-1.0" H20	ATMOS	1	2	TEST-SIM	NA	
	ABNORMAL	2.3	ATMOS	1	2	AN+DATA	NA	NOTE-3
MANUFACTURER: GA TECH	ACCIDENT	NA	NA	NA	NA	NA	NA	
	RH (%):							NOTE-1
MODEL: SEE SHEET 2	NORMAL	50	95	1	2	TEST-SIM	NA	
	ABNORMAL	100		1			NA	NOTE-4
SAFETY FUNCTION: - - - MONITOR RADIATION	ACCIDENT	NA	NA	NA	NA	NA	NA	
	RADIATION:							NOTE-1
	NORM GAMMA	9E3	1.1E3	1	2	AN+DATA	NA	
	ACC GAMMA	NA		1			NA	
OP. CODE: SEE SHEET 2	NORM BETA	2E3		1			NA	NOTE-5
	ACC BETA	NA		1			NA	
	NEUTRON	0		1			NA	
	SPRAY	NA	NA	NA	NA	NA	NA	
ACCURACY - -	SUBMERGENCE	NA	NA	NA	NA	NA	NA	
SELC: NA								
DEMO: NA								
ZONE NO.: SEE SHEET 2								
SUBMERGENCE:								
SPRAY/FROTH:								
EQUIPMENT NOT SUBJECTED TO SUBMERGENCE OR SPRAY/FROTH								
DOCUMENTATION ACCEPTABILITY: NUREG 0588,CAT I ACCEPTABLE FOR ALL ITEMS EXCEPT SAMPLE PUMP MOTOR. SEE NOTES 4 AND 6								
MAINT/SURVEIL - - - REFERENCE: 2 (NOTE-7)								
QUALIFIED LIFE - - - CLASS: SEE SHEET 2 REFERENCE: 2								

DOCUMENT REFERENCE:
1. SPECIFICATION 247.250 REV.0, ADD.1 / EBDCR NO.F40,957A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
   SDDF # 6247.250-329-023C
   6247.250-329-023E
   6247.250-329-0458
   6247.250-329-0918
   6247.250-329-0198
   6247.250-329-091A
   6247.250-329-091C, 044C
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
   FAUP DOCUMENT NO. 245.600, REV.0

SRN 247250-4
REV 1
SHEET NO. 2
DATE 1-2-85

RBS- ENVIRONMENTAL QUALIFICATION PROGRAM

RDS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBURB	QUAL. LIFE	OPTIME OC
SRN 247250-4				
SPEC 247.250				
RMS RADIATION MONITORING				
1RMS*RE111	RD-56	CT-G	40 YEARS	N/A C
1RMS*RE112	RD-56	CT-4	40 YEARS	N/A C

NOTES

1. For complete environmental conditions, see the document referenced.

2. Monitor is designed to trip at high temperature; therefore, it will not fail and degrade associated Class 1E equipment.

3. Monitor has no components that are pressure sensitive; therefore, a variation of 2.3 psig in pressure will have no effect on it.

4. Vendor is to provide justification that the monitor can withstand 100-percent RH.

5. Beta radiation has no effect on the monitor since the monitor is totally enclosed. See Reference 2.

6. Sample pump motor qualification is incomplete. Vendor is to prepare a quote and plan for testing motors to establish a qualified life at plant operating conditions.

7. In accordance with Reference 2, GA Technologies will provide the necessary maintenance and surveillance schedule needed to maintain 40 years of qualified life.

EPS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 247250-5
REV 1
DATE 21-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION							
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	DUAL METHOD	MARGIN DEMO	REMARKS
EQUIP NO.: SEE SHEET 2	OP. TIME:	100 DAYS	>100 DAYS	3	2	TEST-SIM	YES	
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
	NORMAL	122	131	1	2	TEST-SIM	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
TYPE: (DESCRIPTION)	ACCIDENT	122	131	1	2	TEST-SIM	YES	
RADIOACTIVITY ELEMENT	PRESS (PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
(LIQUID MONITOR)	NORMAL	ATMOS	ATMOS	1	2	TEST-SIM	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
MANUFACTURER: GA TECH	ACCIDENT	½" - ½" WG	ATMOS	1	2	TEST-SIM	NO	
	RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
MODEL: SEE SHEET 2	NORMAL	90	95	1	2	TEST-SIM	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
SAFETY FUNCTION: - - -	ACCIDENT	90	95	1	2	TEST-SIM	NA	
MONITOR RADIATION	RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
	NORM GAMMA	9.6E1		1			NA	
	ACC GAMMA	6.5E2	1.1E3	1	2	AN+DATA	YES	NOTE-2
OP. CODE: SEE SHEET 2	NORM BETA	0		1			NA	
	ACC BETA	4.5E2		1			YES	NOTE-3
	NEUTRON	0		1			NA	
	SPRAY	NA	NA	NA	NA	NA	NA	
ACCURACY - -	SUBMERGENCE	NA	NA	NA	NA	NA	NA	
SPEC: NA								
DEMO: NA								

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECTED TO SUBMERGENCE OR SPRAY/FROTH

DOCUMENTATION ACCEPTABILITY: _____ NUREG 0588,CAT I ACCEPTABLE FOR ALL ITEMS EXCEPT SAMPLE PUMP MOTOR. SEE NOTE 4

MAINT/SURVEILL - - -
REFERENCE: 2 (NOTE-5)

QUALIFIED LIFE - -
(YEARS): SEE SHEET 2
REFERENCE: 2

DOCUMENT REFERENCE:
1. SPECIFICATION 247.250 REV.0, ADD.1 / E&DCR NO.P40,957A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
SDDF # 6247.250-329-022B
6247.250-329-023E
6247.250-329-091A
6247.250-329-091C
6247.250-329-091D
6247.250-329-091E
6247.250-329-045B, 044C
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
EQDP DOCUMENT NO. 247.600, REV.0

SRN 247250-5
REV 1
SHEET NO. 2
DATE 1-2-85

RBS- ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBMRG	QUAL. LIFE	OPTIME OC
SRN 247250-5				
SPEC 247.250				
RMS RADIATION MONITORING				
1RMS*RE15A	RD-56	AB-095-6	40 YEARS	100D A
1RMS*RE15B	RD-56	AB-095-6	40 YEARS	100D A

EPS ENVIRONMENTAL QUALIFICATION PROGRAM — SKN 247250-6
SYSTEM COMPONENT EVALUATION WORK SHEET — REV 1
DATE 21-Jan-85 — SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION						
				DOCUMENT REFERENCE			
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	SPECIFIED	QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
EQUIP NO.: SEE SHEET 2								
	OP. TIME:	100 DAYS	100 DAYS	3	2	AN+DATA	YES	
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
	NORMAL	140	140	1	2	TEST-SIM	NA	
	ABNORMAL	140	140	1	2	TEST-SIM	NA	
TYPE: (DESCRIPTION)	ACCIDENT	330	365	1	2	TEST-SIM	YES	
RADIOACTIVITY ELEMENT	PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
(HIGH RANGE RADIATION MONITOR)	NORMAL	0.5	GAUGE	1	2	AN+DATA	NA	NOTE-2
	ABNORMAL	2.3	70	1	2	AN+DATA	NA	NOTE-2
MANUFACTURER: GA TECH	ACCIDENT	-8 TO 25	70	1	2	TEST-SIM	YES	
	RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
MODEL: SEE SHEET 2	NORMAL	50	95	1	2	TEST-SIM	NA	
	ABNORMAL	100	100	1	2	TEST-SIM	NA	
SAFETY FUNCTION: - - -	ACCIDENT	100	100	1	2	TEST-SIM	NA	
MONITOR RADIATION	RADIATION:	- - - -	- - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
	NORM GAMMA							
	ACC GAMMA	1.3E8	2E8	4	2	TEST-SIM	YES	
OP. CODE: SEE SHEET 2	NORM BETA							
	ACC BETA							
	NEUTRON							
	SPRAY	NA	NA	NA	NA	NA	NA	
ACCURACY - -	SUBMERGENCE	NA	NA	NA	NA	NA	NA	
SPEC: NA								
DEMO: NA								

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECTED TO SUBMERGENCE OR SPRAY/FROTH

DOCUMENTATION ACCEPTABILITY: NUREG 0588,CAT I ACCEPTABLE FOR ALL ITEMS EXCEPT DETECTOR SIGNAL CABLE. SEE NOTE 3

MAINT/SURVEILL - - - REFERENCE: NOT REQUIRED

QUALIFIED LIFE - YEARS: SEE SHEET 2 REFERENCE: 2

DOCUMENT REFERENCE:
1. SPECIFICATION 247.250 REV.0, ADD.1 / E&DCR NO.P40,957A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
SDDE # 6247.250-329-0450
6247.250-329-0231
6247.250-329-0430
6247.250-329-0208
6247.250-329-0910
6247.250-329-0440
6247.250-329-0190
6247.250-329-0214
6247.250-329-0218
6247.250-329-0450
3. POST-ACCIDENT OPERABILITY PERIOD: SEE PADP DOCUMENT NO. 247.000, REV.0
4. CALCULATION NO.12210-EC-63

RBS- ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

SRN 247250-6
REV 1
SHEET NO. 2
DATE 1/2/85

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBZONE	QUAL. LIFE	OPTIME OC
SRN 247250-6				
SPEC 247.250				
RMS RADIATION MONITORING				
1RMS*RE16A	RD-23 REG.G.1.97	CT-G	40 YEARS	100D A
1RMS*RE16B	RD-23 REG.G.1.97	CT-G	40 YEARS	100D A
1RMS*RE20A	RD-23 REG.G.1.97	DW-1	40 YEARS	100D A
1RMS*RE20B	RD-23 REG.G.1.97	DW-1	40 YEARS	100D A

KRS - ENVIRONMENTAL QUALIFICATION PROGRAM — SRN 247.50-7
SYSTEM COMPONENT EVALUATION WORK SHEET — REV 1
DATE 21-Jan-85 — SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION						
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN: DEMO	REMARKS
EQUIP NO.: SEE SHEET 2	OP. TIME:	100 DAYS	100 DAYS	3	2	AN+DATA	YES	
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
	NORMAL	90	160	1	2	AN+DATA	NA	
	ABNORMAL	140	160	1	2	AN+DATA	NA	
TYPE: (DESCRIPTION)	ACCIDENT	165	365	1	2	AN+DATA	YES	
RADIOACTIVITY ELEMENT	PRESS (PSIG):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
(AREA MONITOR)	NORMAL	-1.0"H2O	ATMOS	1	2	TEST-SIM	NA	
	ABNORMAL	2.3	ATMOS	1	2	AN+DATA	NA	NOTE-2
MANUFACTURER: GA TECH.	ACCIDENT	9	ATMOS	1	2	AN+DATA		NOTE-2
	RH (%):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
MODEL: SEE SHEET 2	NORMAL	50	95	1	2	TEST-SIM	NA	
	ABNORMAL	100	95	1	2	AN+DATA	NA	NOTE-3
SAFETY FUNCTION: - - -	ACCIDENT	100	95	1	2	AN+DATA	NA	NOTE-3
MONITOR RADIATION	RADIATION:	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
	NORM GAMMA	8E3		1			NA	
	ACC GAMMA	1.6E7	5E8	1	2	AN+DATA	YES	
OP. CODE: SEE SHEET 2	NORM BETA	2E3		1			NA	
	ACC BETA	1.5E8		1			YES	
	NEUTRON	0		1			NA	
	SPRAY	NA	NA	NA	NA	NA	NA	
ACCURACY - -	SUBMERGENCE	NA	NA	NA	NA	NA	NA	
SPEC: NA								
DEMO: NA								
ZONE NO.: SEE SHEET 2	DOCUMENT REFERENCE:							
SUBMERGENCE:	1. SPECIFICATION 247.250 REV.0, ADD.1 / E&DCR NO.P40,957A							
SPRAY/FROTH:	2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,							
	SQDE # 6247.250-329-045C							
EQUIPMENT NOT SUBJECTED TO	6247.250-329-015B							
SUBMERGENCE OR SPRAY/FROTH	6247.250-329-043B							
	6247.250-329-021D							
DOCUMENTATION ACCEPTABILITY:	6247.250-329-023E							
ACCEPTABLE TO NUREG 0588,CAT I	6247.250-329-021E							
	6247.250-329-021A, 044C							
	3. POST-ACCIDENT OPERABILITY PERIOD: SEE							
	PAQP DOCUMENT NO. 245.600, REV.0							
MAINT/SURVEILL - - -								
REFERENCE: NOT REQUIRED								
QUALIFIED LIFE - - -								
(YEARS): SEE SHEET 2								
REFERENCE: 2								

RBS- ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

SRN 247250-7
REV 1
SHEET NO. 2
DATE 1-2-85

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBZONE	QUAL. LIFE	OPTIME OC
SRN 247250-7				
SPEC 247.250				
RMS RADIATION MONITORING				
1RMS*RE21A	RD-8	CT-5A	40 YEARS	100D A
1RMS*RE21B	RD-8	CT-5A	40 YEARS	100D A

NOTES

1. For complete environmental conditions, see the document referenced.

2. This monitor is an ion chamber, and its construction is similar to the high-range radiation monitor (RD-23). See SRN 247250-6. It has no pressure-sensitive component; therefore, specified pressure will have no effect on it.

3. This monitor is an ion chamber, and it has no component that can be affected by humidity; therefore, 100-percent RH will have no effect on it.

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 247250-8
REV 1
DATE 21-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)
RADIOACTIVITY ELEMENT
(P(I)G MONITOR)

MANUFACTURER: GA TECH.

MODEL: SEE SHEET 2

SAFETY FUNCTION: - - -
MONITOR RADIATION

OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECTED TO
SUBMERGENCE OR SPRAY/FROTH

DOCUMENTATION ACCEPTABILITY:
____________ NUREG 0588,CAT 1
ACCEPTABLE FOR ALL ITEMS
EXCEPT SAMPLE PUMP MOTOR.
SEE NOTE

MAINT/SURVEILL - - -
REFERENCE: 2 (NOTE-4)

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 2

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
OP.TIME:	1 HR	6 HRS	3	2	TEST-SIM	YES	
TEMP (F):	- - -	- - -	- - -	- - -	- - -	- - -	NOTE-1
NORMAL	96	131	1	2	TEST-SIM	NA	
ABNORMAL	122	131	1	2	TEST-SIM	NA	
ACCIDENT	122	131	1	2	TEST-SIM	YES	
PRESS(PSIG):	- - -	- - -	- - -	- - -	- - -	- - -	NOTE-1
NORMAL	-0.25" H2O	ATMOS	1	2	TEST-SIM	NA	
ABNORMAL	-0.62" H2O	ATMOS	1	2	TEST-SIM	NA	
ACCIDENT	-0.62" H2O	ATMOS	1	2	TEST-SIM	YES	
RH (%):	- - -	- - -	- - -	- - -	- - -	- - -	NOTE-1
NORMAL	55	95	1	2	TEST-SIM	NA	
ABNORMAL	38	95	1	2	TEST-SIM	NA	
ACCIDENT	38	95	1	2	TEST-SIM	NA	
RADIATION:	- - -	- - -	- - -	- - -	- - -	- - -	NOTE-1
NORM GAMMA	7E2		1			NA	
ACC GAMMA	3E2	1.1E3	1	2	AN+DATA	YES	NOTE-2
NORM BETA	0		1			NA	
ACC BETA	6E2		1			YES	NOTE-3
NEUTRON	0		1			NA	
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:
1. SPECIFICATION 247.250 REV.0, ADD.1 / E&DCR NO.P40,957A
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
   SDDF # 6247.250-329-044C
   6247.250-329-022B
   6247.250-329-019B
   6247.250-329-045B
   6247.250-329-091A
   6247.250-329-0[illegible]
   6247.250-329-0[illegible]
   6247.250-329-0[illegible]
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
   PASS DOCUMENT NO. 245.[illegible], REV.0

SRN 247250-8
REV 1
SHEET NO. 2
DATE 1-2-85

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. / REMARKS	ENV. ZONE / SUBRG	QUAL. LIFE	OPTIME / OC
SRN 247250-8				
SPEC 247.250				
RMS RADIATION MONITORING				
1RMS*RE5B	RD-56 REG.G.1.97	FB-148-G	40 YEARS	1 HR A

SRN - 247250-9
REV 1
SHEET NO. 2
DATE 1-2-85

RBS- ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBNRG	QUAL. LIFE	CPTIME OC
SRN 247250-9				
SPEC 247.250				
RMS RADIATION MONITORING				
1RMS*RI21A	RL-10 N/R FOR SAFETY FUNCTION	CT-5A	40 YEARS	N/R C
1RMS*RI21B	RL-10 N/R FOR SAFETY FUNCTION	CT-5A	40 YEARS	N/R C

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 247411-1
REV 1
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION							
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN: DEMO	REMARKS
EQUIP NO.: SEE SHEET 2B	OP.TIME:	100 DAYS	100 DAYS	3	2	AN+ DATA	YES	
SYSTEM: SEE SHEET 2B	TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
	NORMAL	122	135	1	2	TEST-SIM	NA	NOTE-2
	ABNORMAL	NA	NA	NA	NA	NA	NA	
TYPE: (DESCRIPTION)	ACCIDENT	135	340	1	2	TEST-SIM	YES	
TERMINAL RACKS-WIRE	PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
RACKS	NORMAL	ATMOS	ATMOS	1	2	TEST-SIM	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
MANUFACTURER: MERCURY/EATON	ACCIDENT	2.1	113	1	2	TEST-SIM	YES	
	RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
MODEL: SEE SHEET 2B	NORMAL	90	100	1	2	TEST-SIM	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
SAFETY FUNCTION: - - -	ACCIDENT	100	100	1	2	TEST-SIM	NA	
CONTINUITY OF CLASS 1E	RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
SERVICE	NORM GAMMA	700		1	2		NA	
	ACC GAMMA	9E6	1.75E8	1	2	TEST-SIM	YES	
OP. CODE: SEE SHEET 2	NORM BETA	0		1	2		NA	
	ACC BETA	500		1	2		NA	
	NEUTRON	0		1	2		NA	
	SPRAY	NA	NA	NA	NA	NA	NA	
ACCURACY - -	SUBMERGENCE	NA	NA	NA	NA	NA	NA	
SPEC: NA								
DEMO: NA								
ZONE NO.: SEE SHEET 2								
SUBMERGENCE:								
SPRAY/FROTH:								
EQUIPMENT NOT SUBJECT TO SUBMERGENCE OR SPRAY/FROTH								
DOCUMENTATION ACCEPTABILITY: ACCEPTABLE TO NUREG 0588,CAT I								
MAINT/SURVEILL - - - REFERENCE: NOT REQUIRED								
QUALIFIED LIFE - - - (YEARS): SEE SHEET 2 REFERENCE: 2,4								

DOCUMENT REFERENCE:

1. SPECIFICATION _247.411 REV.0, ADD.2
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT, SDDF # 6247.411-296-010A
3. POST-ACCIDENT OPERABILITY PERICD: SEE PAOP DOCUMENT NO. 245.600, REV.0
5. CALCULATION NO. 12210-EQS-47 REV.0 (QUALIFIED LIFE-WIRE)

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 247411-2
REV 1
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION							
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
EQUIP NO.: SEE SHEET 2A	OP.TIME:	100 DAYS	100 DAYS	3	2	AN+ DATA	YES	NOTE-3
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
	NORMAL	122	135	1	2	TEST-SIM	NA	NOTE-2
	ABNORMAL	NA	NA	NA	NA	NA	NA	
TYPE: (DESCRIPTION)	ACCIDENT	135	346	1	2	TEST-SIM	YES	
TERMINAL BOARDS FOR INSTRUMENT RACKS	PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
	NORMAL	-.5" H20	ATMOS	1	2	TEST-SIM	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
MANUFACTURER: MERCURY/BUCHANAN	ACCIDENT	2.1	113	1	2	TEST-SIM	YES	
	RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
MODEL: SEE SHEET 2	NORMAL	90	100	1	2	TEST-SIM	NA	
	ABNORMAL	NA	NA	NA	NA	NA	NA	
SAFETY FUNCTION: - - -	ACCIDENT	100	100	1	2	TEST-SIM	NA	
CONTINUITY OF CLASS 1E SERVICE	RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
	NORM GAMMA	700		1	2		NA	
	ACC GAMMA	9E6	2E8	1	2	TEST-SIM	YES	
OP. CODE: SEE SHEET 2	NORM BETA	0		1	2		NA	
	ACC BETA	500		1	2		NA	
	NEUTRON	0		1	2		NA	
	SPRAY	NA	NA	NA	NA	NA	NA	
ACCURACY - -	SUBMERGENCE	NA	NA	NA	NA	NA	NA	
SPEC: NA								
DEMO: NA								
ZONE NO.: SEE SHEET 2								
SUBMERGENCE:								
SPRAY/FROTH:								
EQUIPMENT NOT SUBJECT TO SUBMERGENCE OR SPRAY/FROTH								
DOCUMENTATION ACCEPTABILITY: ACCEPTABLE TO NUREG 0588,CAT I								
MAINT/SURVEILL - - - REFERENCE: NOT REQUIRED								
QUALIFIED LIFE - - - (YEARS): SEE SHEET 2 REFERENCE: 2,4								

DOCUMENT REFERENCE:

1. SPECIFICATION _247.411 REV.0, ADD.2
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT, SDDF # 6247.411-296-011A
3. POST-ACCIDENT OPERABILITY PERIOD: SEE PAOP DOCUMENT NO. 245.600, REV.0
4. CALCULATION NO. 12210-EQS-46 REV.0 (QUALIFIED LIFE TERMINAL BLOCKS)
5. CALCULATION NO. 12210-EQS-47 REV.0 (PAOP CALCULATION)

SRN 247411-2
Rev. 1
Sheet 2
Date: 15 JAN 85

RBS- ENVIRONMENTAL QUALIFICATION PROGRAM
RBS-ENVIRONMENTAL QUALIFIC. .1 DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBNRG	QUAL. LIFE	OPTIME OC
SRN 247411-2				
SPEC 247.411				
JPB SUPERSTRUCTURE - PRIMARY AUXILIARY BUILDING				
1JPB*RAK1	NQB-112 Terminal Boards	AB-095-6	40 Years	1000 A
1JPB*RAK2	NQB-112 Terminal Boards	AB-095-6	40 Years	1000 A
1JPB*RAK3	NQB-112 Terminal Boards	AB-141-2	40 Years	1000 A
1JPB*RAK4	NQB-112 Terminal Boards	AB-141-1	40 Years	1000 A

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 247433-1
REV 1
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2
VENTILATION SYSTEMS

TYPE: (DESCRIPTION)
THERMAL FLOW DETECTING
ELEMENTS

MANUFACTURER: FLUID COMPONENTS INC.

MODEL: SEE SHEET 2

SAFETY FUNCTION: - - -
CONTINUING OPERATION OF
SAFTEY SYSTEMS

OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECT TO
SUBMERGENCE OR SPRAY/FROTH

DOCUMENTATION ACCEPTABILITY:
NUREG 0588,CAT I
QUALIFICATION IN PROGRESS
(SEE NOTE-2)

MAINT/SURVEILL - - -
REFERENCE:

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE:

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	REMARKS
OP.TIME:	100 DAYS		3	2	- - - - -	- - -	NOTE-1
TEMP (F):	- - - - -	- - - - -	- - - -	- - - -	- - - - -	- - -	
NORMAL	122		1	2			
ABNORMAL	140		1	2			
ACCIDENT	165		1	2			NOTE-1
PRESS(PSIG)	- - - - -	- - - - -	- - - -	- - - -	- - - - -	- - -	
NORMAL	ATMOS		1	2			
ABNORMAL	23		1	2			
ACCIDENT	9.0		1	2			NOTE-1
RH (%):	- - - - -	- - - - -	- - - -	- - - -	- - - - -	- - -	
NORMAL	90		1	2			
ABNORMAL	100		1	2			
ACCIDENT	100		1	2			NOTE-1
RADIATION:	- - - - -	- - - - -	- - - -	- - - -	- - - - -	- - -	
NORM GAMMA			1	2			
ACC GAMMA	4.4E7 TID		1	2			NOTE-3
NORM BETA			1	2			NOTE-3
ACC BETA			1	2			
NEUTRON			1	2			
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:
1. SPECIFICATION 247.433 REV.0, ADD.3
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT, SDDF # 6247.433-315-002C(TEST PLAN)
3. POST-ACCIDENT OPERABILITY PERIOD: SEE PAOP DOCUMENT NO. 245.600, REV.0

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 247433-2
REV 1
DATE 08-Jan-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO.: SEE SHEET 2

SYSTEM: SEE SHEET 2

TYPE: (DESCRIPTION)
ELECTRONICS FOR FLOW DETECTING ELEMENTS

MANUFACTURER: FLUID COMPONENTS INC.

