Public Service Company of Colo

12015 East 46th Avenue, Suite 440; Denver, CO

October 3, 1980
Fort St. Vrain
Unit No. 1
P-80350

50-267/94

Mr. Karl V. Seyfrit, Director
Nuclear Regulatory Commission
Region IV
Office of Inspection and Enforcement
611 Ryan Plaza Drive
Suite 1000
Arlington, Texas 76012

Subject: Environmental Qualification of Class 1E Equipment

Reference: IE Bulletin 79-01B
NRC August 29, 1980 Order (G-80144)

Dear Mr. Seyfrit:

The following is Public Service Company of Colorado's (PSC) response to the NRC's August 29, 1980 order concerning Environmental Qualification of electrical equipment for the Fort St. Vrain Nuclear Generating Station as originally requested in I&E Bulletin 79-01B:

Summary of Previous Submittals:

PSC has previously submitted letters in response to I&E Bulletin 79-01B on March 18, 1980 (P-80051), April 11, 1980 (P-80078) and April 18, 1980 (P-80090). The information contained in these letters is summarized below:

P-80051 - March 18, 1980

1. Discussion of steam line accidents including report entitled "Environmental Temperatures in the vicinity of the rupture point of steam lines for Fort St. Vrain Equipment Qualification," (Attachment "D" to P-80051)

2. Discussion of plant equipment numbering (Attachment "B" to P-80051) and computer programming similar to enclosure 2 (master list and generic items) IE-79-01B, (Attachment "A" to P-80051)

3. Discussion of areas not applicable to an HTGR, including radiological details of DBA #1. (Attachment C to P-80051)

P-80078 - April 11, 1980

1. Summary of items from March 18, 1980 submittal that were previously accepted by the NRC. (i.e. Attachments C and D to P-80051)

2. Updated submittals (Master List, Generic Items, Attachment "A" to P-80078) and Component Evaluation Work Sheets (enclosure #3 to P-80078)

P-80090 - April 18, 1980

1. Updated versions of Master List and Generic Items (Attachment "A" to P-80090) and Component Evaluation Work Sheets (Enclosure 3 to P-80090)

2. Finalization of Emergency Procedures Review

3. Commitment for additional testing for "clean up" of Environmental Records (Generic Items)

4. Clarification of Component Evaluation Work Sheets (Attachment B to P-80090)

No written response has been received from the NRC concerning the submittals, but per our verbal communications with Mr. Dan McDonald of I&E, it has been suggested that they are acceptable.

The above listed correspondence covered PSC's position on all areas of IE-79-01B with the exception of long term Aging.

CURRENT STATUS of PREVIOUS COMMITMENTS and SUBMITTALS:

Qualification Record System

PSC is in the middle of the turnover of all Fort St. Vrain Design Documents and Records from General Atomic. This places us in a handicapped position as far as auditing the environmental records and finalizing "clean up" work. The final documents and computer tapes will be received from GA during the month of October 1980 at which time the record review will continue. The review and update of the records should be complete by January 15, 1981.

Qualification Testing

PSC committed April 18, 1980 to the testing of minor Generic Items, (previously tested, but not fully documented) for purposes of Qualification Record "clean up."

The testing process for these items is in progress and should be complete by January 15, 1981.

Clarification of Component Worksheets (Attachment "B" to P-80090 April 18, 1980)

Field inspections have provided additional clarification to our previous submittal and has necessitated its revision and updating.

This information is included as Attachment "E" to this letter and replaces Attachment "B" to P-80090 in its entirety.

OPEN ITEMS:

General

As we have previously indicated, many areas of concern listed in IE-79-01B do not apply to the Fort St. Vrain HTGR. The design concept, normal and accident conditions experienced are completely different from that of a light water reactor. These differences often negate - or set aside many of the requirements set forth in the DOR's "Guidelines for Evaluating Environmental Qualification of Class 1E Electrical Equipment in Operating Reactor's and NUREG-0588, "Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment" documents obviously aimed at light water reactor facilities. It is imperative that our response to IE-79-01B be evaluated with these specific design, operating, safety and environmental differences in mind.