MODEL: SEE SHEET 2

SAFETY FUNCTION: - - -
CONTINUING OPERATION OF SAFTEY SYSTEMS

OP. CODE: SEE SHEET 2

ACCURACY - -
SPEC: NA
DEMO: NA

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECT TO SUBMERGENCE OR SPRAY/FROYH

DOCUMENTATION ACCEPTABILITY:
_____ NUREG 0588,CAT I
QUALIFICATION IN PROGRESS
(SEE NOTE-2)

MAINT/SURVEILL - - -
REFERENCE:

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE:

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL. METHOD	MARGIN DEMO	REMARKS
OP.TIME:	100 DAYS		3	2			
TEMP (F):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORMAL	122		1	2			
ABNORMAL	140		1	2			
ACCIDENT	165		1	2			
PRESS(PSIG)	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORMAL	ATMOS		1	2			
ABNORMAL	2.3		1	2			
ACCIDENT	9		1	2			
RH (%):	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORMAL	90		1	2			
ABNORMAL	100		1	2			
ACCIDENT	100		1	2			
RADIATION:	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - -	NOTE-1
NORM GAMMA			1	2			
ACC GAMMA	.9E6 TID		1	2			NOTE-3
NORM BETA			1	2			
ACC BETA			1	2			
NEUTRON			1	2			
SPRAY	NA	NA	NA	NA	NA	NA	
SUBMERGENCE	NA	NA	NA	NA	NA	NA	

DOCUMENT REFERENCE:
1. SPECIFICATION _247.433 REV.0, ADD.3
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT, SDDF # 6247.433-315-002C(TEST PLAN)
3. POST-ACCIDENT OPERABILITY PERIOD: SEE PAOP DOCUMENT NO. 245.600, REV.0

NOTES

1. For complete environmental conditions, see the document referenced.

2. PAOP extended from 30 days to 100 days. See Reference 2.

3. Abnormal temperature, pressure, and relative humidity are addressed in Reference 4.

4. Terminal head gasket must be replaced when terminal head cover is removed in order to maintain qualification.

5. Factory certification testing of RTDs has a demonstrated accuracy of <±1.0°F. The qualification type testing has shown an accuracy of ±1.2°F. A review of setpoint calculations is in progress to determine whether ±1.2°F is an acceptable accuracy.

NOTES

1. For complete environmental conditions, see the document referenced.

2. PAOP extended from 30 days to 100 days. See Reference 2.

3. Abnormal temperature, pressure, and relative humidity are addressed in Reference 4.

4. Terminal head gasket must be replaced with a new gasket whenever head cover is removed in order to maintain qualification.

5. Factory certification testing of RTDs has a demonstrated accuracy of <±1.0°F. The qualification type testing has shown an accuracy of ±1.2°F. A review of the set-point calculations is in progress to determine whether ±1.2°F is an acceptable accuracy.

6. Equipment in containment below 109 ft is subject to submergence and between 109 ft and 120 ft is subject to spray/froth as a result of pool swell. The Yes shown on page 2 for submergence applies to the RTD thermowell, which is always submerged to measure suppression pool water temperature. The RTD termination head cover is subjected to spray/froth for only 7 seconds.

NOTES

1. For complete environmental conditions, see the document referenced.
2. PAOP extended from 30 days to 100 days. See Reference 2.
3. Abnormal temperature, pressure, and relative humidity are addressed in Reference 4.
4. Terminal head gasket must be replaced with a new gasket whenever head cover is removed in order to maintain qualification.
5. Factory certification testing of RTDs has demonstrated accuracy of <±1.0°F. The qualification type testing has shown an accuracy of ±1.2°F. A review of the setpoint calculations is in progress to determine whether ±1.2°F is an acceptable accuracy.

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM
SYSTEM COMPONENT EVALUATION WORK SHEET

SRN 247481-1
REV 2
DATE 07-Feb-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION						
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN: DEMO	REMARKS
EQUIP NO.: SEE SHEET 2	OP.TIME:	100 DAYS	>1 YR	3	2	TEST-SIM	YES	
SYSTEM: SEE SHEET 2	TEMP (F):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	NOTE-1
	NORMAL	122	122	1	2	AN+DATA	NA	NOTE-2
	ABNORMAL	140	318	1	2	TEST-SIM	NA	
TYPE: (DESCRIPTION)	ACCIDENT	280	318	1	2	TEST-SIM	YES	
TRANSMITTERS-PRESSURE, LEVEL,	PRESS(PSIG)	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	-
FLOW AND DIFFERENTAL	NORMAL	0	0	1	2	TEST-SIM	NA	
PRESSURE	ABNORMAL	2.3	73	1	2	TEST-SIM	NA	
MANUFACTURER: ROSEMOUNT, INC.	ACCIDENT	9	73	1	2	TEST-SIM	YES	
	RH (%):	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	-
MODEL: SEE SHEET 2	NORMAL	100	100	1	2	TEST-SIM	NA	
	ABNORMAL	100	100	1	2	TEST-SIM	NA	
SAFETY FUNCTION: - - -	ACCIDENT	100	100	1	2	TEST-SIM	NA	
MEASURE, MONITOR OR CONTROL	RADIATION:	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - -	-
VARIOUS PROCESS VARIABLES	NORM GAMMA			1	2			
	ACC GAMMA	2.2E7 TID	2.44E7	1	2	TEST-SIM	YES	NOTE-3
OP. CODE: SEE SHEET 2	NORM BETA			1	2			
	ACC BETA			1	2			
	NEUTRON			1	2			
	SPRAY	NA	NA	NA	NA	NA	NA	
ACCURACY - -	SUBMERGENCE	NA	NA	NA	NA	NA	NA	
SEE SHEET 2								
SEE NOTE 4								

ZONE NO.: SEE SHEET 2
SUBMERGENCE:
SPRAY/FROTH:

EQUIPMENT NOT SUBJECT TO
SUBMERGENCE OR SPRAY/FROYH

DOCUMENTATION ACCEPTABILITY:
ACCEPTABLE TO NUREG 0588,CAT I

MAINT/SURVEILL - - -
REFERENCE: NOT REQUIRED

QUALIFIED LIFE - - -
(YEARS): SEE SHEET 2
REFERENCE: 4
SEE NOTE-2

DOCUMENT REFERENCE:

1. SPECIFICATION _247.481 REV.1, ADD.3
2. VENDOR ENVIRONMENTAL QUALIFICATION REPORT,
   SDDF # 6247.481-130-002B & 002C
3. POST-ACCIDENT OPERABILITY PERIOD: SEE
   PAOP DOCUMENT NO. 245.600, REV.0
4. CALCULATION NO.12210-EQS-24,REV.0 (QUALIFIED LIFE)
5. CALCULATION NO. 12210-EQS-25,REV.0 (DEMONSTRATED ACCURACIES)
6. CALCULATION NO. 12210-EQS-57,REV.0 (OPERABILITY TIME)

RBS-ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

SRN 247481-1
Rev. 1
Sheet No 2A
Date: 7FEB85

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBRG	QUAL. LIFE	OPTIME OC	SPEC ACC DEMO ACC
SRN 247481-1					
SPEC 247.481					
CCP COMPONENT COOLING - PRIMARY CONTAINMENT OR REACTOR					
1CCP*PT1A	1153GB7	AB-070-8	15.5 Years	100D A	15.0 % 6.5 %
1CCP*PT1B	1153GB7	AB-070-8	15.5 Years	100D A	15.0 % 6.5 %
1CCP*PT1C	1153GB7	AB-070-8	15.5 Years	100D A	15.0 % 6.5 %
1CCP*PT1D	1153GB7	AB-070-8	15.5 Years	100D A	15.0 % 6.5 %
1CCP*PT1E	1153GB7	AB-070-8	15.5 Years	100D A	15.0 % 6.5 %
1CCP*PT1F	1153GB7	AB-070-8	15.5 Years	100D A	15.0 % 6.5 %
1CCP*PT1G	1153GB7	AB-070-8	15.5 Years	100D A	15.0 % 6.5 %
1CCP*PT1H	1153GB7	AB-070-8	15.5 Years	100D A	15.0 % 6.5 %
CHS CONTAINMENT ATMOSPHERE MONITORING					
1CHS*LT23A	1153DB5PG, 1159C60A Notes 6, 5	CT-SP Y	20 Years	100D A	Le 14.7 %
1CHS*LT23B	1153DB5PG, 1159C60A Notes 6, 5	CT-SP Y	20 Years	100D A	Later 14.7 %
1CHS*PDT29A	1153D86	AB-141-1	14.7 Years	100D A	2.9 % 1.4 %

SRN 247481-1
Rev. 1
Sheet No 2B
Date: 7 FEB 85

RBS-ENVIRONMENTAL QUALIFICATION PROGRAM
RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBRG	QUAL. LIFE	OPTIME CC	SPEC ACC DEMO ACC
SRN 247481-1					
CMS CONTAINMENT ATMOSPHERE MONITORING					
1CMS*PDT29B	1153DB4	AB-141-2	14.7 Years	100D A	2.9% 1.4%
1CMS*PT2A	1153AB6	AB-141-1	14.7 Years	100D A	N/R 1.9%
1CMS*PT2B	1153AB6	AB-141-2	14.7 Years	100D A	N/R 1.9%
1CMS*PT4A	1153AB6	AB-141-1	14.7 Years	100D A	N/R 1.9%
1CMS*PT4B	1153AB6	AB-141-2	14.7 Years	100D A	N/R 1.9%
DFR DRAINS - REACTOR PLANT FLOOR					
1DFR*LT134	1153DB4PG, 1159C30A	AB-070-1	20 Years	100D A	11.2% 10.8%
1DFR*LT135	1153DB4PG, 1159C30A	AB-070-2	16.7 Years	100D A	10.8% 10.8%
1DFR*LT136	1153DB4PG, 1159C30A NOTE 5	AB-070-3	18.2 Years	100D A	10.8% 16.0%
1DFR*LT137	1153DB4PG, 1159C30A	AB-070-4	20 Years	100D A	11.2% 13.2%
1DFR*LT138	NOTE 5 1153DB4PG, 1159C30A	AB-070-5	15.7 Years	100D A	10.8% 10.8%
1DFR*LT139	1153DB4PG, 1159C30A	AB-070-6	20 Years	100D A	11.2% 10.8%
HVR VENTILATION - REACTOR PLANT					
1HVR*PDT60A	1153DB3PA	AB-141-2	14.7 Years	100D A	2.6% 2.6%
1HVR*PDT60B	1153DB3PA	AB-141-2	14.7 Years	100D A	2.6% 2.6%
1HVR*PDT60C	1153DB3PA	AB-141-2	14.7 Years	100D A	2.6% 2.6%

SRN 247481-1
Rev. 1
Sheet No 2C
Date: 7 FEB 86

RBS-ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBNO	QUAL. LIFE	OPTIME OC	SPEC ACC DEMO ACC
SRN 247481-1					
HVR VENTILATION - REACTOR PLANT					
1HVR*PDT60D	1153DB3PA	AB-141-2	14.7 years	100D A	2.6% 2.6%
1HVR*PDT60E	1153DB3PA	AB-141-2	14.7 years	100D A	2.6% 2.6%
1HVR*PDT60F	1153DB3PA	AB-141-2	14.7 years	100D A	2.6% 2.6%
IAS INSTRUMENT AIR					
1IAS*PT39A	1153GB7 NOTE 5	AB-141-5	15.5 years	1HR A	3.0% 7.5%
1IAS*PT39B	1153GB7 NOTE 5	AB-141-6	15.5 years	100D A	3.0% 7.5%
1IAS*PT43A	1153GB7	FB-143-G	20 years	100D A	2.0% 2.0%
1IAS*PT43B	1153GB7	FB-148-G	20 years	100D A	2.0% 2.0%
1IAS*PT48A	1153GB7 NOTE 5	AB-141-5	15.5 years	100D A	6.0% 15.0%
1IAS*PT48B	1153GB7 NOTE 5	AB-141-6	13.3 years	100D A	6.0% 15.0%
1IAS*PT49A	1153GB7 NOTE 5	FB-143-G	20 years	100D A	2.0% 3.9%
1IAS*PT49B	1153GB7 NOTE 5	FB-148-G	20 years	100D A	2.0% 3.9%

SRN 247481-1
Rev. 1
Sheet No. 2D
Date: 7 FEB 85

RBS-ENVIRONMENTAL QUALIFICATION PROGRAM
RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBHRG	QUAL. LIFE	OPTIME OC	SPEC ACC DEMO ACC
SRN 247481-1					
ISC					
1ISC*PT101	1153GB9PA	CT-G	20 Years	N/R B	N/R 10.3%
LSV LEAKAGE CONTROL - PENETRATION VALVE					
1LSV*PT10A	1153C86PA	AB-141-2	14.7 years	30 D A	3.4% 2.6%
1LSV*PT10B	1153GB6PA	AB-141-2	14.7 years	30 D A	3.4% 2.6%
1LSV*PT12A	1153GB6PA	AB-141-2	14.7 years	30 D A	4.4% 2.6%
1LSV*PT12B	1153GB6PA	AB-141-2	14.7 years	30 D A	4.4% 2.6%
1LSV*PT14A	1153GB6PA	AB-114-6	13.3 years	30 D A	4.4% 4.4%
1LSV*PT14B	1153GB6PA	AB-141-2	14.7 years	30 D A	2.6% 2.6%
1LSV*PT17A	1153GB6PA	AB-095-2	18 years	30 D A	4.4% 4.4%
1LSV*PT17B	1153GB6PA	AB-141-2	14.7 years	30 D A	4.4% 2.6%
1LSV*PT21A	1153GB6PA	AB-114-6	13.3 years	30 D A	4.4% 4.4%
1LSV*PT21B	1153GB6PA	AB-114-5	13.3 years	30 D A	4.6% 4.6%
1LSV*PT22A	1153GB7 NOTE 5	AB-141-2	14.7 years	30 D A	1.8% 2.7%

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RBS-ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBHRG	QUAL. LIFE	OPTIME OC	SPEC ACC DAMO ACC
SRN 247481-1					
LSV LEAKAGE CONTROL - PENETRATION VALVE					
1LSV*PT22B	1153G87 NOTE 5	AB-114-3	17.9 years	30 D A	1.8% 4.4%
1LSV*PT26A	1153G87PA	AB-141-2	14.7 years	30 D A	6.5% 3.9%
1LSV*PT26B	1153G87PA	AB-114-3	15.5 years	30 D A	6.5% 6.5%
1LSV*PT9A	1153G87	AB-141-2	14.7 years	30 D A	4.8% 2.7%
1LSV*PT9B	1153G87	AB-114-3	15.5 years	30 D A	4.8% 4.4%
RHS RESIDUAL HEAT REMOVAL SYSTEM					
1RHS*FT15B	1153D86PA	AB-095-5	15.5 years	N/R B	N/R 1.6%
1RHS*FT15C	1153D86PA	AB-095-6	12.7 years	N/R B	N/R 1.6%
1RHS*LT119	1153D85PA	CT-G	20 years	N/R B	N/R 18%
SFC SPENT FUEL POOL COOLING AND CLEAN-UP					
1SFC*LT11A	1153D84PG,1159C10A NOTE 5	CT-5A	20 years	N/R A	3.4% 7.0%
1SFC*LT11B	1153D84PG,1159C10A NOTE 5	CT-G	20 years	N/R A	3.4% 7.0%

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RBS ENVIRONMENTAL QUALIFICATION PROGRAM
RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBHRG	QUAL. LIFE	OPTIME OC	SPEC ACC DEMO ACC
SRN 247481-1					
SFC SPENT FUEL POOL COOLING AND CLEAN-UP					
1SFC*LT28A	1153DB4PG,1159C10A	FB-113-1	20 Years	100D A	7.0% 7.0%
1SFC*LT28B	1153DB4PG,1159C10A	FB-113-1	20 Years	100D A	7.0% 7.0%
SWP SERVICE WATER					
1SWP*FT59A	1153DB4	FB-095-G	10.7 Years	100D A	N/R 1.7%
1SWP*FT59B	1153DB4	FB-095-G	10.7 Years	100D A	N/R 1.7%
1SWP*FT60A	1153DB4	FB-095-G	10.7 Years	100D A	N/R 1.7%
1SWP*FT60B	1153DB4	FB-095-G	10.7 Years	100D A	N/R 1.7%
1SWP*FT64A	1153DB5	PT-3	18 Years	100D A	N/R 4.9%
1SWP*FT64B	1153DB5	PT-3	18 Years	100D A	N/R 4.9%
1SWP*PT21A	1153GB7	PT-3	15.5 Years	100D A	3.3% 3.3%
1SWP*PT21B	1153GB7	PT-3	15.5 Years	100D A	3.3% 3.3%
1SWP*PT21C	1153GB7	PT-3	15.5 Years	100D A	3.3% 3.3%
1SWP*PT21D	1153GB7	PT-3	15.5 Years	100D A	3.3% 3.3%

SRN 247481-1
Rev 1
Sheet No 2G
Date 7 FEB 85

RBS-ENVIRONMENTAL QUALIFICATION PROGRAM

RBS-ENVIRONMENTAL QUALIFICATION DATA MASTER LIST
SORTED BY SRN, SPEC, THEN SYSTEM - HARSH ENVIRONMENT ONLY

MARK NO	MODEL/CATALOG NO. REMARKS	ENV. ZONE SUBRG	QUAL. LIFE	OPTIME OC	SPEC ALL DEMO ALL
SRN 247481-1					
SWP SERVICE WATER					
1SWP*PT21E	1153GB7	PT-3	15.5 Years	100D A	3.3% 3.3%
1SWP*PT21F	1153GB7	PT-3	15.5 Years	100D A	3.3% 3.3%
1SWP*PT21G	1153GB7	PT-3	15.5 Years	100D A	3.3% 3.3%
1SWP*PT21H	1153GB7	PT-3	15.5 Years	100D A	3.3% 3.3%

RBS - ENVIRONMENTAL QUALIFICATION PROGRAM

SRN 247481-1
REV 1
SHEET NO. 3
DATE 02/07/85

NOTES

1. For complete environmental conditions, see SWEC Document No. 215.150, Revision 2, 1984.

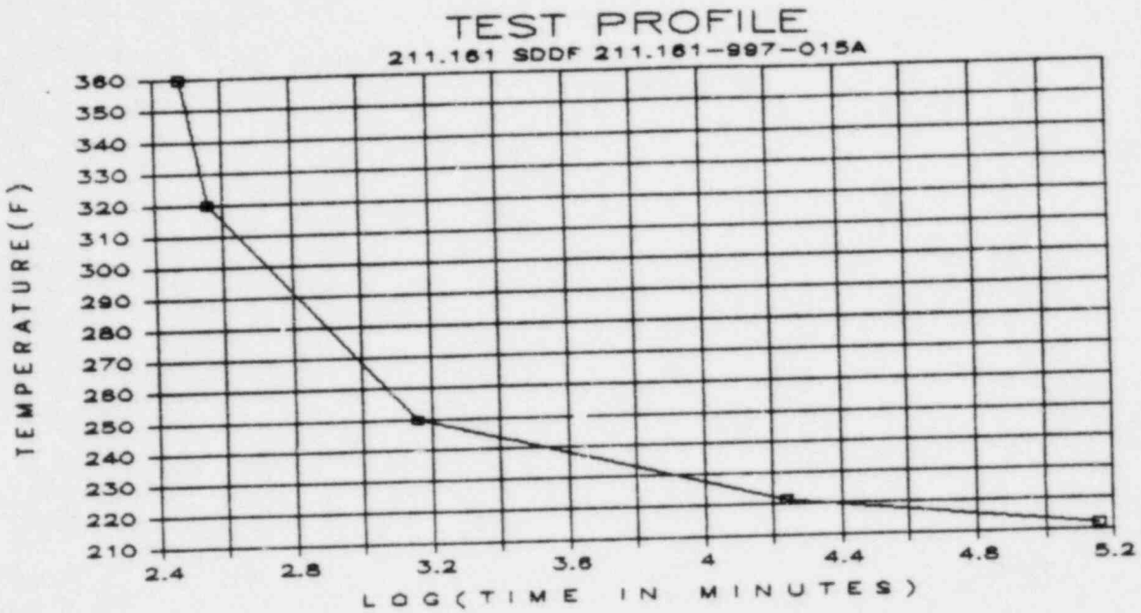
2. See Calculation No. 12210-EQS-24, Revision 0 for qualified life at service temperatures.

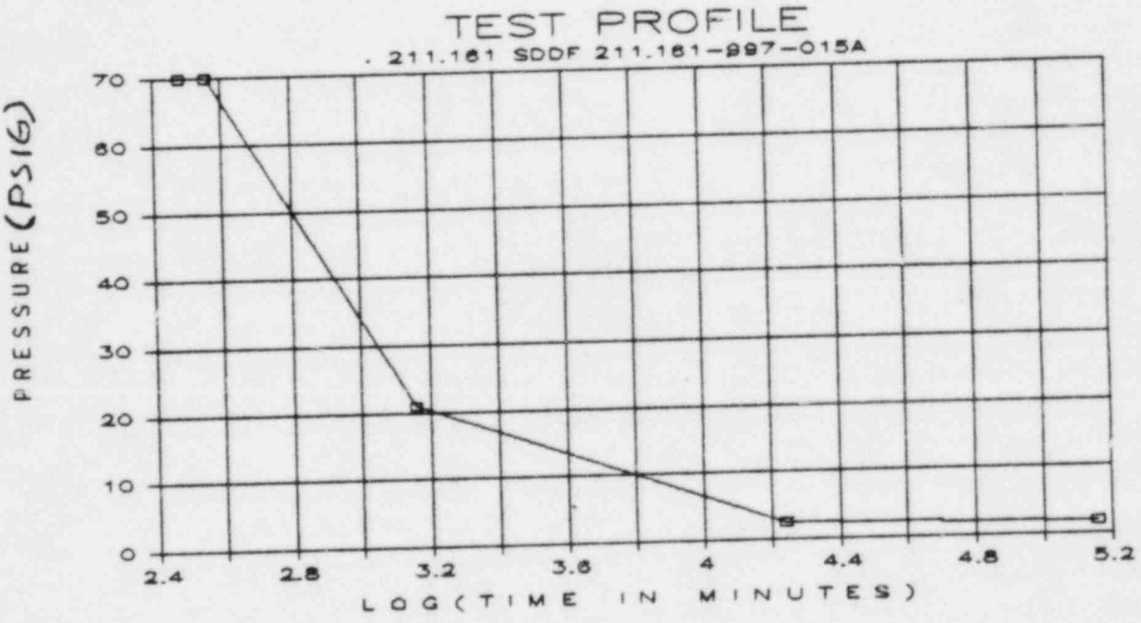
3. The transmitter is hermetically sealed and not affected by beta.

4. Factory certification testing of transmitters shows factory-calibrated accuracies of less than 0.25 percent of calibrated span.

5. Where demonstrated accuracies exceed specified accuracies, SWEC will reevaluate setpoint criteria. Scheduled completion is March 31, 1985. Where required accuracies still exceed demonstrated accuracies after reevaluation, the instruments will be relocated or shielded to meet requirements.

6. Only the capillary seals are subject to submergence; transmitters are above submergence and spray/froth level.

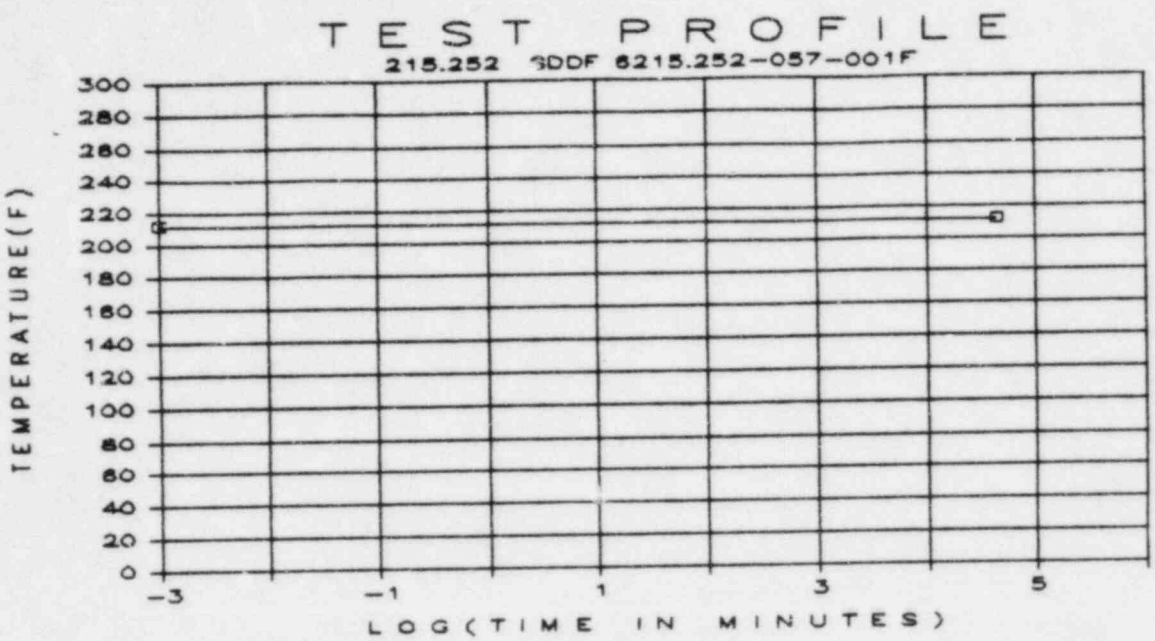


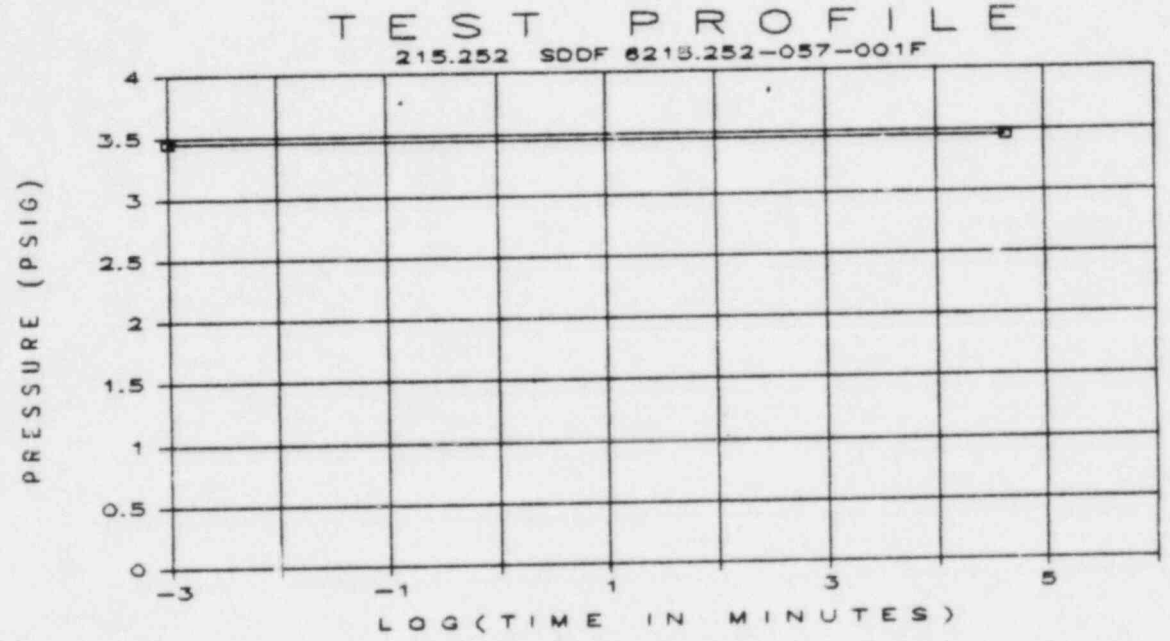


TEST PROFILE DATA FOR 211.161-997-015A

TEMPERATURE					
TIME	5HRS	6HRS	24HRS	12DAYS	100DAYS
LOG (MINU	2.48	2.56	3.16	4.24	5.16
TEMP(F)	360	320	250	221	212
TIME(MIN)	300	360	1440	17280	144000

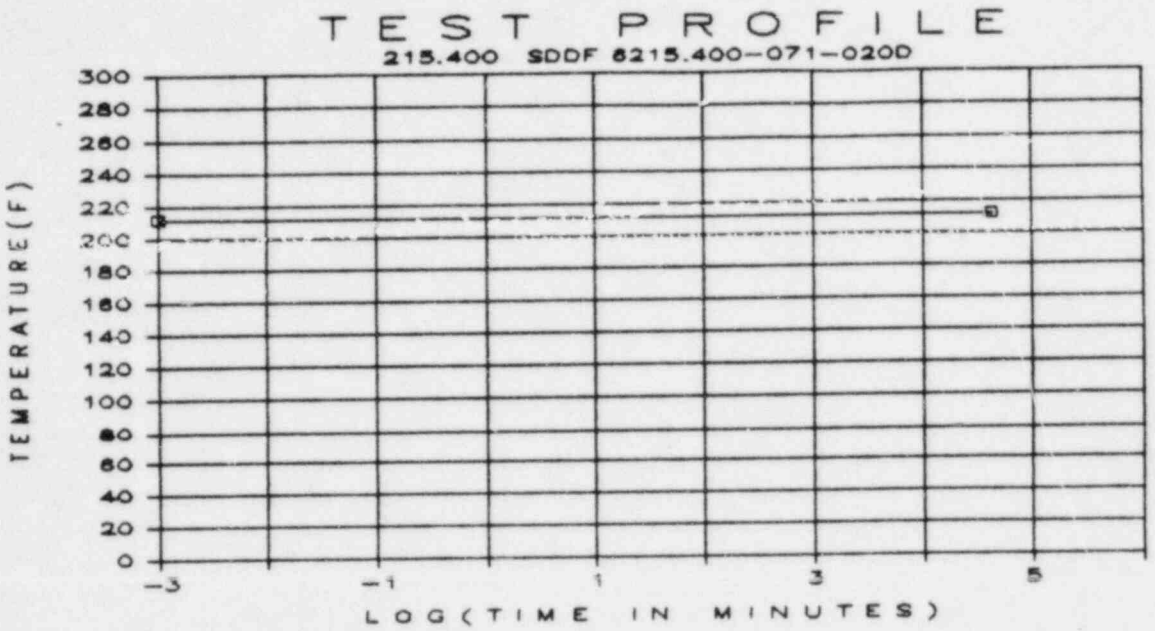
PRESSURE					
TIME	5HRS	6HRS	24HRS	12DAYS	100DAYS
LOG(MINUT	2.48	2.56	3.16	4.24	5.16
PRES(PSIG	70	70	21	2.5	2
TIME(MIN)	300	360	1440	17280	144000





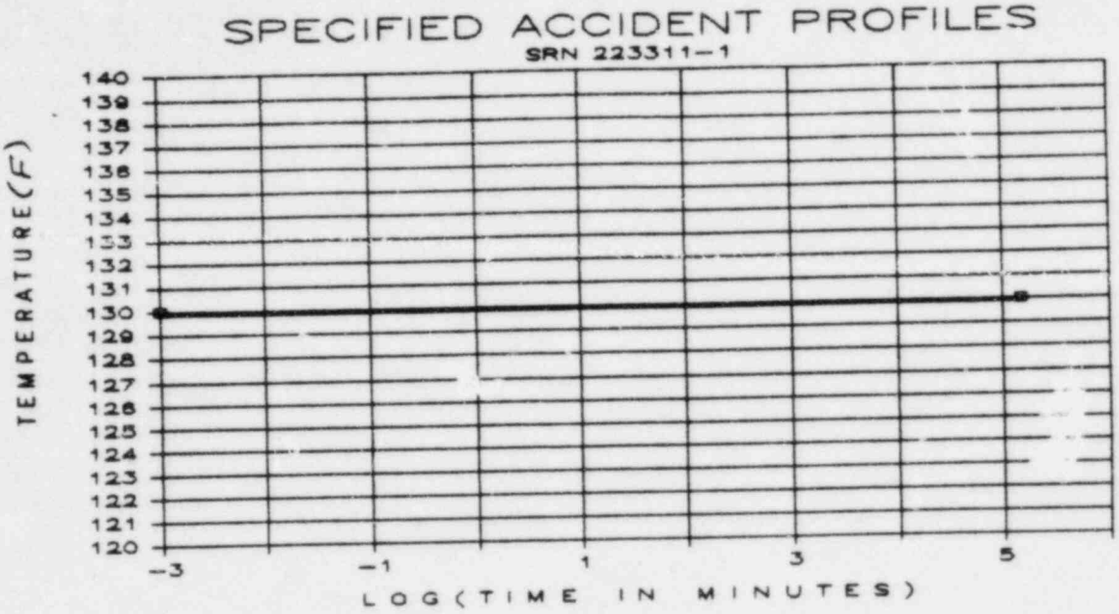
TEST PROFILE DATA FOR 215.252 SDDF 6215.252-057-001F

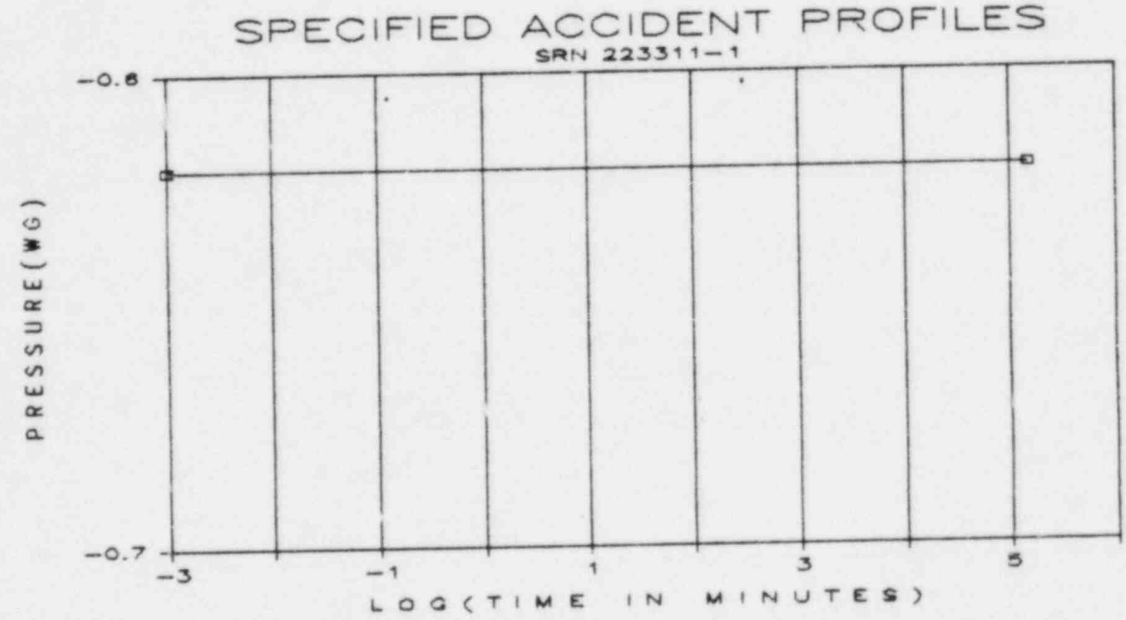
TIME	0	30 days
LOG(MIN)	-3.00	4.64
TEMP(F)	212	212
PRES(PSIG)	3.45	3.45



TEST PROFILE DATA FOR 215.400 SDDF 6215.400-071-020D

TIME	0	30 days
LOG(MIN)	-3.00	4.64
TEMP(F)	212	212
PRES(PSIG)	3.45	3.45





SPECIFIED ACCIDENT CONDITIONS FOR SPECIFICATION: 223311

TEMPERATURE

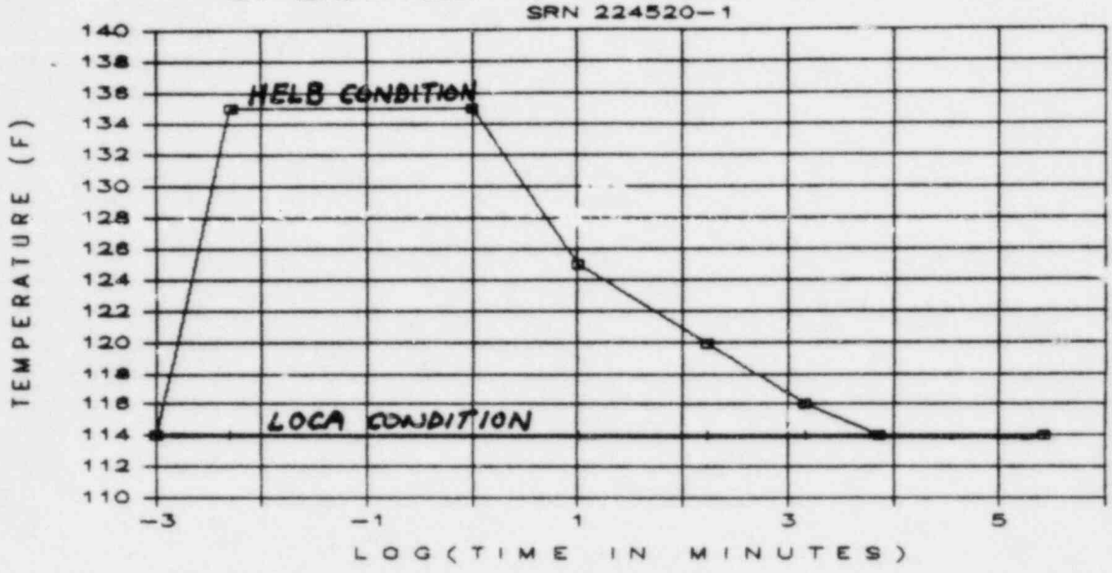
TIME	0	100 days
LOG (MINUTES)	-3.00	5.16
TEMP(F)	130	130
TIME(MIN)	0.001	144000

PRESSURE

TIME	0	100days
LOG(MINUTES)	-3.00	5.16
PRES(WG)	-0.62	-0.62
TIME(MIN)	0.001	144000

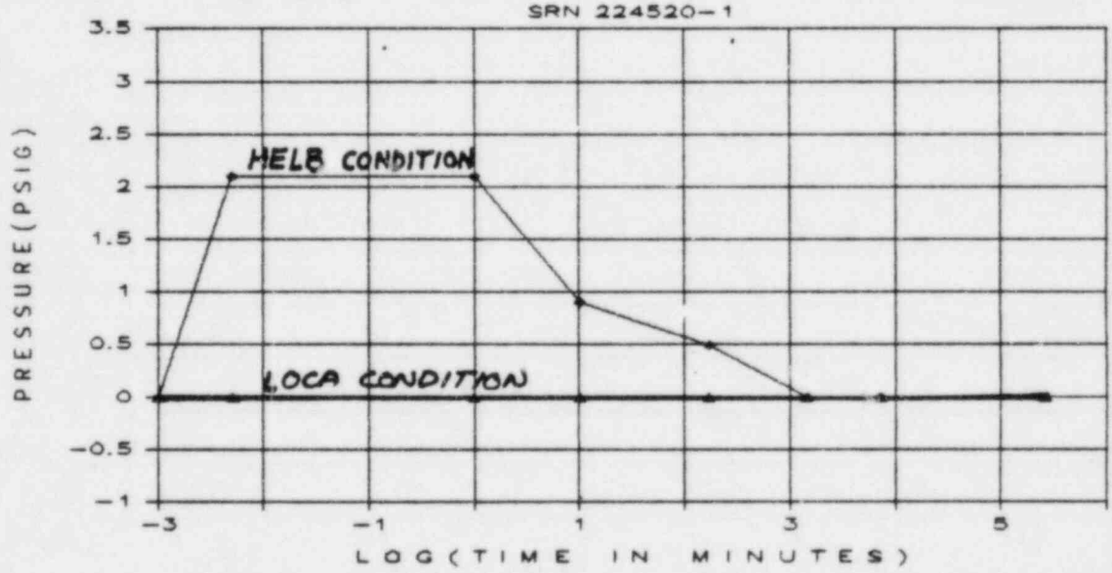
SPECIFIED ACCIDENT PROFILES

SRN 224520-1



SPECIFIED ACCIDENT PROFILES

SRN 224520-1



SPECIFIED ACCIDENT CONDITIONS FOR SPECIFICATION: 224520

HELB CONDITION

TEMPERATURE

TIME	0	5sec	60sec	600sec	2.8hr	1day	5days	180days		
LOG(MINU	-3.00	-2.30	0.00	1.00	2.23	3.16	3.86	5.41	ERR	ERR
TEMP(F)	114	135	135	125	120	116	114	114	110	140
TIME(MIN	0.001	0.005	1	10	168	1440	7200	259200		

PRESSURE

TIME	0	5sec	60sec	600sec	2.8hr	1day	5days	180days		
LOG(MINUT	-3.00	-2.30	0.00	1.00	2.23	3.16	3.86	5.41	ERR	ERR
PRES(PSIG	0	2.1	2.1	0.9	0.5	0	0	0	3.1	-1
TIME(MIN	0.001	0.005	1	10	168	1440	7200	259200		

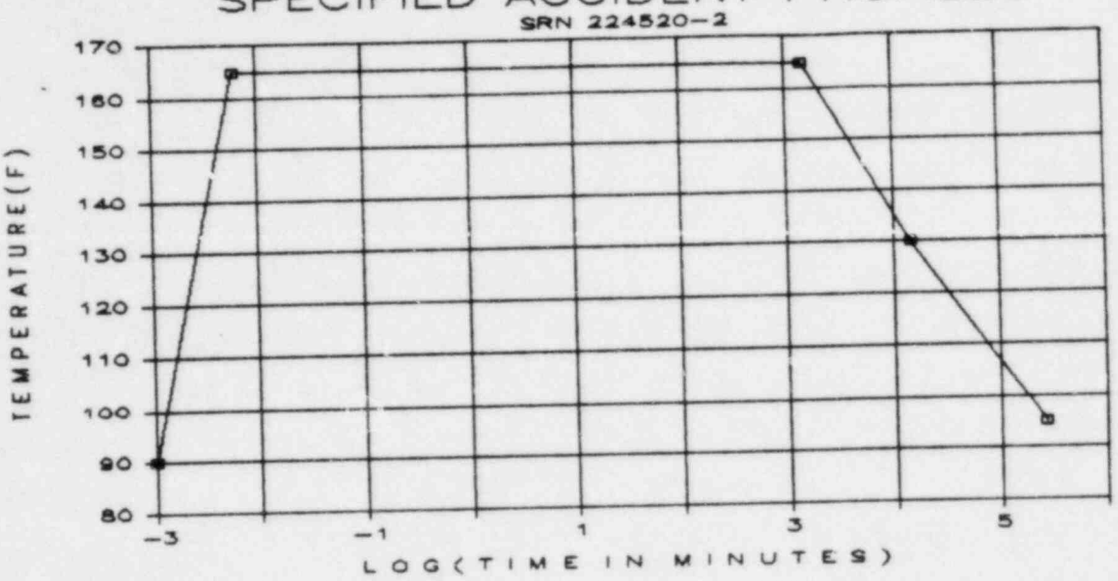
LOCA CONDITION

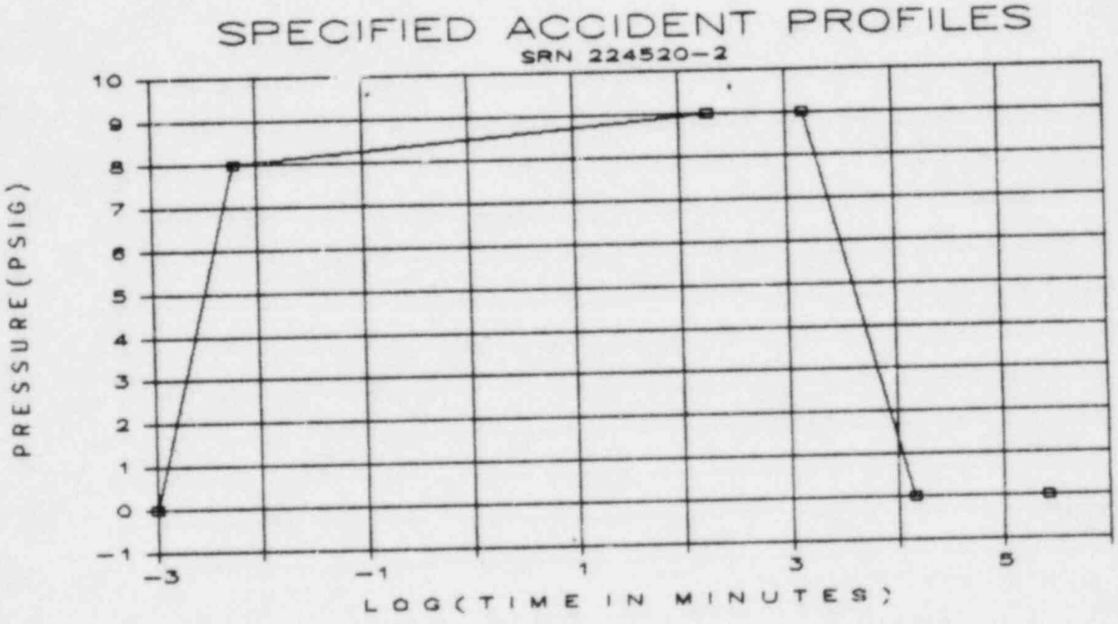
TEMPERATURE

TIME	0	5sec	60sec	600sec	2.8hr	1day	5days	180days		
LOG(MIN.	-3.00	-2.30	0.00	1.00	2.23	3.16	3.86	5.41	ERR	ERR
TEMP(F)	114	114	114	114	114	114	114	114		
TIME(MIN	0.001	0.005	1	10	168	1440	7200	259200		

PRESSURE

TIME	0	5sec	60sec	600sec	2.8hr	1day	5days	180days		
LOG(MINUT	-3.00	-2.30	0.00	1.00	2.23	3.16	3.86	5.41	ERR	ERR
PRES(PSIG	0	0	0	0	0	0	0	0		
TIME(MIN	0.001	0.005	1	10	168	1440	7200	259200		





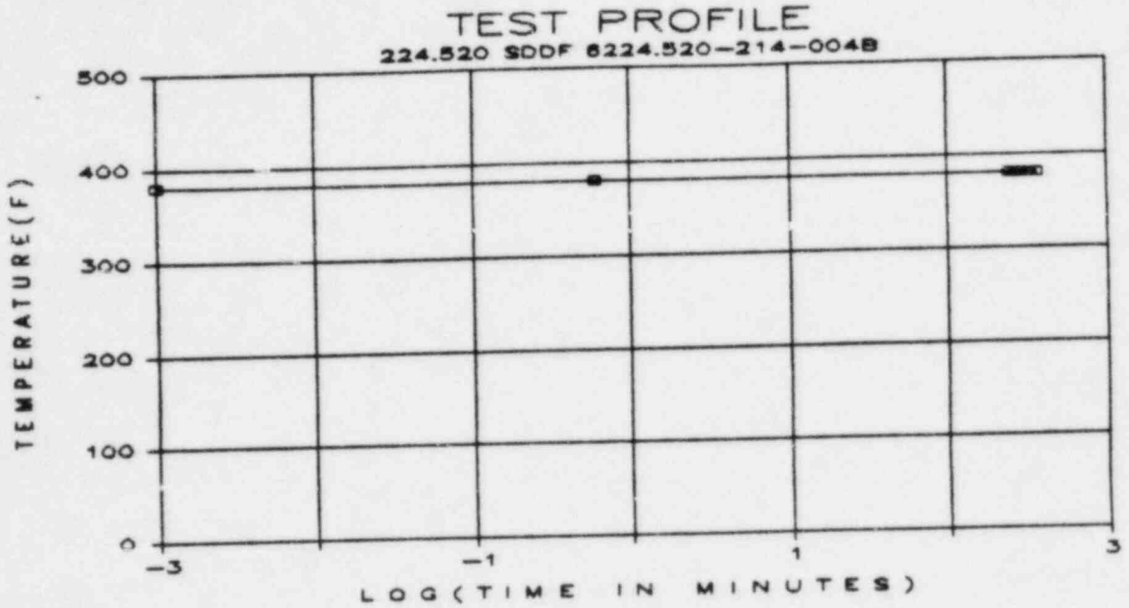
SPECIFIED ACCIDENT CONDITIONS FOR SPECIFICATION: 224520

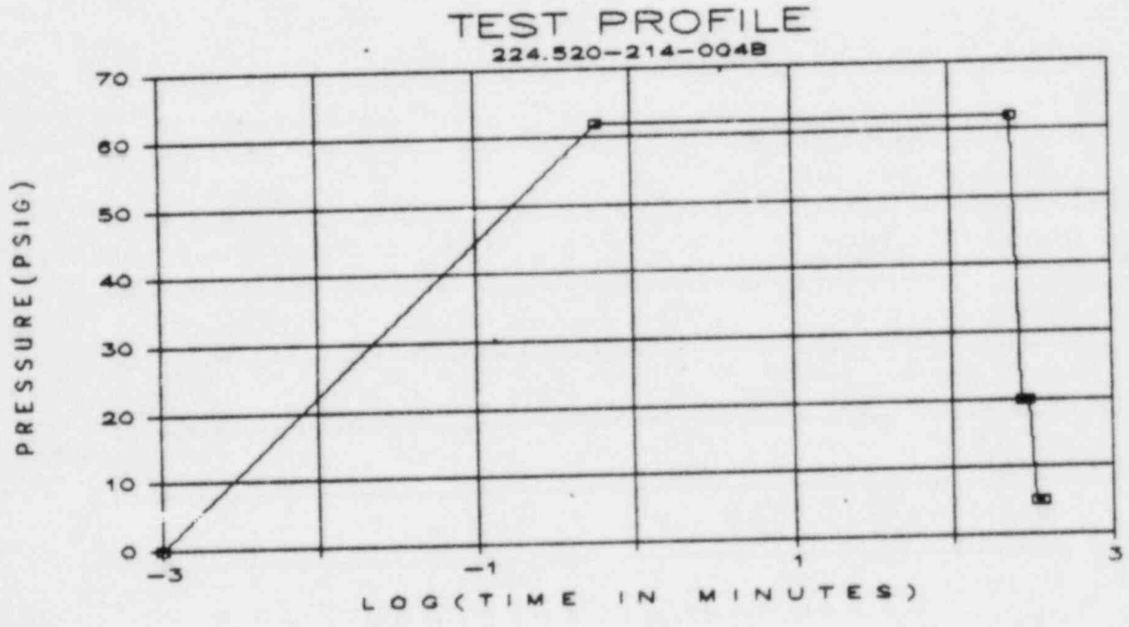
TEMPERATURE								
TIME	0	6sec	1day	10days	180days			
LOG (MINUTES)	-3.00	-2.22	3.16	4.16	5.41			
TEMP(F)	90	165	165	130	95	170	85	
TIME(MIN)	0.001	0.006	1440	14400	259200			

PRESSURE								
TIME	0	6sec	3HR	1day	10days	180days		
LOG(MINUTES)	-3.00	-2.22	2.26	3.16	4.16	5.41		
PRES(PSIG)	0	8	9	9	0	0	9	10
TIME(MIN)	0.001	0.006	1440	1440	14400	259200		

-1

SPECIFIED ACCIDENT CONDITIONS FOR SPECIFICATION:

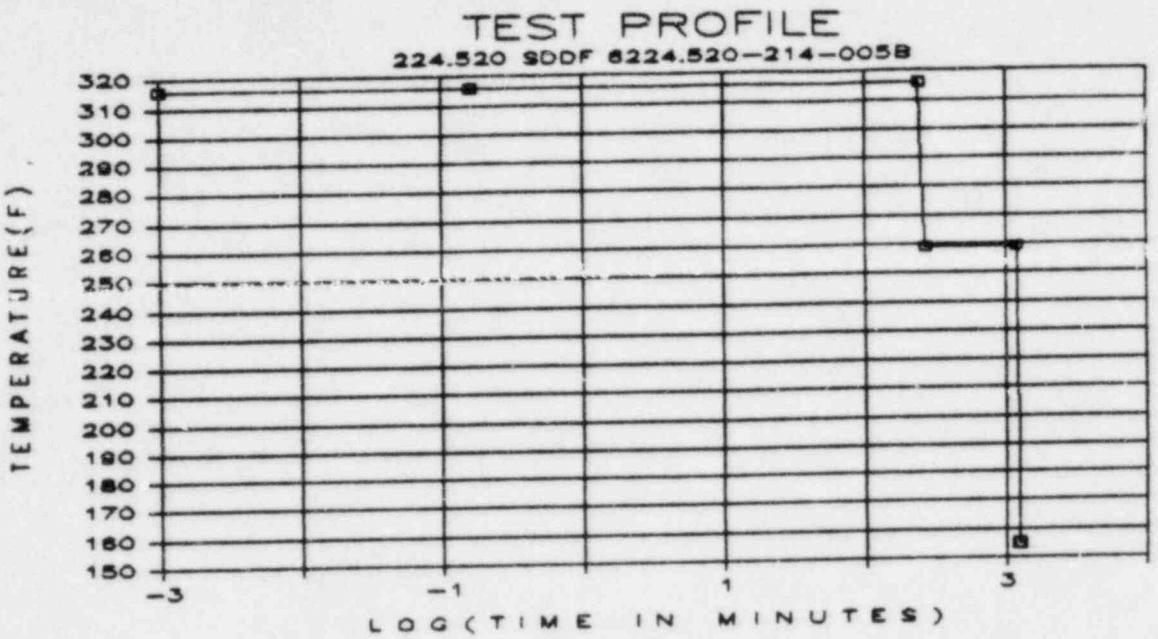


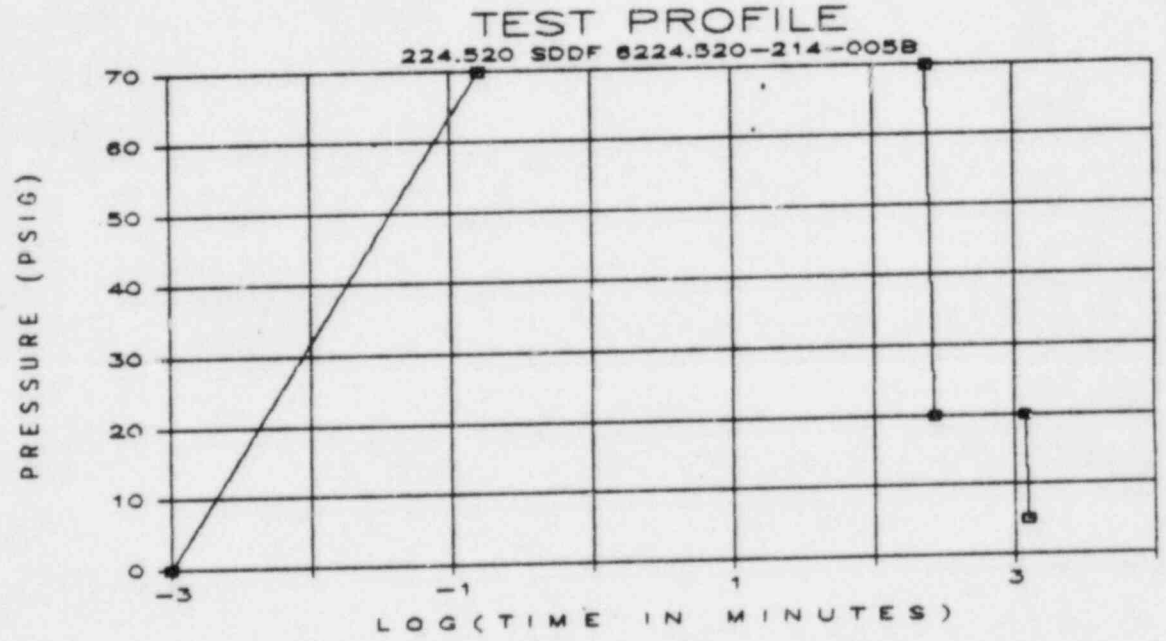


TEST PROFILE DATA FOR 224.520 SDDF 6224.520 214-004B

TEMPERATURE							
TIME	0	10SEC	4HR	4.5HR	5HR	5.5HR	6HR
LOG (MINU	-3.00	-0.22	2.38	2.47	2.48	2.52	2.56
TEMP(F)	380	380	380	380	380	380	380
TIME(MIN)	0.001	0.6	240	270	300	330	360

PRESSURE							
TIME	0	10SEC	4HR	4.5HR	5HR	5.5HR	6HR
LOG(MINUT	-3.00	-0.22	2.38	2.47	2.48	2.52	2.56
PRES(PSIG	0	62	62	20	20	5	5
TIME(MIN)	0.001	0.6	240	270	300	330	360

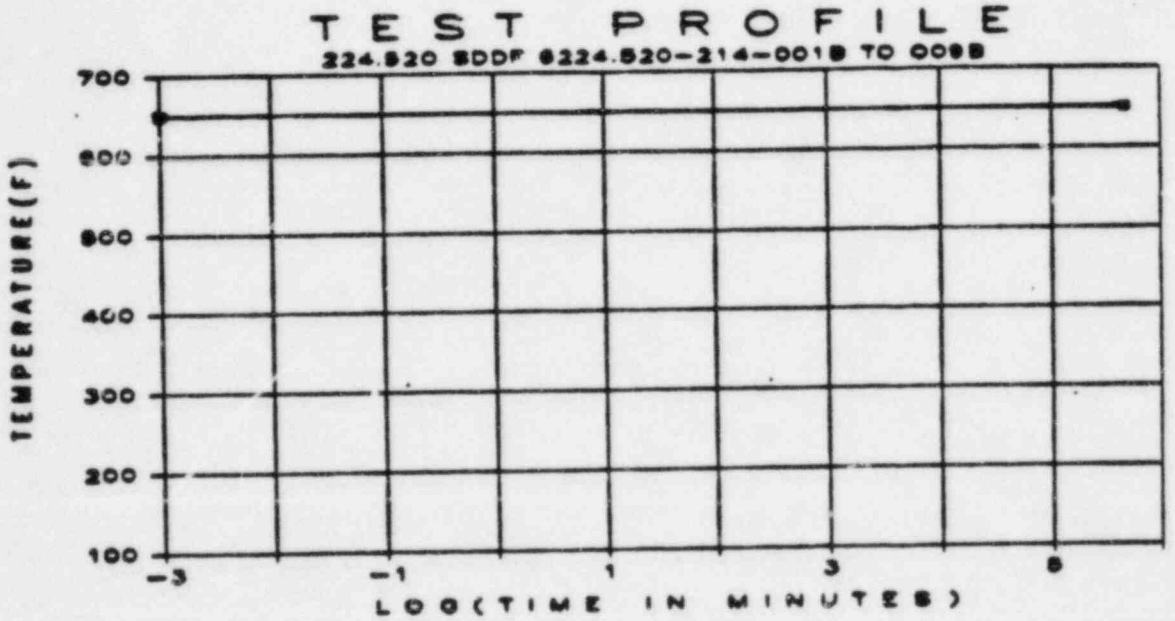




TEST PROFILE DATA FOR 224.520-214-005B

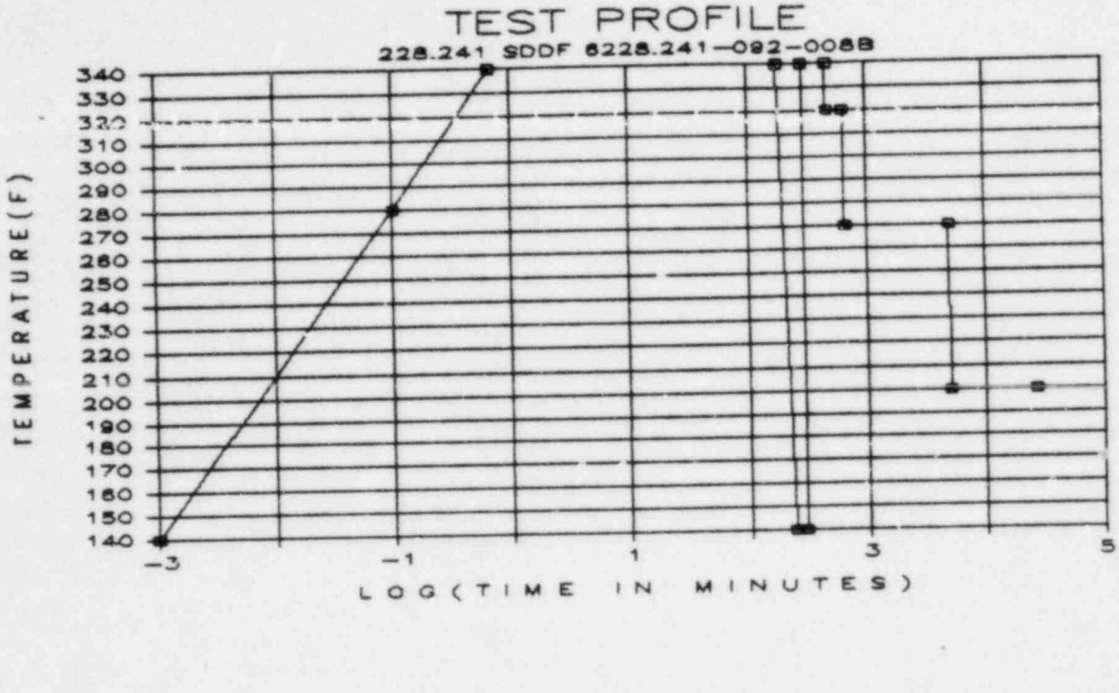
TEMPERATURE							
TIME	0	10SEC	4HR	4.5HR	20HR	20.5HR	21DAYS
LOG (MINU	-3.00	-0.80	2.38	2.43	3.08	3.09	3.10
TEMP(F)	316	316	316	259	259	155	155
TIME(MIN)	0.001	0.16	240	270	1200	1230	1260

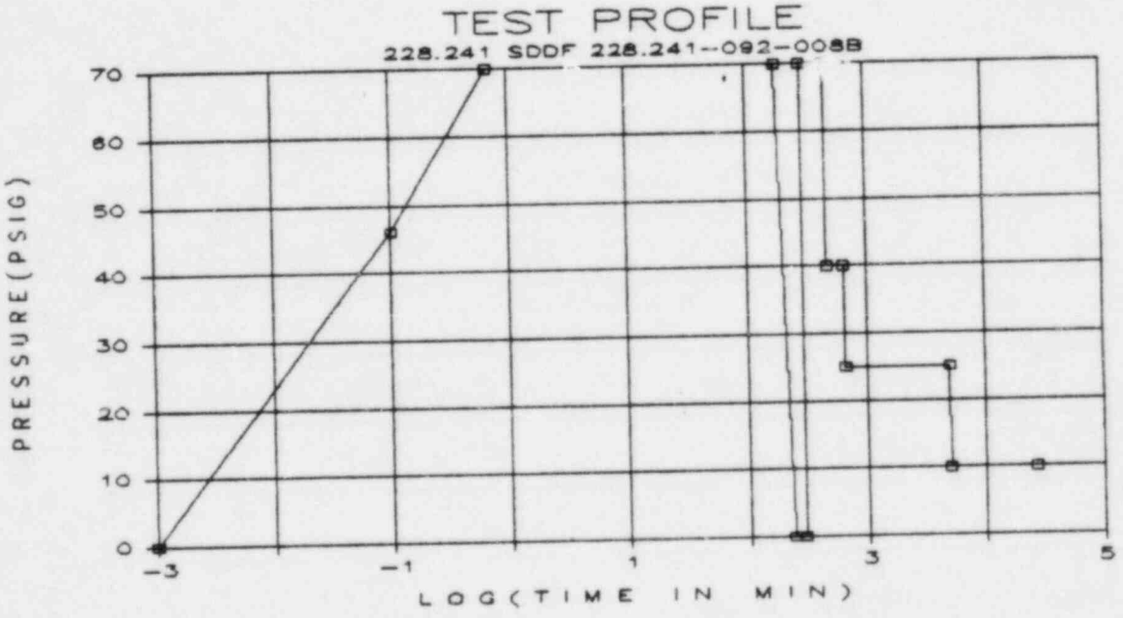
PRESSURE							
TIME	0	10SEC	4HR	4.5HR	20HR	20.5HR	21DAYS
LOG(MINUT	-3.00	-0.80	2.38	2.43	3.08	3.09	3.10
PRES(PSIG	0	70	70	20	20	5	5
TIME(MIN)	0.001	0.16	240	270	1200	1230	1260



TEST PROFILE DATA FOR 224.520 SDDF 6224.520-214-001B TO 009B
LOCATION CT-6

TEST 3:		
TIME	0	11months
LOG(MINUTES)	-3.00	5.68
TEMP (F)	650	650



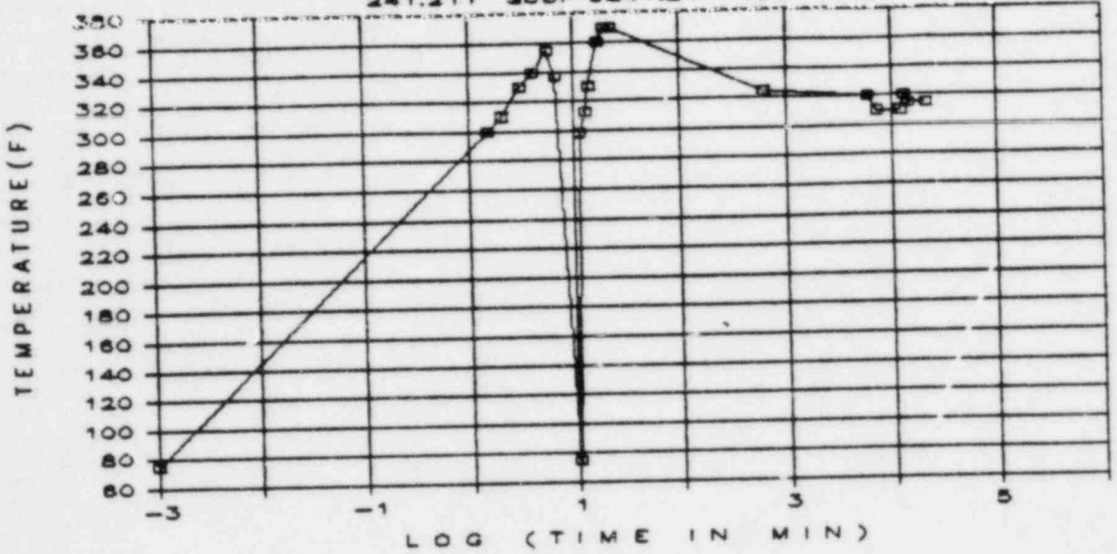


TEST PROFILE DATA FOR 228.241 SDDF 6228.241-092-008B

TEMPERATURE														
TIME	0SEC	6SEC	40SEC	3HR	4HR	5HR	5HR-40SEC	8HR	8HR-18SEC	11HR	11HR-2MIN	3.5DAYS	3.5D-45MI	32DAYS
LOG (MINU	-3.00	-1.00	-0.18	2.26	2.38	2.48	2.48	2.68	2.68	2.82	2.82	3.70	3.71	4.47
TEMP(F)	140	280	340	340	140	140	340	340	320	320	270	270	200	200
TIME(MIN)	0.001	0.1	0.666	180	240	300	300.666	480	480.28	660	662	5040	5085	26880
PRESSURE														
E	0SEC	6SEC	40SEC	3HR	4HR	5HR	5HR-40SEC	8HR	8HR-18SEC	11HR	11HR-2MIN	3.5DAYS	3.5D-45MI	32DAYS
MINUT	-3.00	-1.00	-0.18	2.26	2.38	2.48	2.48	2.68	2.68	2.82	2.82	3.70	3.71	4.47
PRES(PSIG	0	66	70	70	0	0	70	70	40	40	25	25	10	10
TIME(MIN)	0.001	0.1	0.666	180	240	300	300.666	480	480.28	660	662	5040	5085	26880

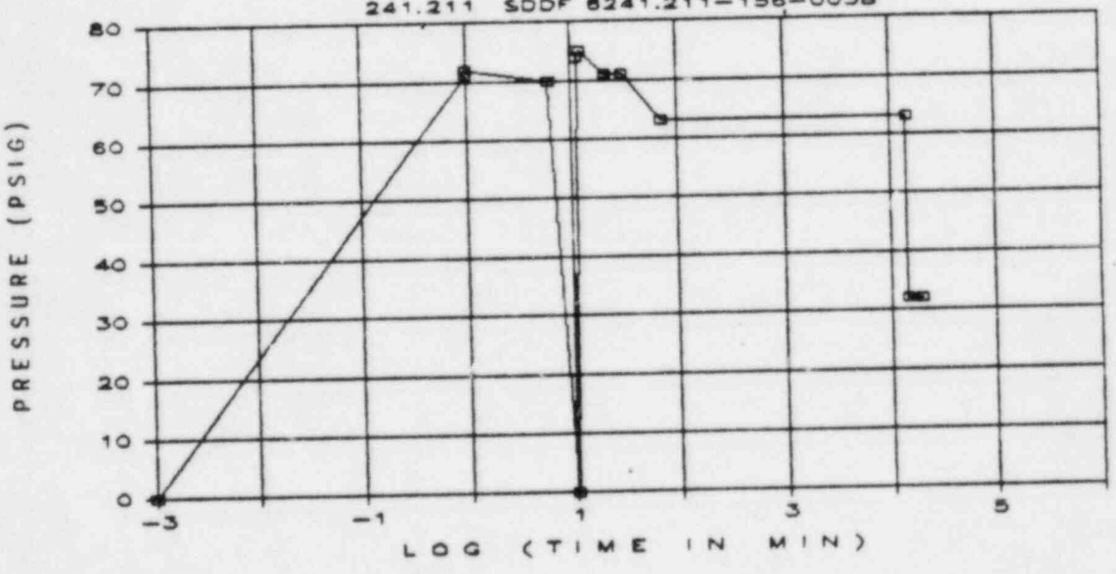
TEST PROFILE

241.211 SDDF 6241.211-156-003B



TEST PROFILE

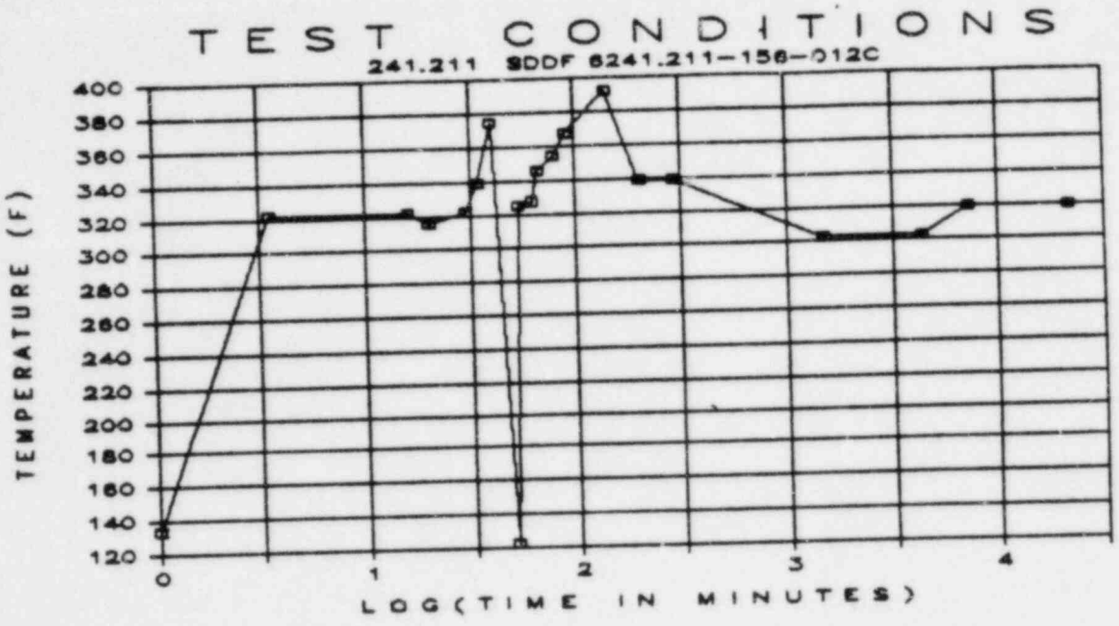
241.211 SDDF 6241.211-156-003B

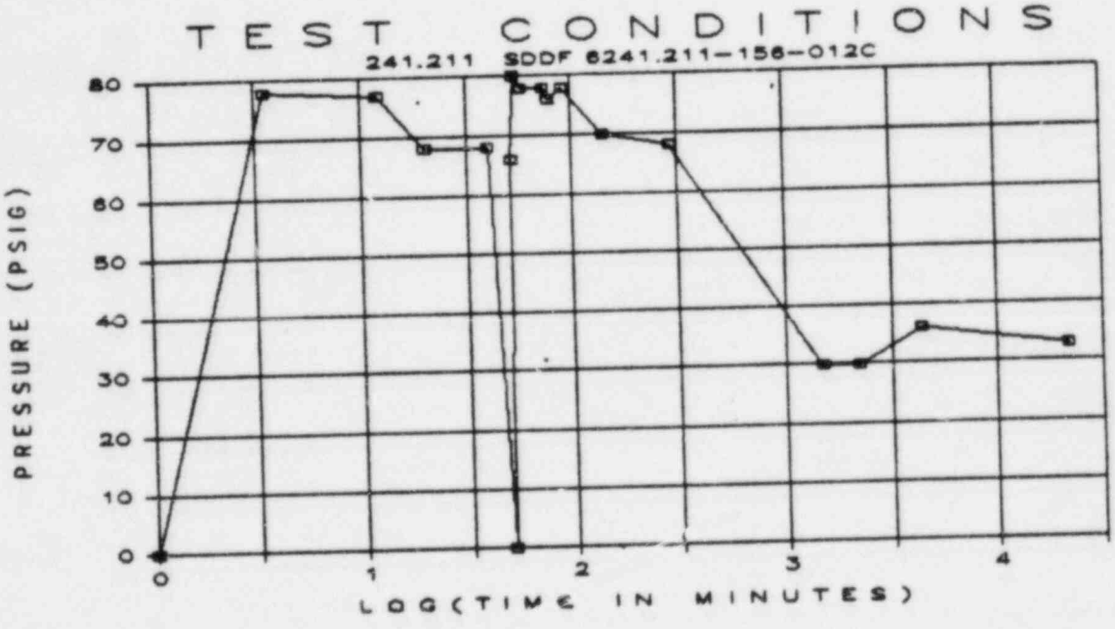


TEST PROFILE DATA FOR 241.211 - SDDF 6-241.211-156-003B - -Penetrations -LVP/LVC

TEMPERATURE																		
TIME	0	1.5min	2min	3min	4min	5.5min	6.5min	10min	11min	12.5min	13.5min	16.5min	19min	21.5min	10hr	100hrs	2.5days	3.74days
TIME(MIN)	0.001	1.5	2	3	4	5.5	6.5	10	11	12.5	13.5	16.5	19	21.5	600	6000	3600	5390
LOG(MINUTES)	-3.00	0.18	0.30	0.48	0.60	0.74	0.81	1.00	1.04	1.10	1.13	1.22	1.28	1.33	2.79	3.78	3.56	3.73
TEMP (F)	75	300	310	330	340	355	337	75	298	312	330	360	370	370	325	320	310	310

TEMPERATURE				PRESSURE											
TIME	9.18days	10days	14.3days	TIME	0	1min	2.5min	6min	10min	11min	12min	20min	30min	70min	10days	10.1days	13.7days
TIME(MIN)	13210	14410	20710	TIME	0.001	1	2.5	6	10	11	12.5	20	30	70	14410	14420	20110
LOG(MINUTES)	4.12	4.16	4.32	LOG(M	-3.00	0.00	0.00	0.78	1.00	1.04	1.08	1.30	1.48	1.85	4.16	4.16	4.30
TEMP (F)	320	315	315	PRES(	0	71	72	70	0	74	75	71	71	63	62	62	62





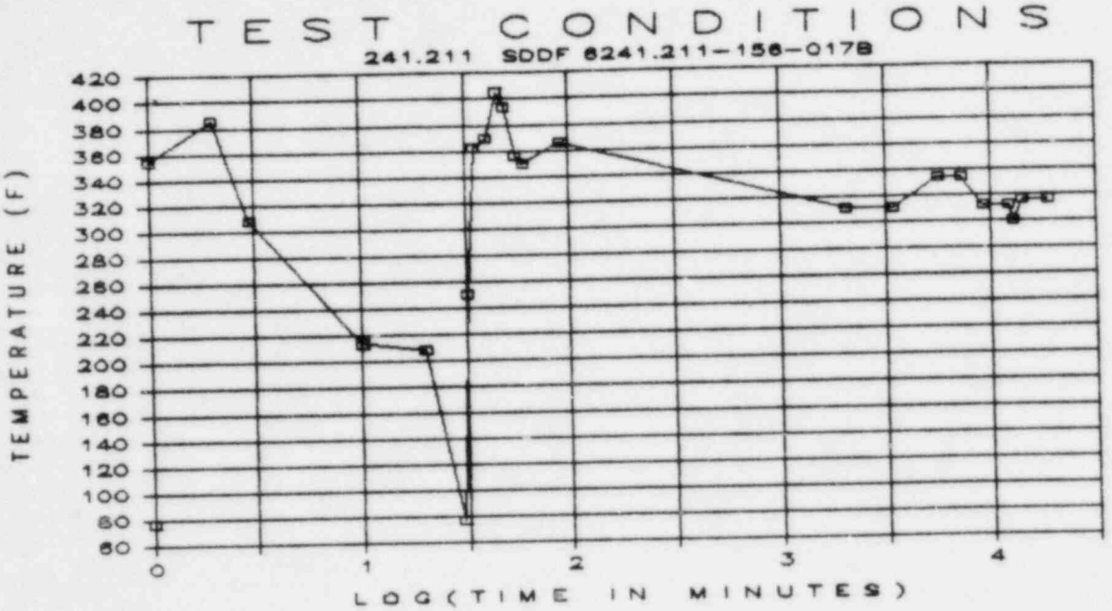
TEST PROFILE SPEC 241.211 SDDF 6241.211-156-012C PENETRATIONS - LVI/NMS