PSC has always had to essentially develop our own criteria utilizing the light water reactor criteria set forth by various Nuclear Regulatory Commission documents. The specific differences in concept and thus regulatory requirements have been recognized by the NRC in the past and accepted when an adequate basis was presented.

Replacement Parts

As previously discussed, the 1974 Industry Standard presented in NUREG-0588 is based on Light Water Reactor Technology. PSC believes there are "sound reasons to the contrary" for requiring replacement parts for FSV to be purchased to the requirements of this document. Purchasing of spare parts must be made in accordance with requirements consistent with criteria established during the licensing of the plant.

Aging

The only open item remaining to be addressed from IE-79-01B is the subject of Aging.

The subject of aging was discussed with Mr. Dan McDonald at the regional meeting on IE-79-01B and it was concluded that radiation aging was definitely not a concern at Fort St. Vrain. However, Thermal Aging was thought to apply.

PSC has been pursuing a dual path concerning thermal aging. That is, manufacturers have been contacted regarding thermal aging information on their equipment and we have been evaluating the necessity for aging qualification of any equipment on the basis of plant design and conditions.

At this time, PSC has concluded its engineering evaluation as outlined in IE-79-01B, and has concluded that adequate basis exists to justify taking exception to the necessity for requiring full aging qualification records on Class 1E electrical items as outlined in IE-79-01B for FSV.

The basis for the above follows and discusses plant design features, habitability, manual operations capability, on line safety systems and conclusions:

BASIS

Plant Design Features:

As discussed in the facility FSAR, two basic modes of core cooling are available at Fort St. Vrain. These are forced circulation cooling and prestressed concrete reactor vessel (PCRV) liner cooling. There are, in addition, various redundant means for applying each of these basic cooling modes.

A) Force Circulation Cooling

The normal cooling system for Fort St. Vrain Unit 1 with the reactor at power is shown in bold lines in Figure 1. Starting at the condenser, four condensate pumps supply water through the low-pressure heaters to the three boiler feed pumps (two driven by steam turbines and one driven by an electric motor). After leaving the boiler feed pumps and passing through the high-pressure heaters, the feedwater line divides into two headers - one serving each of the two secondary cooling loops. Feedwater then passes through the economizer, evaporator, and superheater (EES) of the steam generators, emerging as steam. The main steam headers from each loop combine into a main steam header which delivers steam to the high-pressure turbine. The steam leaving the high-pressure turbine enters the cold reheat header which subsequently divides into two 50% headers, each of which provides motive power to the two helium circulators serving each loop. After passing through the circulators, the cold reheat steam enters the reheater serving that loop and exits as hot reheat steam via a loop hot reheat header. The two hot reheat headers join and supply steam to the IP and LP stages of the turbine, finally being condensed in the condenser. There are, of course, the usual extraction and bypass lines as shown in Figure 1.

During low power or decay heat level operation of the reactor with the turbine generator out of service, the superheater discharge flow is directed to the By-Pass Flash Tank which is provided with the appropriate steam and water outlets.