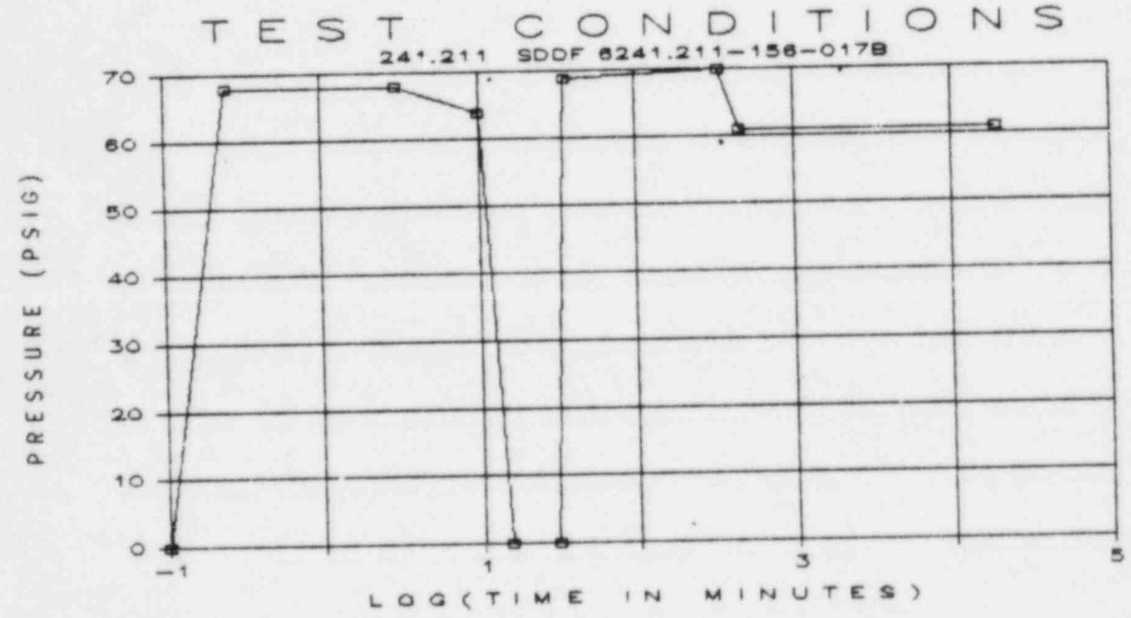
TEMPERATURE

TIME	0																			
LOG(MINUTES)	0.00	0.54	1.20	1.30	1.48	1.53	1.60	1.70	1.73	1.79	1.82	1.90	1.95	2.15	2.30	2.46	3.17	3.64	3.86	4.34
TEMP(F)	134	322	322	316	322	339	375	122	325	328	346	355	368	393	339	339	303	303	320	320
TIME(MIN)	1	3.5	16	20	30	34	40	50	53.5	62	66	79	90	140	200	290	1490	4370	7250	21650

PRESSURE

TIME	0																		
LOG(MINUTES)	0.00	0.54	1.08	1.30	1.60	1.70	1.71	1.73	1.76	1.87	1.89	1.95	2.15	2.46	3.17	3.34	3.64	4.34	
PRES(PSIG)	0	78	77	68	68	0	66	80	78	78	76	78	70	68	30	30	36	33	
TIME(MIN)	1	3.5	12	20	40	50	51	53.5	58	74	78	90	140	290	1490	2210	4370	21650	





TEST PROFILE SPEC 241.211 SDDF 6241.211-156-0178 PENETRATIONS - MVP

TEMPERATURE

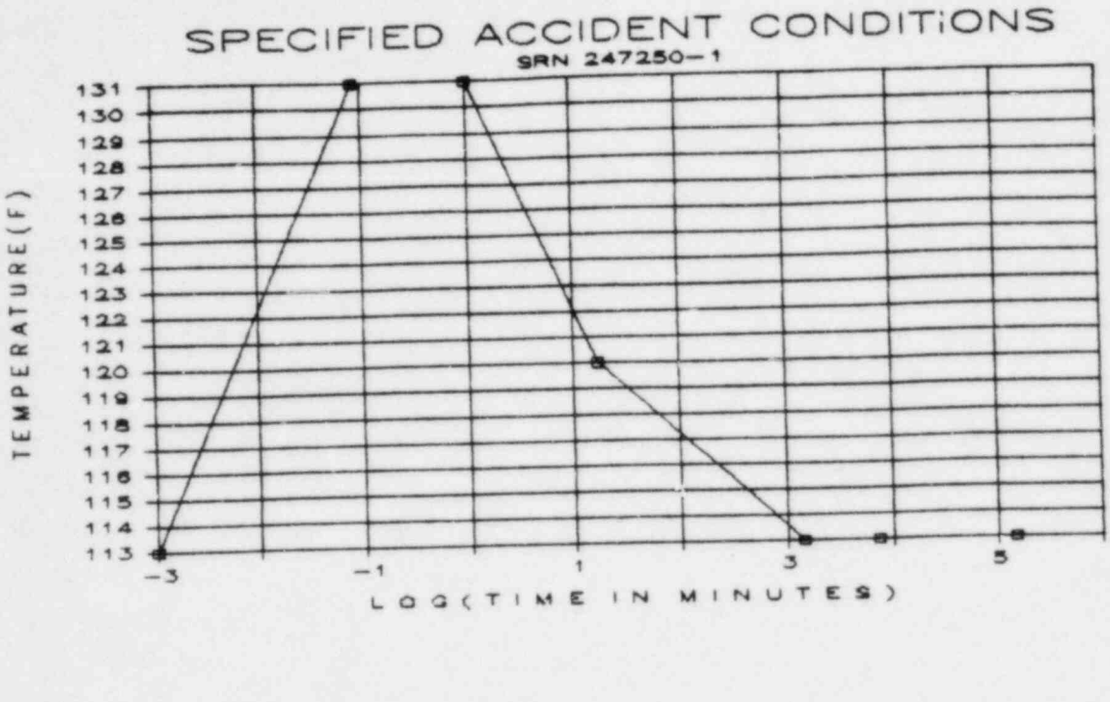
TIME																		
LOG(MINUTES)	0.00	0.00	0.30	0.48	1.00	1.30	1.48	1.51	1.54	1.60	1.65	1.69	1.74	1.78	1.95	2.32	2.54	2.75	2.86
TEMP(F)	77	355	286	306	214	208	77	250	361	370	405	394	356	350	366	311	311	334	334
TIME(MIN)	1	1	2	3	10	20	30	32	35	40	45	49	55	60	90	207?	345?	561?	721?

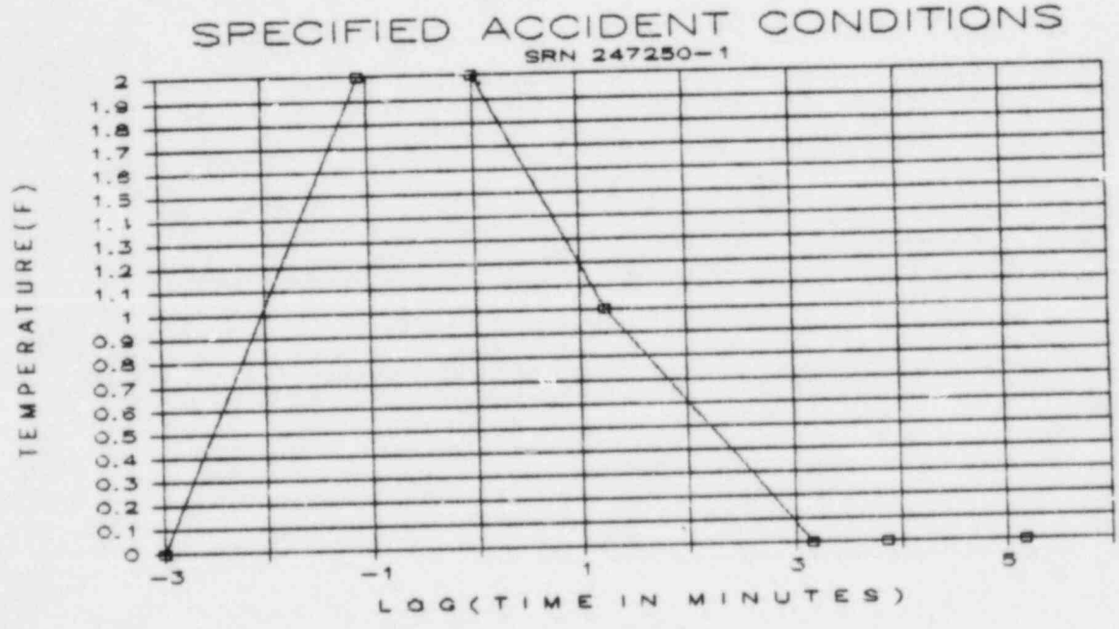
TEMPERATURE

TIME					
LOG(MINUTES)	3.96	4.08	4.11	4.15	4.27
TEMP(F)	312	312	300	316	316
TIME(MIN)	9210	12090	12810	14070	18768

PRESSURE

TIME										
LOG(MINUTES)	0.00	-0.60	0.48	1.00	1.18	1.48	1.54	2.52	2.65	4.27
PRES(PSIG)	0	68	66	64	0	0	69	70	61	61
TIME(MIN)	1	0.25	3	10	15	30	35	330	450	18768





SPECIFIED ACCIDENT CONDITIONS FOR SPECIFICATION: 247.250

TEMPERATURE

TIME	0	5sec	60sec	1000se	1DAY	5day	100days
LOG (MINUTES)	-3.00	-1.08	0.00	1.22	3.16	3.86	5.16
TEMP(F)	113	131	131	120	113	113	113
TIME(MIN)	0.001	0.083	1	16.66	1440	7200	******

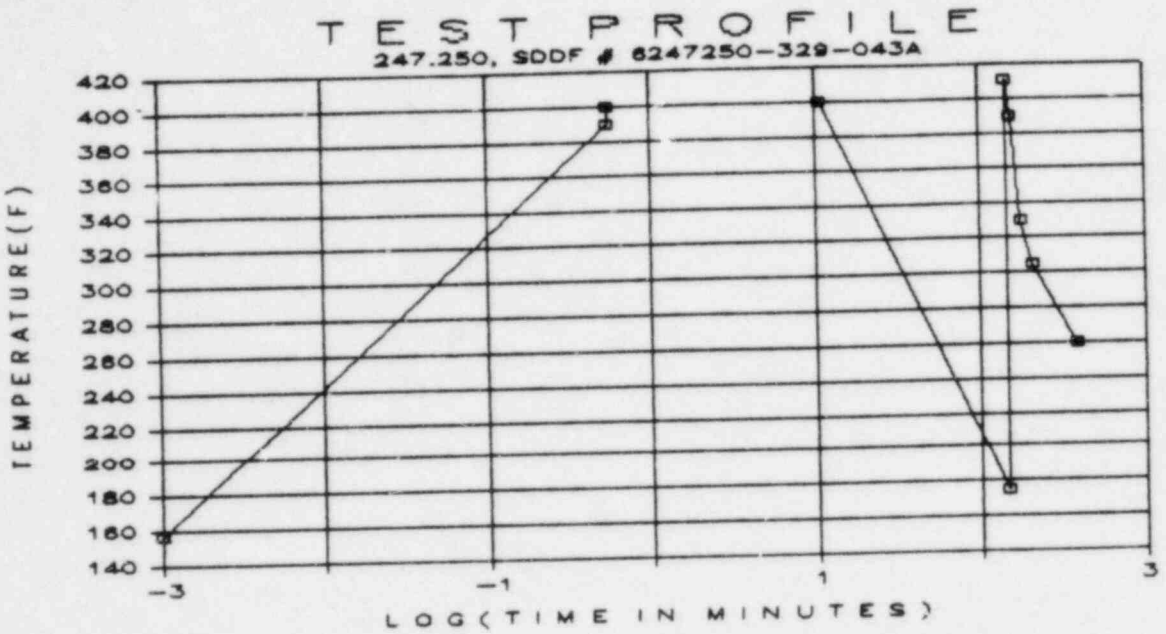
PRESSURE

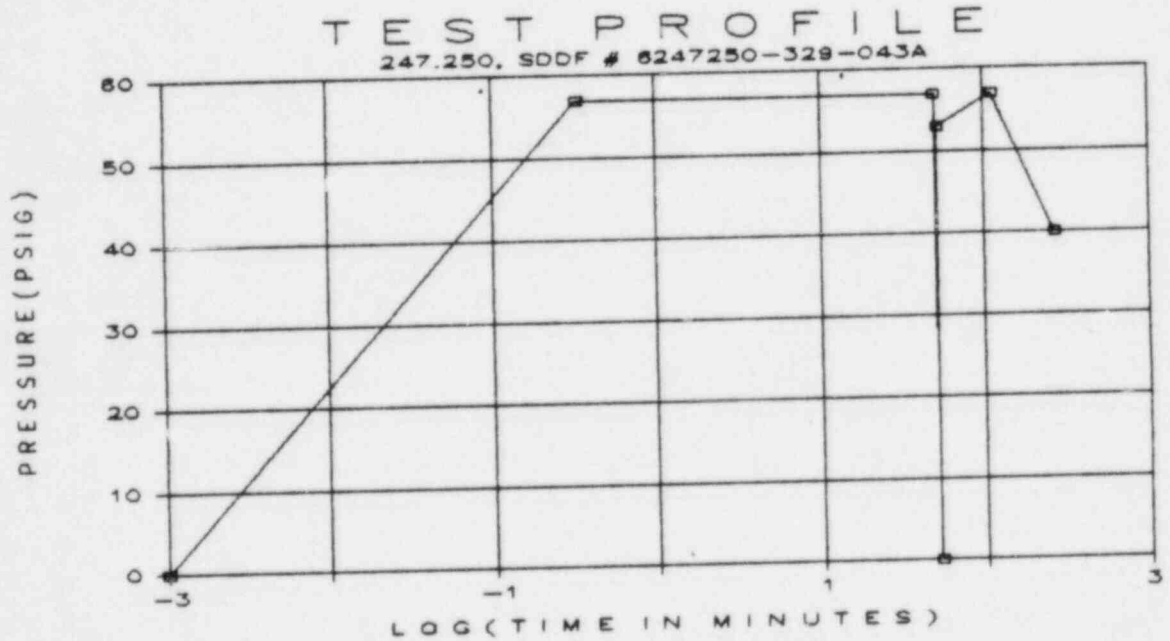
TIME	0	5sec	60sec	1000se	1DAY	5day	100days
LOG(MINUTES)	-3.00	-1.08	0.00	1.22	3.16	3.86	5.16
PRES(PSIG)	0	2	2	1	-.25*M-	.5*M6	-.5*M6
TIME(MIN)	0.001	0.083	1	16.66	1440	7200	******

SPECIFIED ACCIDENT CONDITIONS FOR SPECIFICATION: 247.250

TEMPERATURE		
TIME	0	100days
LOG (MINUTES)	-3.00	5.16
TEMP(F)	122	122
TIME(MIN)	0.001	144000

PRESSURE		
TIME	0	100days
LOG(MINUTES)	-3.00	5.16
PRES(PSIG)	0	0
TIME(MIN)	0.001	144000





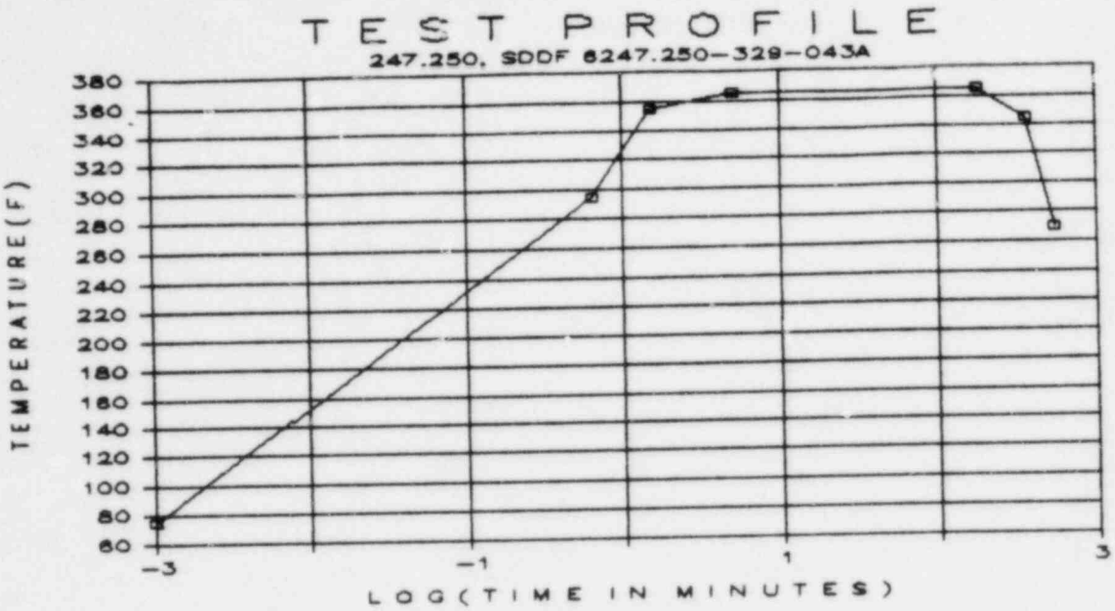
SPECIFIED TEST CONDITIONS FOR SDDF # SDDF 6247.250-329-043A (TEST 1)

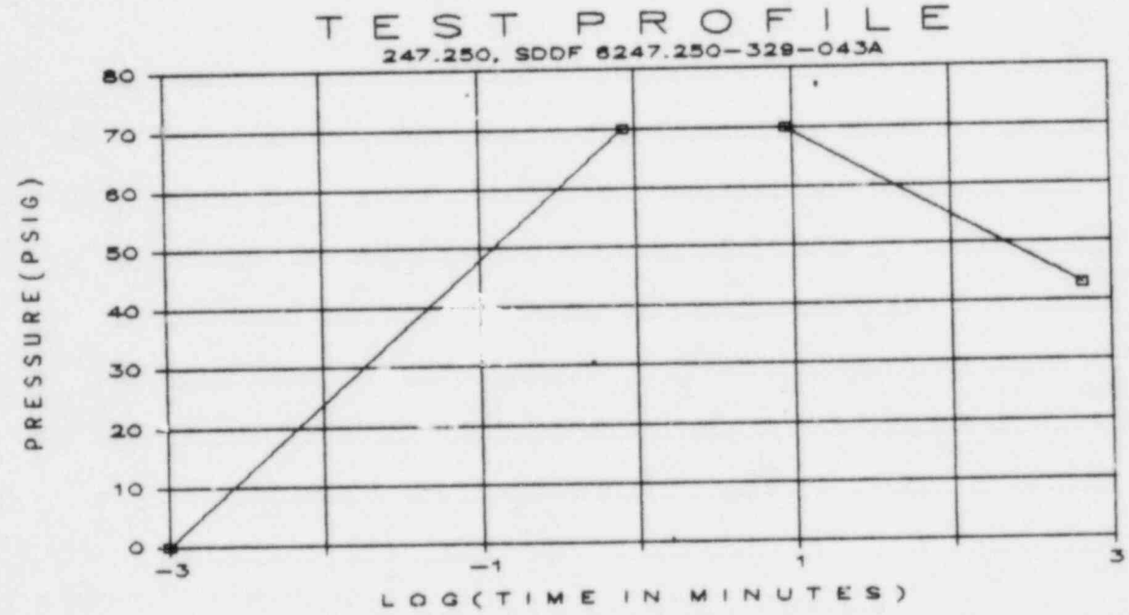
TEMPERATURE

TIME	0sec	33sec	33sec	10.7min	144min	114.33min	154min	174min	3.4hrs	6.4hrs
LOG (MINUTES)	-3.00	-0.26	-0.26	1.03	2.16	2.16	2.19	2.24	2.31	2.58
TEMP(F)	157	390	400	400	175	411	390	330	305	260
TIME(MIN)	0.001	0.55	0.55	10.7	144	144.33	154	174	204	384

PRESSURE

TIME	0sec	20sec	50min	51.5min	51.63min	111.23min	291.63min
LOG(MINUTES)	-3.00	-0.48	1.70	1.71	1.71	2.05	2.42
PRES(PSIG)	0	57	57	0	53	57	40
TIME(MIN)	0.001	0.33	50	51.5	51.63	111.23	261.63





SPECIFIED TEST CONDITIONS FOR SDDF # 6247.250-329-043A (TEST 2)

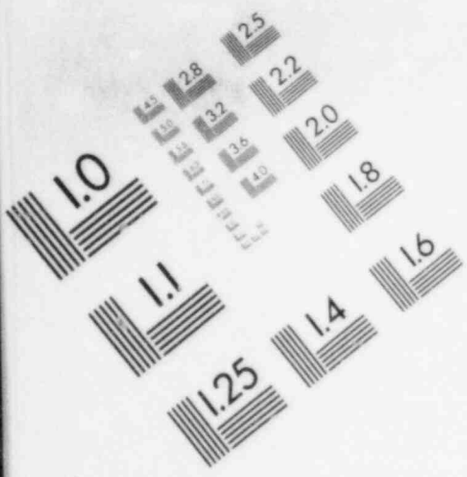
TEMPERATURE

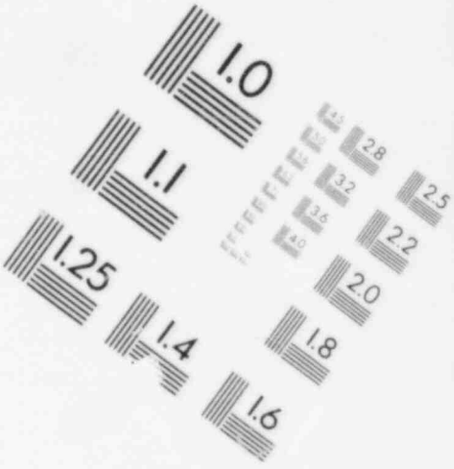
TIME	0	38sec	1.5min	5min	3hrs	6hrs	9hrs
LOG (MINUTES)	-3.00	-0.20	0.18	0.70	2.26	2.56	2.73
TEMP(F)	75	295	355	365	365	345	270
TIME(MIN)	0.001	0.63	1.5	5	180	360	540

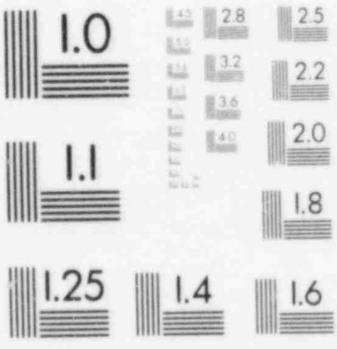
PRESSURE

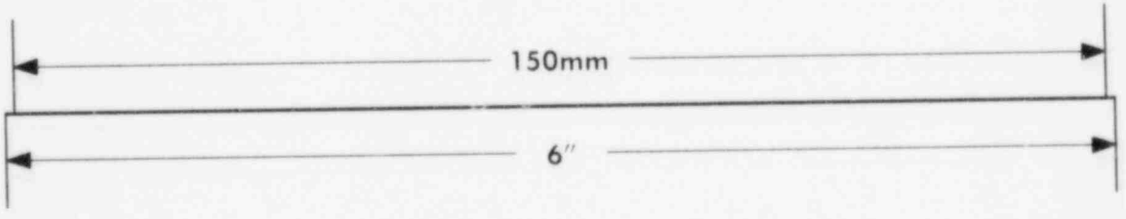
TIME	0	50sec	9min	11hrs
LOG(MINUTES)	-3.00	-0.08	0.95	2.82
PRES(PSIG)	0	70	70	43
TIME(MIN)	0.001	0.83	9	660

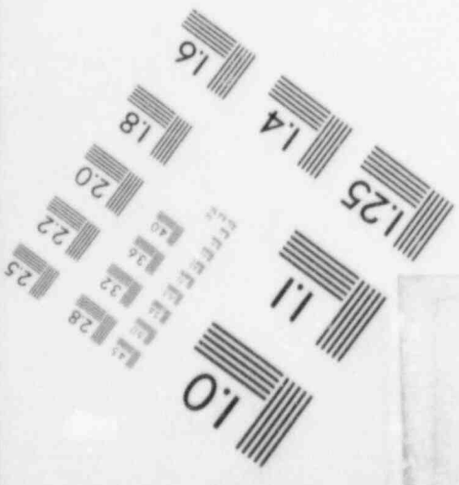
IMAGE EVALUATION
TEST TARGET (MT-3)