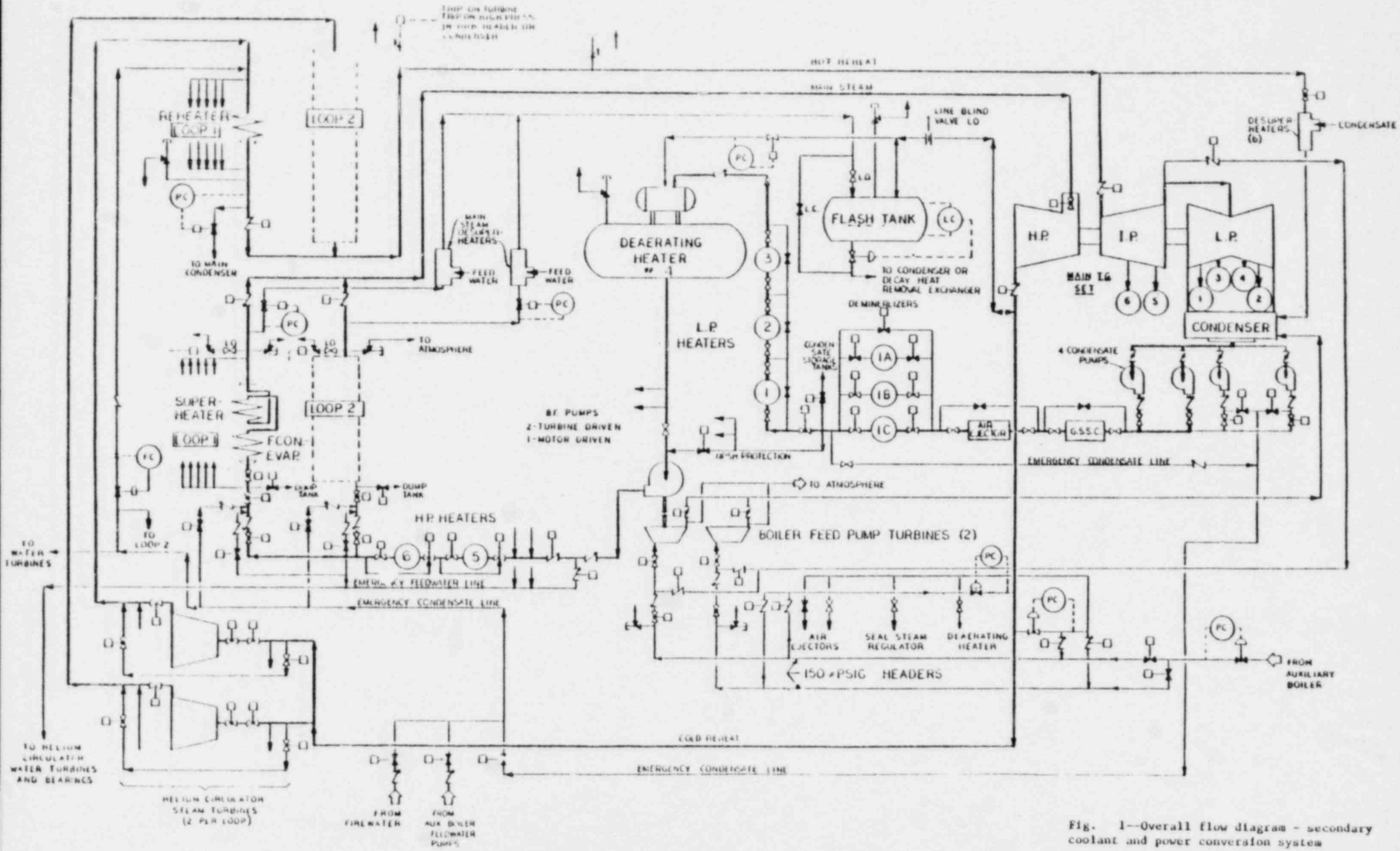

Fig. 1--Overall flow diagram - secondary coolant and power conversion system

B) Backup Cooling With Forced Helium Circulation

The Fort St. Vrain plant design does not incorporate a separate system reserved solely for emergency cooling. Instead, the reactor cooling system normally in operation, as described above, has been enhanced by the addition of features required for an emergency cooling function. These features include two independent drives on a common shaft for each circulator, two separate heat transfer sections in each steam generator, two helium circulators in each loop, multiple cooling water supplies, and multiple power sources. No credible failure can prevent adequate core cooling. The controls for the operation of forced circulation emergency cooling meet the intent of IEEE-279.

Decay heat removal requires operation of only one circulator within the primary coolant system to transfer heat from the core to a steam generator. Only one heat transfer section within one steam generator must remain in operation, and an adequate supply of cooling water to the steam generator must be provided. Adequate cooling is ensured by the provision of suitable redundancy in each portion of the heat removal systems. The supply of cooling water to the steam generator may come from the feedwater, condensate or firewater systems.

Four helium circulators are installed in the primary coolant system, and all four are normally in operation. Each circulator has two independent sources of power: the steam-turbine drive which is normally used, and an auxiliary water-turbine drive. Steam is normally supplied from the steam generator through the flash tank or from one or both of the auxiliary boilers. Water for the pelton turbines may be supplied from the feedwater, condensate or firewater systems. Each primary coolant loop is equipped with a circulator auxiliary system which has sufficient redundant capacity to ensure a supply of lubricating water for the bearings at all times. Operation of one circulator with either its steam turbine drive or with its water turbine drive is adequate for afterheat removal after a scram from full load with an equilibrium fission product inventory.

The steam generator, located in each of the two primary coolant loops, contains an economizer-evaporator-superheater section and a reheater section. Either econimizer-evaporator-superheater section has sufficient heat transfer surface for afterheat removal immediately after a scram from full load. Either reheater also has sufficient heat transfer surface, when flooded with water, to remove afterheat from the reactor following a scram from full load.

A continuous supply of feedwater to the steam generators is ensured by the provision of an emergency feedwater line and an emergency condensate line as backups for the main lines and by provisions of three feedwater pumps, two driven by steam turbines and one by electric motor, and by four motor-driven condensate pumps. In addition, the fire water pumps, can deliver water directly to the feedwater system. The fire water pumps, one driven by a gasoline engine and the other by an electric motor, draw their supply of water from on-site storage ponds which have a capacity in excess of 22×10^6 gallons.

A summary of the redundant means for providing forced circulation cooling of the core is given in Table 1. As can be seen, either of the two loops can be used to cool the core and either of two circulators can be used in each loop. In addition, there are five sources of cooling water to the EES section of each steam generator and five sources of motive power to either of the circulators. While not all of the cooling modes have equal heat removal capacity, all of the modes are capable of safely cooling the core as discussed in the FSAR, Section 14.1.

C) Cooling With Complete Loss of Forced Circulation (LOFC)

In addition to the highly redundant cooling modes described in the preceding section, and in the highly unlikely event of their complete failure, the core may also be cooled solely by operation of one of the two loops of the PCRV liner cooling system as described in the FSAR, Section 9.7. Although this mode of cooling would result in extensive fuel damage, the depressurization of the PCRV to an internal pressure of one atmosphere, which is performed as part of this mode of cooling, prevents the release of fission products even with subsequent failure of PCRV liner integrity. The analysis of this mode of cooling is extensively described in Appendix D to the FSAR. The analysis presented in Appendix D also concludes that safe cooldown can be obtained using this mode of cooling even if there is a total loss of all forms of cooling for up to 30 hours following initiation of the incident.

It is also to be noted that if any of the forced circulation cooling modes are available for core cooling after shutdown, the PCRV can sustain a complete and permanent loss of liner cooling without producing a hazard to the public (FSAR, Section 5.9.2).

In either of the above cases, core and core support physical integrity has not been jeopardized. Partial information from Appendix D of the FSAR is included here, as Attachment F, for ease of reference.