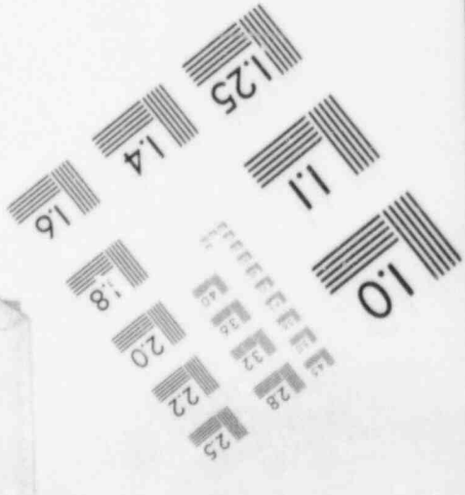


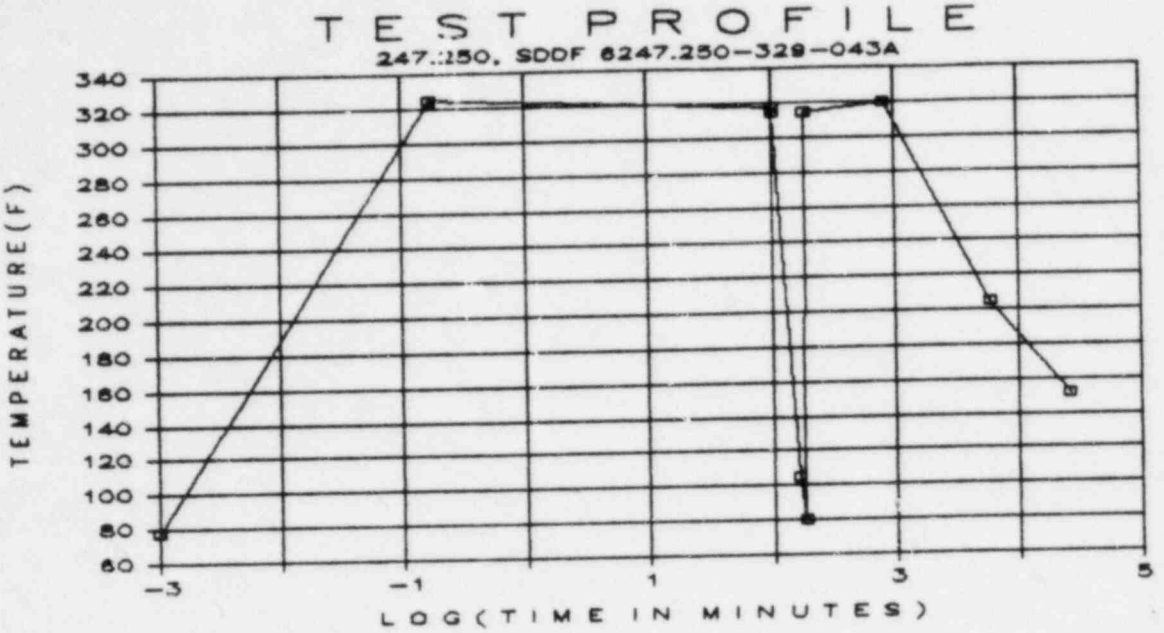


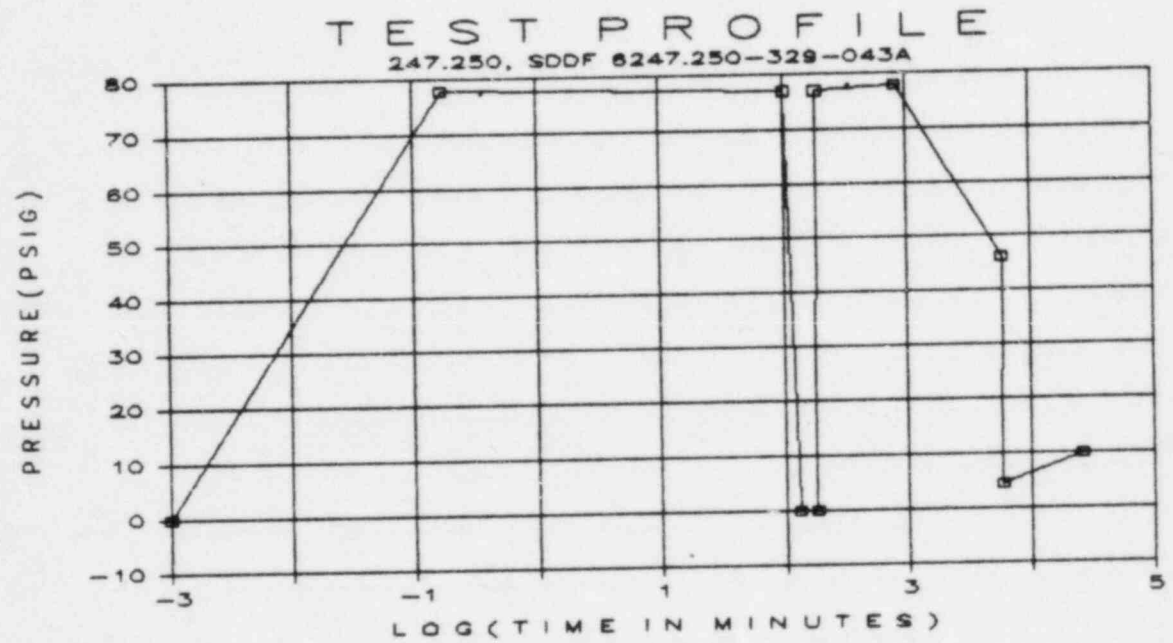












SPECIFIED TEST CONDITIONS FOR SDDF # 6247.250-329-043A (TEST 3)

TEMPERATURE

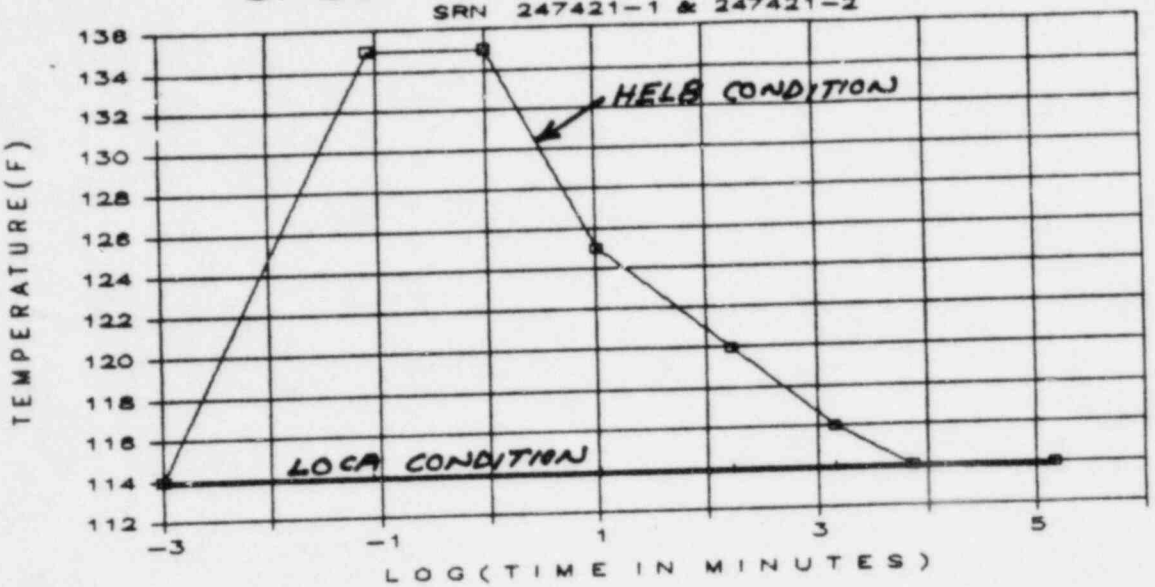
TIME	0sec	10sec	1.7hrs	1.7hrs	2.7hrs	3hrs	3.08hrs	14hrs	99hrs	435hrs
LOG (MINUTES)	-3.00	-0.77	2.01	2.01	2.21	2.26	2.27	2.92	3.77	4.416
TEMP(F)	78	325	318	315	105	80	315	320	205	152
TIME(MIN)	0.001	0.17	102	102	162	180	184.8	840	5940	26100

PRESSURE

TIME	0sec	10sec	1.7hrs	2.2hrs	3hrs	3.08hrs	14hrs	99hrs	99hrs	435hrs
LOG(MINUTES)	-3.00	-0.77	2.01	2.12	2.26	2.27	2.92	3.77	3.77	4.416
PRES(PSIG)	0	78	77	0	0	77	78	46	4.5	10
TIME(MIN)	0.001	0.17	102	132	180	184.8	840	5940	5940	26100

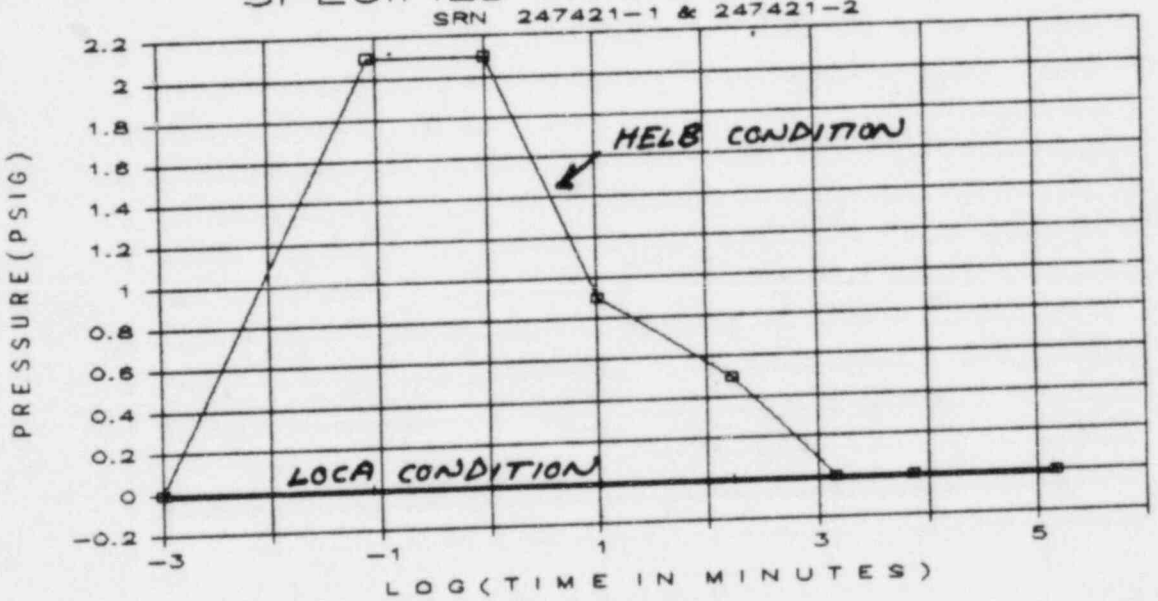
SPECIFIED ACCIDENT PROFILE

SRN 247421-1 & 247421-2



SPECIFIED ACCIDENT PROFILE

SRN 247421-1 & 247421-2



SPECIFIED ACCIDENT CONDITIONS FOR SPECIFICATION: 247.421

HELB CONDITION

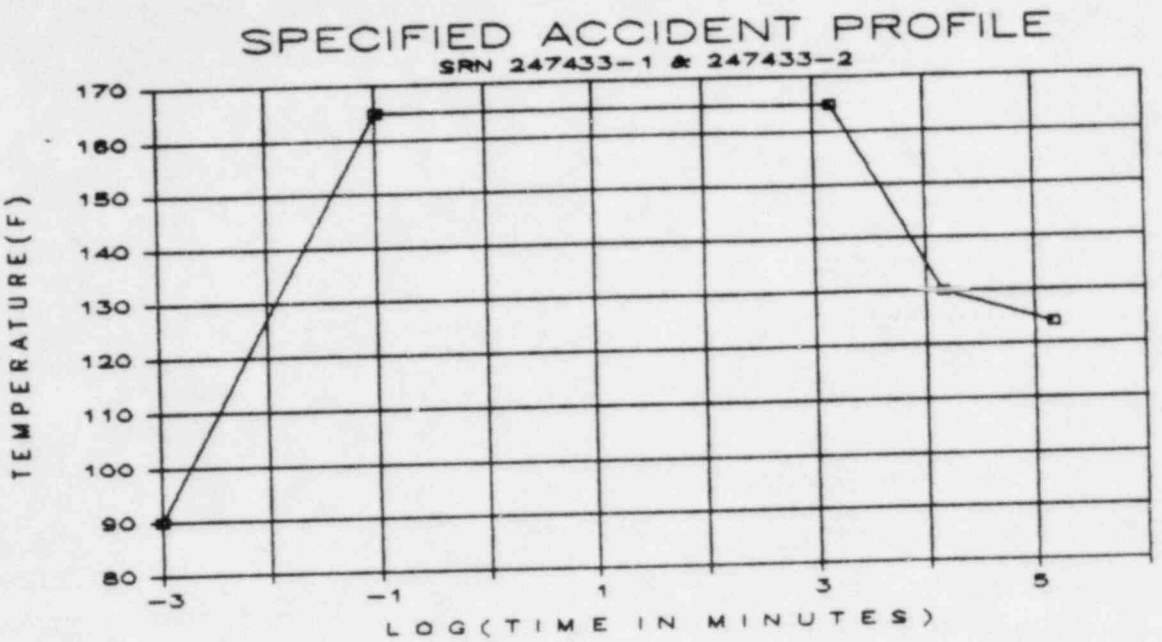
TEMPERATURE										
TIME	0	5sec	1min	10min	2.8hrs	1day	5days	100days		
LOG (MINUTES)	-3.00	-1.08	0.00	1.00	2.23	3.16	3.86	5.16		
TEMP(F)	114	135	135	125	120	116	114	114	113	136
TIME(MIN)	0.001	0.083	1	10	168	1440	7200	144000		

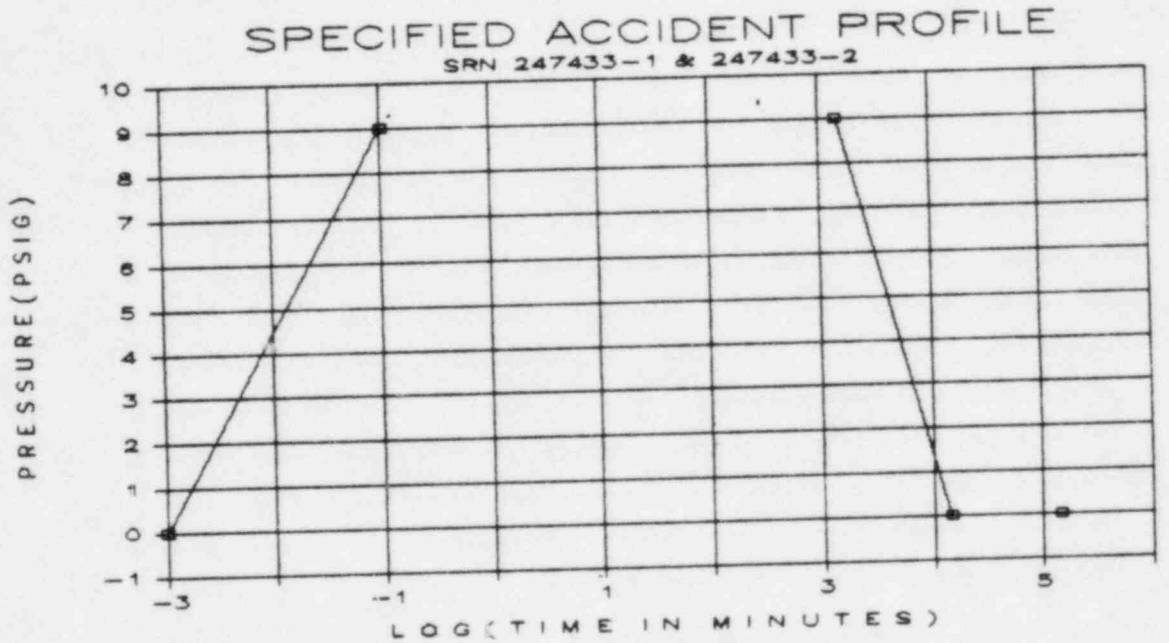
PRESSURE										
TIME	0	5sec	1min	10min	2.8hrs	1day	5days	100days		
LOG(MINUTES)	-3.00	-1.08	0.00	1.00	2.23	3.16	3.86	5.16		
PRES(PSIG)	0	2.1	2.1	0.9	0.5	0	0	0	-0.1	2.2
TIME(MIN)	0.001	0.083	1	10	168	1440	7200	144000		

LOCA CONDITION

TEMPERATURE								
TIME	0	5sec	1min	10min	2.8hrs	1day	5days	100days
LOG (MINUTES)	-3.00	-1.08	0.00	1.00	2.23	3.16	3.86	5.16
TEMP(F)	114	114	114	114	114	114	114	114
TIME(MIN)	0.001	0.083	1	10	168	1440	7200	144000

PRESSURE								
TIME	0	5sec	1min	10min	2.8hrs	1day	5days	100days
LOG(MINUTES)	-3.00	-1.08	0.00	1.00	2.23	3.16	3.86	5.16
PRES(PSIG)	0	0	0	0	0	0	0	0
TIME(MIN)	0.001	0.083	1	10	168	1440	7200	144000





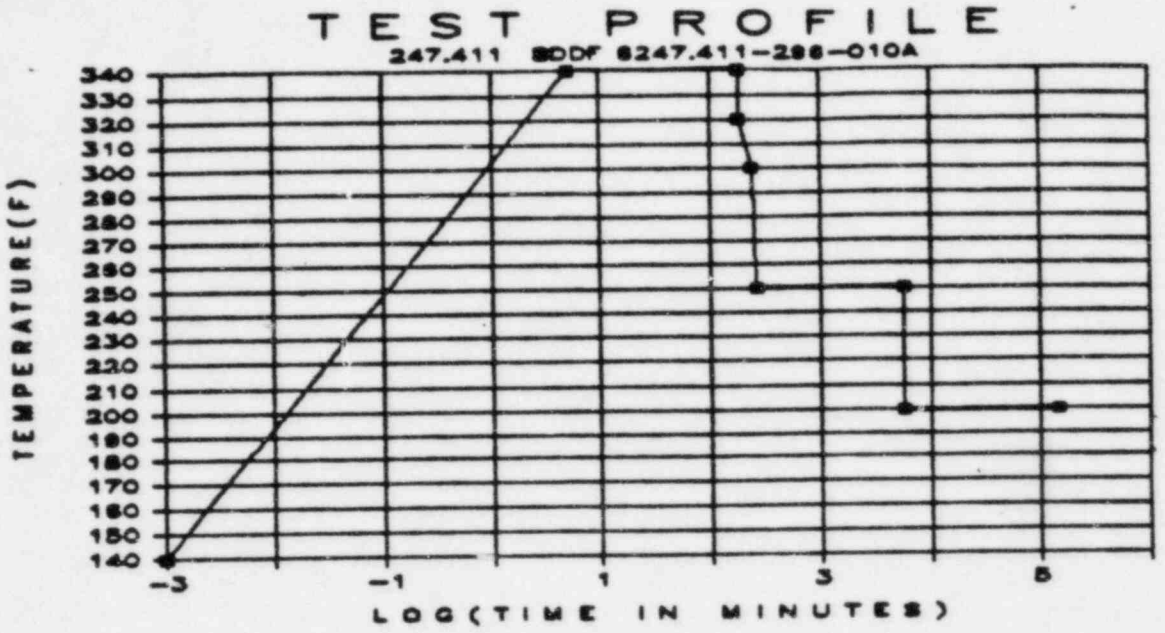
SPECIFIED ACCIDENT CONDITIONS FOR SPECIFICATION: 247.433

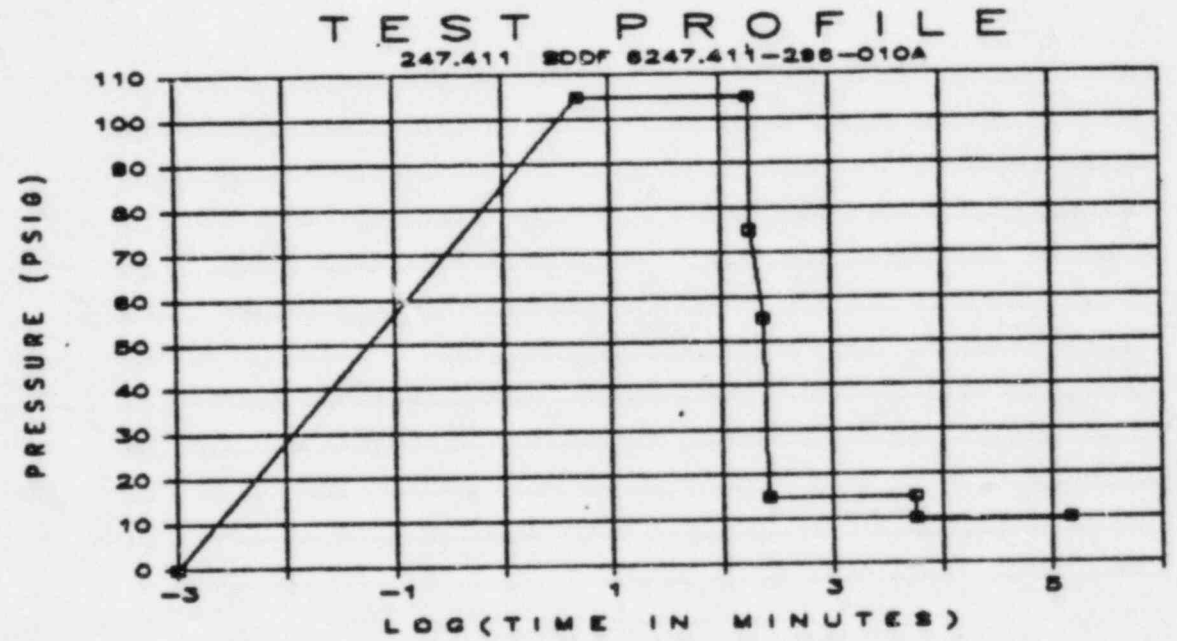
TEMPERATURE

TIME	0	6sec	1day	10days	100days		
LOG (MINUTES)	-3.00	-1.00	3.16	4.16	5.16		
TEMP(F)	90	165	165	130	124	80	
TIME(MIN)	0.001	0.1	1440	14400	144000		

PRESSURE

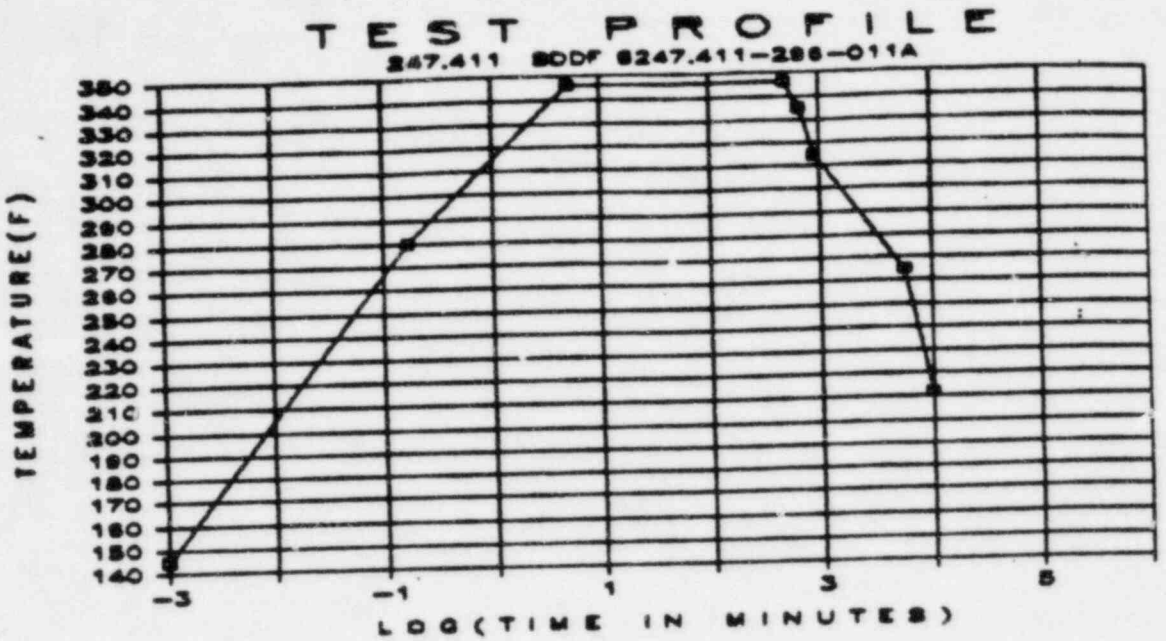
TIME	0	6sec	1day	10days	100days		
LOG(MINUTES)	-3.00	-1.00	3.16	4.16	5.16		
PRES(PSIG)	0	9	9	0	0	-1	10
TIME(MIN)	0.001	0.1	1440	14400	144000		

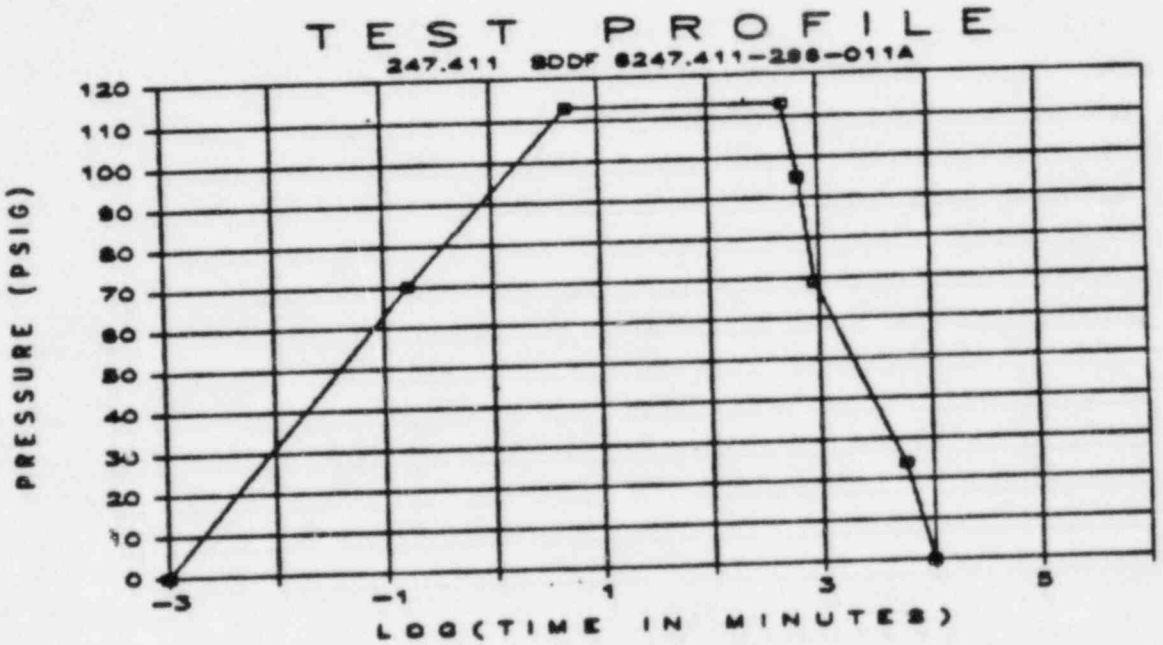




TEST PROFILE DATA FOR 247.411 SDDF 6247.411-296-010A

TIME	0	5min	3hr	3hr	4hr	4hr20min	4days	4days	100days
LOG(MINUTES)	-3.00	0.70	2.26	2.26	2.38	2.42	3.76	3.76	5.16
TEMP(F)	140	340	340	320	320	250	250	200	200
PRES(PSIG)	0	105	105	75	75	15	15	10	10





TEST PROFILE DATA FOR 247.411 SDDF 6247.411-296-011A

TIME	0	10sec	5min	8hr	11hr	15hr	4days	7days
LOG(MINUTES)	-3.00	-0.78	0.70	2.68	2.82	2.95	3.76	4.00
TEMP(F)	145	280	346	346	335	315	265	212
PRES(PSIG)	0	70	113	113	95	69	24	0

GULF STATES UTILITIES
RIVER BEND STATION - UNIT 1
DOCKET NUMBER 50-458

SYSTEM COMPONENT EVALUATION WORK SHEET

SRN C01
REV 2
DATE 02-15-85
SHEET 1

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

EQUIPMENT DESCRIPTION	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN DEMO	NOTES (see sheet 3)
EQUIP NO: see sheet 2	OP. TIME:	100 days	2 days	3	3	TEST-SIM	Note 11	1,11
SYSTEM: see sheet 2	TEMP (F):							
	NORMAL	122	185	1	3	TEST-SIM	N/A	2
	ABNORMAL	140	185	1	3	TEST-SIM	N/A	2
TYPE: Pressure Transmitter	ACCIDENT	200	232	1	3	TEST-SIM	YES	2,7
	PRESS(PSIG):							
	NORMAL	atmospheric	atmospheric	1	3	TEST-SIM	N/A	2
	ABNORMAL	2.3	see Note 14	1	3	TEST-SIM	N/A	2,14
MANUFACTURER: Rosemount, Inc.	ACCIDENT	9	18.5	1	3	TEST-SIM	YES	2,8
	RH (%):							
MODEL: see sheet 2	NORMAL	90	100	1	3	TEST-SIM	N/A	2
	ABNORMAL	100	100	1	3	TEST-SIM	N/A	2
SAFETY FUNCTION: Safeguards Actuation	ACCIDENT	100	100	1	3	TEST-SIM	N/A	2
	RADIATION:							
	NORM GAMMA	1.5E6 R	see Note 15	1	3	TEST-SIM	N/A	2,3,15
	ACC GAMMA	1.8E7 R	2.2E7 R	1	3	TEST-SIM	YES	2,4
OP. CODE: A	NORM BETA	5E2 R	shielded	1	3	N/A	N/A	2,3
	ACC BETA	1.5E8 R	shielded	1	3	N/A	N/A	2,4
	NEUTRON	0	N/A	1	N/A	N/A	N/A	
	SPRAY	7 seconds	2 days	2	3	TEST-SIM	N/A	5
ACCURACY (Note 9):	SUBMERGENCE	N/A	N/A	N/A	N/A	N/A	N/A	
SPEC: ±5%								
DEMO: ≤±5%								
ZONE NO: see sheet 2								
FLOOD LEVEL ELEVATION: 109' (Note 6)								
ABOVE FLOOD LEVEL? Yes								
DOCUMENTATION ACCEPTABILITY: Acceptable to NUREG 0588,Cat 1 per NEDE-24326-1-P (Note 11)								
MAINTENANCE/SURVEILLANCE: REFERENCE: 3								
QUALIFIED LIFE (YEARS): 10 (Note 10) REFERENCE: 3								

DOCUMENT REFERENCE:

1. Environmental Design Criteria (EDC)
   SWEC Document No. 215.150, Rev. 2
   (including change notices no. 2-1, 2-2, and 2-3)

2. River Bend Station FSAR, Appendix 6A,
   Figure 6A-10.2

3. GE Interim Environmental Qualification Report
   QUAL-710-84-036

GULF STATES UTILITIES
RIVER BEND STATION - UNIT 1
DOCKET NUMBER 50-458

SYSTEM COMPONENT EVALUATION WORK SHEET

SRN C01
REV 2
DATE 02-15-85
SHEET 2A

EQUIP. NO.	DRAWING NO.	MODEL NO.	ENV. ZONE	OP. TIME	NOTES
Nuclear Boiler System					
B21-NO62A	169C8394P972203	1152GP9E22T0280PB	CT-G	100 d	11
B21-NO62B	169C8394P972203	1152GP9E22T0280PB	CT-G	100 d	11
B21-NO67C	169C8968P512203	1152AP5A22PB	CT-G	100 d	11,12
B21-NO67G	169C8968P512203	1152AP5A22PB	CT-G	100 d	11,12
B21-NO67L	169C8968P512203	1152AP5A22PB	CT-G	100 d	11,12
B21-NO67R	169C8968P512203	1152AP5A22PB	CT-G	100 d	11,12
B21-NO68A	169C8394P972203	1152GP9E22T0280PB	CT-G	4 h	
B21-NO68B	169C8394P972203	1152GP9E22T0280PB	CT-G	4 h	
B21-NO68E	169C8394P972203	1152GP9E22T0280PB	CT-G	4 h	
B21-NO68F	169C8394P972203	1152GP9E22T0280PB	CT-G	4 h	
B21-NO73C	169C8392P472203	1152DP4E22T0280PB	CT-G	100 d	11
B21-NO73G	169C8392P472203	1152DP4E22T0280PB	CT-G	100 d	11
B21-NO73L	169C8392P472203	1152DP4E22T0280PB	CT-G	100 d	11
B21-NO73R	169C8392P472203	1152DP4E22T0280PB	CT-G	100 d	11
B21-NO75A	169C8969P572203	1152AP5E22T0280PB	TB-095-3	none	
B21-NO75B	169C8969P572203	1152AP5E22T0280PB	TB-095-3	none	
B21-NO75C	169C8969P572203	1152AP5E22T0280PB	TB-095-3	none	
B21-NO75D	169C8969P572203	1152AP5E22T0280PB	TB-095-3	none	
B21-NO76A	169C8394P972203	1152GP9E22T0280PB	TB-095-3	1 h	
B21-NO76B	169C8394P972203	1152GP9E22T0280PB	TB-095-3	1 h	
B21-NO76C	169C8394P972203	1152GP9E22T0280PB	TB-095-3	1 h	
B21-NO76D	169C8394P972203	1152GP9E22T0280PB	TB-095-3	1 h	
B21-NO78A	169C8394P972203	1152GP9E22T0280PB	CT-G	100 d	11
B21-NO78B	169C8394P972203	1152GP9E22T0280PB	CT-G	100 d	11
B21-NO78C	169C8394P972203	1152GP9E22T0280PB	CT-G	100 d	11
B21-NO78D	169C8394P972203	1152GP9E22T0280PB	CT-G	100 d	11
B21-NO80A	169C8392P472203	1152DP4E22T0280PB	CT-G	100 d	11
B21-NO80B	169C8392P472203	1152DP4E22T0280PB	CT-G	100 d	11
B21-NO80C	169C8392P472203	1152DP4E22T0280PB	CT-G	100 d	11
B21-NO80D	169C8392P472203	1152DP4E22T0280PB	CT-G	100 d	11

EQUIP. NO.	DRAWING NO.	MODEL NO.	ENV. ZONE	OP. TIME	NOTES
B21-NO81A	169C8392P572203	1152DP5E22T0280PB	CT-G	1 h	
B21-NO81B	169C8392P572203	1152DP5E22T0280PB	CT-G	1 h	
B21-NO81C	169C8392P572203	1152DP5E22T0280PB	CT-G	1 h	
B21-NO81D	169C8392P572203	1152DP5E22T0280PB	CT-G	1 h	
B21-NO91A	169C8392P572203	1152DP5E22T0280PB	CT-G	100 d	11
B21-NO91B	169C8392P572203	1152DP5E22T0280PB	CT-G	100 d	11
B21-NO91E	169C8392P572203	1152DP5E22T0280PB	CT-G	100 d	11
B21-NO91F	169C8392P572203	1152DP5E22T0280PB	CT-G	100 d	11
B21-NO94A	169C8969P572203	1152AP5E22T0280PB	CT-G	100 d	11
B21-NO94B	169C8969P572203	1152AP5E22T0280PB	CT-G	100 d	11
B21-NO94E	169C8969P572203	1152AP5E22T0280PB	CT-G	100 d	11
B21-NO94F	169C8969P572203	1152AP5E22T0280PB	CT-G	100 d	11
B21-NO95A	169C8392P472203	1152DP4E22T0280PB	CT-G	100 d	11
B21-NO95B	169C8392P472203	1152DP4E22T0280PB	CT-G	100 d	11
B33-NO14A	169C8392P572203	1152DP5E22T0280PB	CT-G	45 s	
B33-NO14B	169C8392P572203	1152DP5E22T0280PB	CT-G	45 s	
B33-NO14C	169C8392P572203	1152DP5E22T0280PB	CT-G	45 s	
B33-NO14D	169C8392P572203	1152DP5E22T0280PB	CT-G	45 s	
B33-NO24A	169C8392P572203	1152DP5E22T0280PB	CT-G	45 s	
B33-NO24B	169C8392P572203	1152DP5E22T0280PB	CT-G	45 s	
B33-NO24C	169C8392P572203	1152DP5E22T0280PB	CT-G	45 s	
B33-NO24D	169C8392P572203	1152DP5E22T0280PB	CT-G	45 s	
Control Rod Drive Hydraulic System					
C11-NO54A	169C8394P772203	1152GP7E22T0280PB	TB-095-2:	none	
C11-NO54B	169C8394P772203	1152GP7E22T0280PB	TB-095-2:	none	
C11-NO54C	169C8394P872203	1152GP8E22T0280PB	TB-095-2:	none	
C11-N054D	169C8394P872203	1152GP8E22T0280PB	TB-095-2:	none	
Reactor Protection System (RPS)					
C71-NO50A	169C8969P572203	1152AP5E22T0280PB	CT-G	45 s	

GULF STATES UTILITIES
RIVER BEND STATION - UNIT 1
DOCKET NUMBER 50-458

SYSTEM COMPONENT EVALUATION WORK SHEET

SRN C01
REV 2
DATE 02-15-85
SHEET 2C

EQUIP. NO.	DRAWING NO.	MODEL NO.	ENV. ZONE	OP. TIME	NOTES
C71-NO50B	169C8969P572203	1152AP5E22T0280PB	CT-G	45 s	
C71-NO50C	169C8969P572203	1152AP5E22T0280PB	CT-G	45 s	
C71-NO50D	169C8969P572203	1152AP5E22T0280PB	CT-G	45 s	
C71-NO52A	169C8394P972203	1152GP9E22T0280PB	TB-095-3	12 h	
C71-NO52B	169C8394P972203	1152GP9E22T0280PB	TB-095-3	12 h	
C71-NO52C	169C8394P972203	1152GP9E22T0280PB	TB-095-3	12 h	
C71-NO52D	169C8394P972203	1152GP9E22T0280PB	TB-095-3	12 h	
Residual Heat Removal (RHR) System					
E12-NO07A	169C8392P572203	1152DP5E22T0280PB	AB-095-8	100 d	11
E12-NO07B	169C8392P572203	1152DP5E22T0280PB	AB-095-7	100 d	11
E12-NO15A	169C8392P572203	1152DP5E22T0280PB	AB-095-8	100 d	11
E12-NO15B	169C8392P572203	1152DP5E22T0280PB	AB-095-7	100 d	11
E12-NO15C	169C8392P572203	1152DP5E22T0280PB	AB-095-7	100 d	11
E12-NO52A	169C8392P372203	1152DP3E22T0280PB	AB-095-8	100 d	11
E12-NO52B	169C8392P372203	1152DP3E22T0280PB	AB-095-7	100 d	11
E12-NO52C	169C8392P372203	1152DP3E22T0280PB	AB-095-7	100 d	11
E12-NO55A	169C8394P772203	1152GP7E22T0280PB	AB-095-8	100 d	11,13
E12-NO55B	169C8394P772203	1152GP7E22T0280PB	AB-095-7	100 d	11,13
E12-NO55C	169C8394P772203	1152GP7E22T0280PB	AB-095-7	100 d	11,13
E12-NO56A	169C8394P772203	1152GP7E22T0280PB	AB-095-8	1 h	13
E12-NO56B	169C8394P772203	1152GP7E22T0280PB	AB-095-7	1 h	13
E12-NO56C	169C8394P772203	1152GP7E22T0280PB	AB-095-7	1 h	13
Low Pressure Core Spray (LPCS) System					
E21-NO03	169C8392P572203	1152DP5E22T0280PB	AB-095-1	100 d	11
E21-NO51	169C8392P372203	1152DP3E22T0280PB	AB-095-1	100 d	11,13
E21-NO52	169C8394P772203	1152GP7E22T0280PB	AB-095-1	1 h	13
E21-NO53	169C8394P772203	1152GP7E22T0280PB	AB-095-1	1 h	13

GULF STATES UTILITIES
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SYSTEM COMPONENT EVALUATION WORK SHEET

SRN C01
REV 2
DATE 02-15-85
SHEET 2D

EQUIP. NO.	DRAWING NO.	MODEL NO.	ENV. ZONE	OP. TIME	NOTES
High Pressure Core Spray (HPCS) System					
E22-N005	169C8392P572203	1152DP5E22T0280PB	AB-095-7	100 d	11
E22-N051	169C8394P972203	1152GP9E22T0280PB	AB-095-7	100 d	11
E22-N056	169C8392P472203	1152DP4E22T0280PB	AB-095-7	100 d	11,13
Leak Detection System					
E31-N075A	169C8392P572203	1152DP5E22T0280PB	AB-095-8	10 m	
E31-N075B	169C8392P572203	1152DP5E22T0280PB	AB-095-7	10 m	
E31-N076A	169C8392P572203	1152DP5E22T0280PB	CT-G	10 m	
E31-N076B	169C8392P572203	1152DP5E22T0280PB	CT-G	10 m	
E31-N077A	169C8392P572203	1152DP5E22T0280PB	AB-095-8	10 m	
E31-N077B	169C8392P572203	1152DP5E22T0280PB	AB-095-7	10 m	
E31-N083A	169C8392P572203	1152DP5E22T0280PB	AB-095-8	10 m	13
E31-N083B	169C8392P572203	1152DP5E22T0280PB	AB-095-7	10 m	13
E31-N084A	169C8392P572203	1152DP5E22T0280PB	CT-G	12 h	13
E31-N084B	169C8392P572203	1152DP5E22T0280PB	CT-G	12 h	13
E31-N085A	169C8394P772203	1152GP7E22T0280PB	CT-G	12 h	13
E31-N085B	169C8394P772203	1152GP7E22T0280PB	CT-G	12 h	13
E31-N086A	169C8392P772203	1152DP7E22T0280PB	CT-G	1 h	
E31-N086B	169C8392P772203	1152DP7E22T0280PB	CT-G	1 h	
E31-N086C	169C8392P772203	1152DP7E22T0280PB	CT-G	1 h	
E31-N086D	169C8392P772203	1152DP7E22T0280PB	CT-G	1 h	
E31-N087A	169C8392P772203	1152DP7E22T0280PB	CT-G	1 h	
E31-N087B	169C8392P772203	1152DP7E22T0280PB	CT-G	1 h	
E31-N087C	169C8392P772203	1152DP7E22T0280PB	CT-G	1 h	
E31-N087D	169C8392P772203	1152DP7E22T0280PB	CT-G	1 h	
E31-N088A	169C8392P772203	1152DP7E22T0280PB	CT-G	1 h	
E31-N088B	169C8392P772203	1152DP7E22T0280PB	CT-G	1 h	
E31-N088C	169C8392P772203	1152DP7E22T0280PB	CT-G	1 h	

GULF STATES UTILITIES
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SYSTEM COMPONENT EVALUATION WORK SHEET

SRN C01
REV 2
DATE 02-15-85
SHEET 2E

EQUIP. NO.	DRAWING NO.	MODEL NO.	ENV. ZONE	OP. TIME	NOTES
E31-NO38D	169C8392P772203	1152DP7E22T0280PB	CT-G	1 h	
E31-NO89A	169C8392P772203	1152DP7E22T0280PB	CT-G	1 h	
E31-NO89B	169C8392P772203	1152DP7E22T0280PB	CT-G	1 h	
E31-NO89C	169C8392P772203	1152DP7E22T0280PB	CT-G	1 h	
E31-NO89D	169C8392P772203	1152DP7E22T0280PB	CT-G	1 h	
Main Steam Positive Leakage Control System					
E33-NO01	169C8969P672203	1152AP6E22T0280PB	AB-114-6	30 d	11
E33-NO02	169C8969P672203	1152AP6E22T0280PB	CT-G	30 d	11
E33-NO03	169C8969P672203	1152AP6E22T0280PB	CT-G	30 d	11
E33-NO04	169C8969P672203	1152AP6E22T0280PB	AB-114-6	30 d	11
E33-NO05	169C8969P672203	1152AP6E22T0280PB	AB-114-6	30 d	11
E33-NO07	169C8392P472203	1152DP4E22T0280PB	AB-114-6	30 d	11
E33-NO21	169C8969P672203	1152AP6E22T0280PB	AB-114-5	30 d	11
E33-NO22	169C8969P672203	1152AP6E22T0280PB	CT-G	30 d	11
E33-NO23	169C8969P672203	1152AP6E22T0280PB	CT-G	30 d	11
E33-NO24	169C8969P672203	1152AP6E22T0280PB	AB-114-5	30 d	11
E33-NO25	169C8969P672203	1152AP6E22T0280PB	AB-114-5	30 d	11
E33-NO27	169C8392P472203	1152DP4E22T0280PB	AB-114-5	30 d	11
Reactor Core Isolation Cooling (RCIC) System					
E51-NO03	169C8392P572203	1152DP5E22T0280PB	AB-095-8	12 h	
E51-NO50	169C8394P972203	1152GP9E22T0280PB	AB-095-8	12 h	
E51-NO51	169C8392P472203	1152DP4E22T0280PB	AB-095-8	12 h	
E51-NO52	169C8394P772203	1152GP7E22T0280PB	AB-095-1	12 h	
E51-NO53	169C8394P572203	1152GP5E22T0280PB	AB-095-8	12 h	
E51-NO55A	169C8394P672203	1152GP6E22T0280PB	AB-095-8	12 h	13
E51-NO55B	169C8394P672203	1152GP6E22T0280PB	AB-095-7	12 h	13
E51-NO55B	169C8394P672203	1152GP6E22T0280PB	AB-095-8	12 h	13

GULF STATES UTILITIES
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SYSTEM COMPONENT EVALUATION WORK SHEET

SRN C01
REV 2
DATE 02-15-85
SHEET 2F

EQUIP. NO.	DRAWING NO.	MODEL NO.	ENV. ZONE	OP. TIME	NOTES
E51-N055F	169C8394P672203	1152GP6E22T0280PB	AB-095-7	12 h	13
E51-N056A	169C8394P772203	1152GP7E22T0280PB	AB-095-8	12 h	
E51-N056E	169C8394P772203	1152GP7E22T0280PB	AB-095-8	12 h	

NOTES

1. The maximum specified operability time is 100 days. The actual operability time for each device is shown on sheet 2.

2. The specified value represents the maximum of the composite envelope for environmental zones CT-G, AB-095-1, AB-095-7, AB-095-8, AB-114-5, AB-114-6, TB-095-2, and TB-095-3.

3. The specified value represents the 10 year total integrated dose for normal (including abnormal) conditions.

4. The specified value represents the 180 day total integrated dose for design basis LOCA conditions.

5. All equipment located in the containment below the 120' elevation is specified as potentially exposed to spray/froth resulting from suppression pool swell following a design basis event.

6. Flooding applies only to locations in zone CT-G.

7. Temperature vs. time history:

Specified (see Note 2 above), F		Qualified, F		
0- 1s	90-190	0 - 10m	232*	
1s- 5s	190	10m- 17m	232-200	
5s- 10s	190-200	17m- 1d	200	
10s- 40s	200	1d-110d	200-137	(see Note 11 below)
40s- 60s	200-190			
60s-200s	190-176			
200s-530s	176-165			
530s- 1d	165			
1d- 10d	165-130			
10d-100d	130- 95			

*rise time at the maximum capability of the test facility
s = seconds, m = minutes, h = hours, d = days

NOTES (continued)

8. Pressure vs. time history:

Specified (see Note 2 above), psig		Qualified, psig		
0- 1s	0-2.1	0- 1d	18.5*	
1s- 6s	2.1-8	1d-110d	18.5-0	(see Note 11 below)
6s- 3h	8-9			
3h- 1d	9			
1d- 10d	9-0			
10d-100d	0			

*rise time at the maximum capability of the test facility

9. The accuracy is expressed as percentage of the upper range of the device and for the most limiting contributor (i.e., radiation) to inaccuracy. Verification of acceptability of device applications will be covered under a separate program using the proposed methods of the Licensing Review Group II (LRG-II) Setpoint Methodology Program. The results of this separate program will be issued pending NRC (ICSB) approval of the LRG Setpoint Methodology.

10. The qualified life is 8.7 years for the following equipment.

B21-N075A-D
B21-N076A-D
C71-N052A-D

11. This SCEW sheet establishes qualification only for devices with an operability time of less than two days and within the limits of application described in Note 9 above. The test is continuing for a total duration of 110 days and is scheduled for completion during the first quarter of 1985.

12. These transmitters are scheduled to be replaced with drawing no. 169C8969P582203 (model no. 1152AP5N22T0280) per field disposition instruction (FDI) MCWT.

NOTES (continued)

13. These transmitters are scheduled to be modified (change of electronic board from E-type to N-type) per field disposition instruction (FDI) MCDY, Rev. 0.

14. Enveloped by accident pressure.

15. Included in accident gamma dose.

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SYSTEM COMPONENT EVALUATION WORK SHEET

SRN C02
REV 2
DATE 02-15-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO: C11-N012A-D
DWG NO: 184C4775
SYSTEM: Control Rod Drive Hydraulic System

TYPE:
Level Transmitter

MANUFACTURER: Gould, Inc.

MODEL: PD3218 (Note 1)

SAFETY FUNCTION:
Reactor Trip

OP. CODE: A

ACCURACY (Note 8)

	NORM	ACC
SPEC:	+4%	+8%
DEMO:	±4%	±8%

ZONE NO: CT-3

FLOOD LEVEL
ELEVATION: 109'
ABOVE FLOOD LEVEL? Yes

DOCUMENTATION ACCEPTABILITY:
Acceptable to NUREG 0588,Cat 1 per NEDE-24326-1-P

MAINTENANCE/SURVEILLANCE:
REFERENCE: 3

QUALIFIED LIFE
(YEARS): 15
REFERENCE: 3

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	NOTES (see sheet 3)
OP. TIME:	12 hours	50 days	3	3	TEST-IDENT	YES	2
TEMP (F):							
NORMAL	90	see Note 9	1	3	N/A	N/A	9
ABNORMAL	140	see Note 9	1	3	N/A	N/A	9
ACCIDENT	165	290	1	3	TEST-IDENT	YES	3,4
PRESS (PSIG):							
NORMAL	-0.1" W.G	atmospheric	1	3	N/A	N/A	
ABNORMAL	2.3	see Note 10	1	3	N/A	N/A	10
ACCIDENT	9	17.6	1	3	TEST-IDENT	YES	3,5
RH (%):							
NORMAL	50	see below	1	3	N/A	N/A	
ABNORMAL	100	see below	1	3	N/A	N/A	
ACCIDENT	100	100	1	3	TEST-IDENT	N/A	
RADIATION:							
NORM GAMMA	4E4	see Note 11	1	N/A	N/A	N/A	6,11
ACC GAMMA	4E6	2E7	1	3	TEST-IDENT	YES	7
NORM BETA	2E3	shielded	1	N/A	N/A	N/A	6
ACC BETA	3.4E7	shielded	1	N/A	N/A	N/A	7
NEUTRON	0	N/A	1	N/A	N/A	N/A	
SPRAY	7 seconds	30 hours	2	3	TEST-IDENT	YES	
SUBMERGENCE	N/A	N/A	N/A	N/A	N/A	N/A	

DOCUMENT REFERENCE:

1. Environmental Design Criteria (EDC)
   SWEC Document No. 215.150, Rev. 2
   (including change notices no 2-1, 2-2 and 2-3)
2. River Bend Station FSAR, Appendix 6A,
   Figure 6A-10.2
3. GE Environmental Qualification Report
   NEDC-30372

NOTES

1. This model replaces the originally supplied equipment as documented in Field Disposition Instruction (FDI) MCWB.

2. An operability time of 12 hours is specified to account for the postulated maximum time period from the onset of a design basis event until initiation of a reactor scram.