Table 1

SUMMARY OF FORCED CIRCULATION COOLING REDUNDANCIES

Number of Cooling Loops	2	
Number of Cooling Sections per Loop	2 (EES* & Reheater)	
Sources of Water to EES*	(Each Loop)	Location
1. Normal Feedwater	(3 FW Pumps)**	TB2
2. Feedwater via Emergency Feedwater Line	(3 FW Pumps)**	TB2
3. Condensate via Emergency Condensate Line	(4 Condendate Pumps)	TB2
4. Firewater via Emergency Feedwater Line	(2 Fire Pumps)***	OPL
5. Firewater via Emergency Condensate	(2 Fire Pumps)***	OPL
Sources of Water to Reheater	(Each Loop)	Location
1. Condensate via Emergency Condensate Line	(4 Condensate Pumps)	TB2
2. Firewater via Emergency Condensate Line	(2 Fire Pumps)***	OPL
Number of Circulators Per Loop	2	
Sources of Motive Power to Circulators	(Each Circulator)	Location
1. Cold Reheat Steam		
2. Auxiliary Boiler Steam	(2 Auxiliary Boilers)	RX2 & TB2
3. Feedwater via Emergency Feedwater Line	(3 FW Pumps)**	TB2
4. Condensate via Emergency Condensate Line	(4 Condensate Pumps)	TB2
5. Firewater via Emergency Feedwater Line	(2 Fire Pumps)***	OPL
6. Firewater via Emergency Condensate Line	(2 Fire Pumps)***	OPL

*Economizer-Evaporator-Superheater
**2 Steam Driven, 1 Electric Motor-Driven
***1 Diesel Engine Driven, 1 Electric Motor-Driven
OPL = Outside of Plant
TB2 = Turbine Building HELB Environment
RX2 = Reactor Building HELB Environment

Habitability:

The Fort St. Vrain station does not utilize a conventional form of Reactor containment.

Since conventional containment and Light Water Reactor Safety Systems do not exist at Fort St. Vrain, many of the environmental areas of concern outlined in IE-79-01B do not apply. These areas were discussed in our March 18, 1980 letter P-80051.

For convenience of reference, similar discussions will be repeated here.

"Areas not A licable to an HTGR

Pressure:

The FSV HTGR does not have a containment building, therefore, there is no storage of blowdown steam or primary coolant and thus no ambient pressure buildup.

The reactor and turbine buildings are both vented. Therefore, pressure transients resulting from a high energy line break will be very localized and short-term in nature.

Further details about steamline rupture analysis at FSV may be found in Attachment D to P-77137, dated June 15, 1977.

Relative Humidity:

For the same reasons as discussed above, under the pressure heading, Relative Humidity is not a problem at FSV after a high energy line break.

Chemical Spray:

No chemical sprays are utilized at FSV for cooling.

Radiation:

There are no radiological concerns directly associated with a high energy line break at FSV. That is, the process fluid (steam or feedwater) is not contaminated.

To postulate a radiological incident DBA #1 "Permanent Loss of Forced Circulation" and DBA #2 "Rapid Depressurization/Blowdown" were considered. DBA #1 provides the worst case radiological conditions, but the overall radiological concerns are minimal.

Complete details of this accident may be found in Section 2.1.6.b of P-79312 (Swart to Varga) dated December 1979, enclosed as Attachment C.

In summary, the peak doses in the Reactor Building following DBA #1 are as follows:

Location	Peak Gamma Dose Rate	Time of Peak	180 Day Accumulated Dose (REM)
Reactor Building	1.4 R/hr	24 hours	400

In conclusion, the reactor building will be accessible for short-term operations following such an accident. The accumulated doses indicated above would have no operational effect on the Reactor Building equipment.

Submergence

The nuclear reactor at Fort St. Vrain is cooled by gas and not water. Normal shutdown of the reactor is accomplished by control rod insertion. Emergency shutdown of the reactor is accomplished by pressurizing shutdown hoppers that drop boron carbide balls into the reactor. Water is not used for shutdown or emergency core spray of the reactor in an HTGR. Venting of the reactor cooling quench water and/or primary coolant water into the containment sump is not applicable for Fort St. Vrain."

Habitability Conclusions

Environmental conditions will not exist that will prohibit access to the Reactor Building or other areas of the plant for extended periods of time following a high energy line break (HELB) or the worst case radiological accident, i.e., DBA #1.