3. The specified value represents the maximum of the envelope for a design basis LOCA and a small break accident.

4. Temperature vs. time history:

Specified (see Note 3 above), °F		Qualified, °F	
0 - 6s	90-165	0-15m	290* (first peak)
6s- 1d	165	0-1h	260* (second peak)
1d- 10d	165-130	1h-30h	260-227
10d-100d	130- 95	30h-7d	227-215

*rise time at the maximum capability of the test facility.

5. Pressure vs. time history:

Specified (see Note 3 above), psig		Qualified, psig	
0 - 6s	0-8	0-15m	17.6* (first peak)
6s- 3h	8-9	0-30h	17.6* (second peak)
3h- 1d	9	30h-7d	17.6-14
1d-10d	9-0		
10d-100d	0		

*rise time at the maximum capacility of the test facility.

NOTES

6. The specified value represents the 40 year total integrated dose for normal (including abnormal) conditions.

7. The specified value represents the 24 hour total integrated dose for design basis LOCA conditions.

8. Accuracy is expressed as a percentage of the upper range limit of the device.

9. Enveloped by accident temperature. The specified temperature for normal and abnormal environmental conditions is considered in the aging calculation.

10. Enveloped by accident pressure.

11. Included in accident gamma dose.

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SYSTEM COMPONENT EVALUATION WORK SHEET

SRN C11
REV 2
DATE 02-15-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION							
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN DEMO	NOTES (see sheet 3)
EQUIP NO: see sheet 2	OP. TIME:	12 h	144 hours	2	2	TEST-IDENT	N/A	
See sheet 2	TEMP (F):							
	NORMAL	122	see Note 9	1	2	TEST-IDENT	N/A	2
	ABNORMAL	N/A	N/A	N/A	N/A	N/A	N/A	3
TYPE:	ACCIDENT	140	259	1	2	TEST-IDENT	Yes	4
Level Switch	PRESS (PSIG):							
	NORMAL	atmospheric	atmospheric	1	2	TEST-IDENT	N/A	2
	ABNORMAL	N/A	N/A	N/A	N/A	N/A	N/A	3
MANUFACTURER: Magnetrol	ACCIDENT	9	41.7	1	2	TEST-IDENT	Yes	4
	RH (%):							
MODEL: 5.0-751	NORMAL	90	N/A	1	N/A	N/A	N/A	2
	ABNORMAL	N/A	N/A	N/A	N/A	N/A	N/A	3
SAFETY FUNCTION:	ACCIDENT	100	steam/100	1	2	TEST-IDENT	Yes	4
Safeguards Actuation	RADIATION:							
	NORM GAMMA	4E4 R	see Note 10	1	2	N/A	N/A	2,6
	ACC GAMMA	4E6 R	2.2E8 R	1	2	TEST-IDENT	Yes	5
OP. CODE: A	NORM BETA	3E3 R	shielded	1	2	N/A	N/A	2,6
	ACC BETA	3.4E7 R	shielded	1	2	N/A	N/A	5
	NEUTRON	N/A	N/A	N/A	N/A	N/A	N/A	
	SPRAY	N/A	N/A	N/A	N/A	N/A	N/A	
ACCURACY	SUBMERGENCE	N/A	N/A	N/A	N/A	N/A	N/A	
SPEC: NA								
DEMO: NA								
ZONE NO: see sheet 2								
FLOOD LEVEL ELEVATION: 109' (Note 1)								
ABOVE FLOOD LEVEL? Yes								
DOCUMENTATION ACCEPTABILITY: Acceptable to NUREG 0588,CAT 1 per NEDE-24326-1-P								
MAINTENANCE/SURVEILLANCE: REFERENCE: 2								
QUALIFIED LIFE (YEARS): 40, Note 11 REFERENCE: 2								

DOCUMENT REFERENCE:

1. Environmental Design Criteria (EDC)
   SWEC Document No. 215.150, Rev. 2
   (including change notices no. 2-1, 2-2 and 2-3)

2. GE Environmental Qualification Report
   NEDC-30378

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RIVER BEND STATION - UNIT 1
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SYSTEM COMPONENT EVALUATION WORK SHEET

SRN C11
REV 2
DATE 02-15-85
SHEET 2

EQUIP. NO.	DRAWING NO.	MODEL NO.	ENV. ZONE	OP. TIME	NOTES
Control Rod Drive Hydraulic System					
C11-N013A	184C4776P003	5.0-751	CT-3	12 h	7
C11-N013B	184C4776P003	5.0-751	CT-3	12 h	7
C11-N013C	184C4776P003	5.0-751	CT-3	12 h	7
C11-N013D	184C4776P003	5.0-751	CT-3	12 h	7
Reactor Core Isolation Cooling System					
E51-N010	184C4776P003	5.0-751	AB-070-3	6 h	8,12
E51-N037	184C4776P003	5.0-751	AB-070-3	6 h	8,12

NOTES

1. Flooding applies only to locations in zone CT-3.

2. The specified value represents the maximum normal value for environmental zones CT-3 and AB-070-3.

3. The devices located in zone CT-3 are not required to operate following an abnormal (isolation) event. The isolation event does not result in environmental conditions above normal in zone AB-070-3.

4. The specified value represents the value resulting in zone CT-3 from a small break accident.

5. The specified value represents the total integrated dose for design basis LOCA conditions which envelops the total integrated dose resulting in zone AB-070-3 from a control rod drop accident.

6. The specified value represents the 40 year total integrated dose for normal (including abnormal) conditions.

7. Device is required only for the mitigation of a small break accident.

8. Device is required only for the mitigation of a control rod drop accident.

9. Enveloped by accident temperature. The specified temperature for normal and abnormal conditions is considered in the aging calculation.

10. Included in accident gamma dose.

11. Qualified life for E51-N010 is 2.3 years at which time switch assembly must be replaced to re-establish qualification.

12. The stated drawing number reflects the replacement of the originally supplied equipment per Field Disposition Instruction (FDI) MCWA.

GULF STATES UTILITIES
RIVER BEND STATION - UNIT 1
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SYSTEM COMPONENT EVALUATION WORK SHEET

SRN S03
REV 2
DATE 02-15-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO: see sheet 2

SYSTEM: High Pressure Core Spray

TYPE:
Valve Motor Operators

MANUFACTURER: Limitorque/ Reliance

MODEL: see sheet 2

SAFETY FUNCTION:
Emergency Core Cooling

OP. CODE: A

ACCURACY
SPEC: NA
DEMO: NA

ZONE NO: see sheet 2

FLOOD LEVEL
ELEVATION: NA
ABOVE FLOOD
LEVEL? NA

DOCUMENTATION ACCEPTABILITY:
Later NUREG 0588,Cat 1
Qualification is in progress

MAINTENANCE/SURVEILLANCE:
REFERENCE: Later

QUALIFIED LIFE
(YEARS): Later
REFERENCE: Later

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	NOTES (see sheet 3)
OP. TIME:	100 days	Later		Later	Later	Later	1
TEMP (F):							
NORMAL	122	Later	1	Later	Later	Later	2
ABNORMAL	N/A	N/A	N/A	N/A	Later	N/A	
ACCIDENT	195	Later	1	Later	Later	Later	2
PRESS(PSIG):							
NORMAL	atmospheric	Later	1	Later	Later	Later	2
ABNORMAL	N/A	N/A	N/A	N/A	Later	N/A	
ACCIDENT	2.8	Later	1	Later	Later	Later	2
RH (%):							
NORMAL	90	Later	1	Later	Later	Later	2
ABNORMAL	N/A	N/A	N/A	N/A	Later	N/A	
ACCIDENT	100	Later	1	Later	Later	N/A	2
RADIATION:							
NORM GAMMA	2E5 R	Later	1	Later	Later	Later	2,3
ACC GAMMA	1.1E7 R	Later	1	Later	Later	Later	2,4
NORM BETA	0	N/A	1	Later	Later	Later	2,3
ACC BETA	500 R	Later	1	Later	Later	Later	2,4
NEUTRON	0	N/A	N/A	N/A	Later	N/A	2
SPRAY	N/A	Later	N/A	Later	Later	Later	
SUBMERGENCE	N/A	Later	N/A	Later	Later	Later	

DOCUMENT REFERENCE:

1. Environmental Design Criteria (EDC)
   SWEC Document No. 215.150, Rev. 2
   (including change notices 2-1, 2-2 and 2-3)

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SRN S03
REV 2
DATE 02-15-85
SHEET 2

EQUIP. NO.	DRAWING NO.	MODEL NO.	ENV. ZONE	OP. TIME	NOTES
Pressure Core Spray (HPCS) System					
E22-F001	105D5007KG014	SMB-00-10	AB-070-6	24 h	
E22-F004	105D5007KG008	SMB-3-80	AB-114-5	100 d	
E22-F010	105D5007KG006	SMB-4-200	AB-070-6	1 h	
E22-F011	105D5007KG006	SMB-4-200	AB-070-6	1 h	
E22-F012	105D5007KG002	SMB-0-25	AB-070-7	100 d	
E22-F015	105D5007KG016	SMB-1-40	AB-070-7	100 d	
E22-F023	105D5007KG006	SMB-3-150	AB-070-7	1 h	

NOTES

1. The maximum specified operability time is 100 days. The actual operability time for each device is shown on sheet 2.

2. The specified value represents the maximum of the envelope for environmental zones AB-070-6,-7 and AB-114-5.

3. The specified value represents the 40 year total integrated dose for normal (including abnormal) conditions.

4. The specified value represents the 180 day total integrated dose for design basis LOCA conditions.

GULF STATES UTILITIES
RIVER BEND STATION - UNIT 1
DOCKET NUMBER 50-458

SYSTEM COMPONENT EVALUATION WORK SHEET

SRN S05A
REV 2
DATE 02-15-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO: see sheet 2

SYSTEM: Nuclear Boiler System

TYPE:
MSIV Actuator

MANUFACTURER: Sheffer Corp

MODEL: see sheet 2

SAFETY FUNCTION:
Containment Isolation

OP. CODE: A

ACCURACY
SPEC: NA
DEMO: NA

ZONE NO: see sheet 2

FLOOD LEVEL
ELEVATION: 105'-3" (Note 5)
ABOVE FLOOD
LEVEL? Yes

DOCUMENTATION ACCEPTABILITY:
Acceptable to NUREG 0588, Cat 1
per NEDE-24326-1-P

MAINTENANCE/SURVEILLANCE:
REFERENCE: 2

QUALIFIED LIFE
(YEARS): 5 (Note 6)
REFERENCE: 7

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE: SPECIFIED	DOCUMENT REFERENCE: QUALIFIED	QUAL METHOD	MARGIN DEMO	NOTES (see sheet 3)
OP. TIME:	1 hour	7 days	2	2	TEST-SIM	YES	
TEMP (F):							
NORMAL	140	see Note 9	1	2	N/A	N/A	1,9
ABNORMAL	260	see Note 9	1	2	N/A	N/A	1,9
ACCIDENT	330	345	1	2	TEST-SIM	YES	1,7
PRESS (PSIG):							
NORMAL	0.5	atmospheric	1	2	N/A	N/A	1
ABNORMAL	5	see Note 10	1	2	N/A	N/A	1,10
ACCIDENT	25	33	1	2	TEST-SIM	YES	1,8
RH (%):							
NORMAL	90	see below	1	2	N/A	N/A	1
ABNORMAL	100	see below	1	2	N/A	N/A	1
ACCIDENT	steam/100	steam/100	1	2	TEST-SIM	YES	1,8
RADIATION:							
NORM GAMMA	9.4E6 R	see Note 11	1	2	N/A	N/A	1,2,11
ACC GAMMA	1E6 R	3.7E7 R	1	2	TEST-SIM	YES	1,3
NORM BETA	6.3E3 R	see Note 11	1	2	N/A	N/A	1,2,11
ACC BETA	1.3E7 R	see Note 11	1	2	N/A	N/A	1,3,11
NEUTRON	2.2E6 R	see Note 11	1	2	N/A	N/A	1,2,4,11
SPRAY	N/A	N/A	N/A	N/A	N/A	N/A	
SUBMERGENCE	N/A	N/A	N/A	N/A	N/A	N/A	

DOCUMENT REFERENCE:

1. Environmental Design Criteria (EDC)
   SWEC Document No. 215.150, Rev. 2
   (including change notices no. 2-1, 2-2 and 2-3)

2. GE Environmental Qualification Report
   NEDC-30801, SDDF# 8224.150-000-074A

GULF STATES UTILITIES
RIVER BEND STATION - UNIT 1
DOCKET NUMBER 50-458

SYSTEM COMPONENT EVALUATION WORK SHEET

SRN S05A
REV 2
DATE 02-15-85
SHEET 2

EQUIP. NO.	DRAWING NO.	MODEL NO.	ENV. ZONE	OP. TIME	NOTES
Nuclear Boiler System					
B21-FO22A		SA-A070	DW-1	1 h	inboard isolation valve
B21-FO22B		SA-A070	DW-1	1 h	inboard isolation valve
B21-FO22C		SA-A070	DW-1	1 h	inboard isolation valve
B21-FO22D		SA-A070	DW-1	1 h	inboard isolation valve
B21-FO28A		SA-A070	AB-114-2	1 h	outboard isolation valve
B21-FO28B		SA-A070	AB-114-2	1 h	outboard isolation valve
B21-FO28C		SA-A070	AB-114-2	1 h	outboard isolation valve
B21-FO28D		SA-A070	AB-114-2	1 h	outboard isolation valve

NOTES

1. The specified value represents the maximum of the composite envelope for environmental zones DW-1 and AB-114-2.

2. The specified value represents the 5 year total integrated dose for normal (including abnormal conditions.

3. The specified value represents the 1 hour total integrated dose for design basis LOCA conditions.

4. One neutron per square-centimeter is equivalent to 8E-9 rads gamma radiation.

5. Flooding applies only to locations in zone DW-1.

6. The stated qualified life is based on the shortest qualified life of any MSIV actuator component.

7. Temperature vs. time history:

Specified (see Note 1 above), °F		Qualified, °F	
0 - 0.1s	122-230	0	135-345*
0.1 - 0.3s	230-270	0-3h	345
0.3 - 1s	270-330	3-6h	345-325
1s - 3h	330	6h-30h	325-265
3h - 6h	310	30h-7d	265-200
6h - 1d	310-250		
1d - 10d	250-160		
10d - 100d	160-140		

*rise time at the maximum capability of the test facility.

NOTES (continued)

8. Pressure vs. time history:

Specified (see Note 1 above), psig		Qualified, psig	
0-1s	0-25	0	0-33
1s-40s	25	0 -40s	33
40s-60s	25-11	40s-60s	33-16.5
60s-1d	11	60s- 3h	16.5
1d-10d	11- 0	3h- 6h	16.5-15.9
		6h-24h	15.9-12.1
		24h- 7d	12.1

*rise time at the maximum capability of the test facility.

9. Enveloped by accident temperature. The specified temperature for normal and abnormal environmental conditions is considered in the aging calculation.

10. Enveloped by accident pressure.

11. Included in accident gamma dose.

GULF STATES UTILITIES
RIVER BEND STATION - UNIT 1
DOCKET NUMBER 50-458

SYSTEM COMPONENT EVALUATION WORK SHEET

SRN S05B
REV 2
DATE 02-15-85
SHEET 1

EQUIPMENT DESCRIPTION

EQUIP NO: see sheet 2

SYSTEM: Nuclear Boiler System

TYPE:
MSIV Limit Switch

MANUFACTURER: Namco

MODEL: EA 740, Rev. N
(Note 11)

SAFETY FUNCTION:
Reactor Trip

OP. CODE: A

ACCEPTANCE:
SPEC: NA
DEMO: NA

ZONE NO: see sheet 2

FLOOD LEVEL
ELEVATION: 105'-3" (Note 5)
ABOVE FLOOD
LEVEL? Yes

DOCUMENTATION ACCEPTABILITY:
Acceptable to NUREG 0588,Cat 1
per NEDE-24326-1-P

MAINTENANCE/SURVEILLANCE:
REFERENCE: 2

QUALIFIED LIFE
(YEARS): 5
REFERENCE: 2

ENVIRONMENTAL CONDITIONS AND QUALIFICATION

PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	DOCUMENT REFERENCE SPECIFIED	DOCUMENT REFERENCE QUALIFIED	QUAL METHOD	MARGIN DEMO	NOTES (see Sheet 3)
OP. TIME:	1 hour	> 7 days	2	2	TEST-SIM	YES	
TEMP (F):							
NORMAL	140	see Note 8	1	2	N/A	N/A	1,8
ABNORMAL	260	see Note 8	1	2	N/A	N/A	1,8
ACCIDENT	330	357	1	2	TEST-SIM	YES	1,6
PRESS(PSIG):							
NORMAL	0.5	atmospheric	1	2	N/A	N/A	1
ABNORMAL	5	see Note 9	1	2	N/A	N/A	1,9
ACCIDENT	25	69	1	2	TEST-SIM	YES	1,7
RH (%):							
NORMAL	90	see below	1	2	N/A	N/A	1
ABNORMAL	100	see below	1	2	N/A	N/A	1
ACCIDENT	steam/100	steam/100	1	2	TEST-SIM	N/A	1
RADIATION:							
NORM GAMMA	9.4E6 R	1.87E7 R	1	2	N/A	N/A	1,2
ACC GAMMA	1E6 R	2.97E8 R	1	2	TEST-SIM	YES	1,3
NORM BETA	6.3E3 R	see Note 10	1	2	N/A	N/A	1,2,10
ACC BETA	1.3E7 R	see Note 10	1	2	N/A	N/A	1,3,10
NEUTRON	2.2E6 R	see Note 10	1	2	N/A	N/A	1,2,4,10
SPRAY	N/A	N/A	N/A	N/A	N/A	N/A	
SUBMERGENCE	N/A	N/A	N/A	N/A	N/A	N/A	

DOCUMENT REFERENCE:

1. Environmental Design Criteria (EDC)
   SWEC Document No. 215.150, Rev. 2
   (including change notices no. 2-1, 2-2 and 2-3)

2. GE Environmental Qualification Report
   NEDC-30848

GULF STATES UTILITIES
RIVER BEND STATION - UNIT 1
DOCKET NUMBER 50-458

SYSTEM COMPONENT EVALUATION WORK SHEET

SRN S05B
REV 2
DATE 02-15-85
SHEET 2

EQUIP. NO.	DRAWING NO.	MODEL NO.	ENV. ZONE	OP. TIME	NOTES
Nuclear Boiler System					
B21-FO22A		EA740, Rev. N	DW-1	1 h	
B21-FO22B		EA740, Rev. N	DW-1	1 h	
B21-FO22C		EA740, Rev. N	DW-1	1 h	
B21-FO22D		EA740, Rev. N	DW-1	1 h	
B21-FO28A		EA740, Rev. N	AB-114-2	1 h	
B21-FO28B		EA740, Rev. N	AB-114-2	1 h	
B21-FO28C		EA740, Rev. N	AB-114-2	1 h	
B21-FO28D		EA740, Rev. N	AB-114-2	1 h	

NOTES

1. The specified value represents the maximum of the composite envelope for environmental zones DW-1 and AB-114-2.

2. The specified value represents the 5 year total integrated dose for normal (including abnormal) conditions.

3. The specified value represents the 1 hour total integrated dose for design basis LOCA conditions.

4. One neutron per square-centimeter is equivalent to 8E-9 rads gamma radiation.

5. Flooding applies only to locations in Zone DW-1.

6. Temperature vs. time history:

Specified (see Note 1 above), °F		Qualified, °F	
0 - 0.1s	122-230	0 - 52m	357*
0.1 - 0.3s	230-270	52m- 3h	357-346
0.3 - 1s	270-330	3h- 6h	346-327
1s- 3h	330	6h- 30h	327-272
3h- 6h	310	30h- 4d	272-260
6h- 1d	310-250	4d- 34d	260-215
1d- 10d	250-160	34d-100d	215
10d- 100d	160-140		

*rise time at the maximum capability of the test facility.

NOTES (continued)

7. Pressure vs. time history:

Specified (see Note 1 above), psig		Qualified, psig	
0 -1s	0-25	0 - 52m	69*
1s-40s	25	52m - 3h	69
40s-60s	25-11	3h - 1d	44
60s- 1d	11	1d - 4d	28
1d-100d	0	4d -100d	11

*rise time at the maximum capability of the test facility.

8. Enveloped by accident temperature. The specified temperature for normal and abnormal environmental conditions is considered in the aging calculation.

9. Enveloped by accident pressure.

10. Included in accident gamma dose.

11. Rev. N is equivalent to Rev. K which was originally qualified.

GULF STATES UTILITIES
RIVER BEND STATION - UNIT 1
DOCKET NUMBER 50-458

SYSTEM COMPONENT EVALUATION WORK SHEET

SRN S19
REV 2
DATE 02-15-85
SHEET 1

EQUIPMENT DESCRIPTION	ENVIRONMENTAL CONDITIONS AND QUALIFICATION						
			DOCUMENT REFERENCE				
	PARAMETER	SPECIFIED VALUE	QUALIFIED VALUE	SPECIFIED	QUALIFIED	QUAL METHOD	MARGIN DEMO	NOTES (see sheet 3)
EQUIP NO: see sheet 2	OP. TIME:	100 days	Later	Later	Later	Later	Later	1
SYSTEM: Nuclear Boiler System	TEMP (F):							
	NORMAL	140	Later	1	Later	Later	Later	
	ABNORMAL	260	Later	1	Later	Later	Later	
TYPE:	ACCIDENT	280	Later	1	Later	Later	Later	2,4
Main Steam Safety/Relief Valve	PRESS (PSIG):							
Solenoid Pilot Valve	NORMAL	0.5	Later	1	Later	Later	Later	
	ABNORMAL	5	Later	1	Later	Later	Later	
MANUFACTURER: Crosby	ACCIDENT	11	Later	1	Later	Later	Later	2,5
	RH (%):							
MODEL: see sheet 2	NORMAL	50	Later	1	Later	Later	Later	
	ABNORMAL	100	Later	1	Later	Later	Later	
SAFETY FUNCTION:	ACCIDENT	steam/100	Later	1	Later	Later	Later	
RPV Overpressure Protection	RADIATION:							
	NORM GAMMA	9.4E6 R	Later	1	Later	Later	Later	3
	ACC GAMMA	0	Later	2	Later	Later	Later	
OP. CODE: A	NORM BETA	6.3E3 R	Later	1	Later	Later	Later	3
	ACC BETA	0	Later	2	Later	Later	Later	
	NEUTRON	2.2E6 R	Later	1	Later	Later	Later	3,6
	SPRAY	N/A	N/A	N/A	N/A	N/A	N/A	
ACCURACY	SUBMERGENCE	N/A	N/A	N/A	N/A	N/A	N/A	
SPEC: NA								
DEMO: NA								

ZONE NO: DW-1

FLOOD LEVEL
ELEVATION: 105'-3"
ABOVE FLOOD
LEVEL? Yes

DOCUMENTATION ACCEPTABILITY:
Later NUREG 0588,CAT 1
Qualification is in progress

MAINTENANCE/SURVEILLANCE:
REFERENCE: Later

QUALIFIED LIFE
(YEARS): Later
REFERENCE: Later

DOCUMENT REFERENCE:

1. Environmental Design Criteria (EDC)
   SWEC Document No. 215.150, Rev. 2
   (including change notices no. 2-1, 2-2 and 2-3)

2. GSS-4058 dated January 3, 1984

GULF STATES UTILITIES
RIVER BEND STATION - UNIT 1
DOCKET NUMBER 50-458

SYSTEM COMPONENT EVALUATION WORK SHEET

SRN S19
REV 2
DATE 02-15-85
SHEET 2

EQUIP. NO.	DRAWING NO.	MODEL NO.	ENV. ZONE	OP. TIME	NOTES
Nuclear Boiler System					
B21-F041A		IMF-3A	DW-1	100 d	1
B21-F041B		IMF-3A	DW-1	100 d	1
B21-F041C		IMF-3A	DW-1	100 d	1
B21-F041D		IMF-3A	DW-1	100 d	1
B21-F041F		IMF-3A	DW-1	100 d	1
B21-F041G		IMF-3A	DW-1	100 d	1
B21-F041L		IMF-3A	DW-1	100 d	1
B21-F047A		IMF-3A	DW-1	100 d	1
B21-F047B		IMF-3A	DW-1	100 d	1
B21-F047C		IMF-3A	DW-1	100 d	1
B21-F047D		IMF-3A	DW-1	100 d	1
B21-F047F		IMF-3A	DW-1	100 d	1
B21-F051B		IMF-3A	DW-1	100 d	1
B21-F051C		IMF-3A	DW-1	100 d	1
B21-F051D		IMF-3A	DW-1	100 d	1
B21-F051G		IMF-3A	DW-1	100 d	1

NOTES

1. The equipment is only required for the mitigation of a small break accident (break area less than 0.5 square feet, Reference 2). The operability time is 2 days for active cycling and 100 days for maintaining the operator selected position.

2. The specified value represents the maximum value resulting from a small break accident (break area less than 0.5 square-feet).

3. The specified value represents the 5 year total integrated dose for normal (including abnormal) conditions. The small break accident (break area less than 0.5 square-feet) does not result in an additional dose above normal (including abnormal) conditions.

4. Temperature vs. time history:

Specified, °F		Qualified, °F
0 - 60s	140-330	Later
60s- 3h	330	
3h- 6h	310-250	
1d- 10d	250-160	
10d-100d	160-140	

5. Pressure vs. time history:

Specified, psig		Qualified, psig
0-60s	0-11	Later
60s- 1d	11	
1d-10d	11-0	

6. One neutron per square-centimeter is equivalent to 8E-9 rads gamma radiation.

ATTACHMENT 3

JUSTIFICATION FOR INTERIM OPERATION (JIO)