MANUAL OPERATION CAPABILITY AND ACM:

A) Forced Circulation Cooling

Twenty-six (26) different equipment combinations for forced circulation cooling are described in the procedures for safe shutdown cooling with highly degraded conditions.

It is not practical to go through each of these modes in great detail.

It is important to note that multiple equipment items, located in different areas of the plant are available for forced circulation cooling. The sources are located as indicated:

TB2 = Turbine Building HELB Environment
RX2 = Reactor Building HELB Environment
OPL = Outside of Plant

Steam Generator EES or Reheater	Motive Power to Circulators	Bearing Water to Circulators
TB2	TB2	TB2
OPL	OPL	RX2

More detailed information is available from Table 1.

It is highly unlikely that a HELB in the Reactor Building could interrupt forced circulation cooling. Multiple flow paths that are physically separated, by design, insure that vital services would not be disrupted. To further insure continued operation, valves with "fail open" or "fail as is" (normally open during plant operation) failure modes have been incorporated in critical systems.

A detailed evaluation of the consequences of pipe failures outside of the reactor building was previously requested by the NRC by a letter dated December 18, 1972.

This evaluation was made and was included in the FSAR as Amendment 26. The evaluation concluded that no single pipe failure outside the reactor building is likely to disable the vital services (electrical cable routing, instrument air, and hydraulic power) needed for forced circulation cooling.

It is concluded that a HELB incident in either the turbine or reactor building would not prohibit forced circulation cooling.

B) PCRV Liner Cooling

Three options for PCRV Liner Cooling are described in the procedures for safe shutdown cooling with highly degraded conditions

Option A - Service water cooling, using PCRV cooling water pump

Option B - Circulating water using PCRV cooling water pump

Option C - Firewater cooling direct to PCRV cooling tubes

Options B or C can be implemented with electrical equipment that is not in the accident environment. See Table 2 for details:

TABLE 2

Summary of PCRV Liner Cooling Options

Electrically Operated Cooling Equipment Required		Option A	Option B	Option C	Location Relative to Accident Environment (HELB)	ACM Backup Power
PCRV Cooling Water Pumps	P-4601 or P-4601S	X	X		Not in Accident Environment	Yes
	P-4602 or P-4602S	X	X		Not in Accident Environment	Yes
Circulating Water Makeup Pumps	P-4101 or P-4102 or P-4103 or P-4104		X		Not in Accident Environment	No
Service Water Pumps	P-4201 or P-4202 or P-4202S	X			Not in Accident Environment	Yes Yes No
Service Water Cooling Tower Fans	C-4201X or C-4202X	X			Not in Accident Environment	Yes
Firewater Pumps	P-4501 P-4501S*			X	Not in Accident Environment	Yes Diesel Driven
Service Water Return Pumps		D			In Accident Environment	No
Circulating Water Makeup Pumps		X	X	X	Not in Accident Environment	Yes
Domestic Water Makeup		D			In Accident Environment	No

X = Essential
D = Desirable
* = Diesel Driven

All other operations required for PCRV liner cooling can be performed manually.

It is concluded that a HELB incident in the reactor or turbine buildings will not prohibit PCRV liner cooling.

SAFETY SYSTEMS ARE OPERATING SYSTEMS:

The Fort St. Vrain plant design does not include separate systems reserved solely for emergency cooling. Instead, the normal reactor cooling system has been enhanced by the addition of features required for the emergency cooling function. These features include two independent drives on a common shaft for each circulator, two separate heat transfer sections in each steam generator, two helium circulators in each loop, multiple cooling water supplies and multiple power sources.

The advantage of these provisions for emergency cooling over the usual "emergency core cooling system" lies in the fact that all parts of the system are continually, or frequently, operated in the course of normal plant operations. This feature eliminates the question associated with seldom or never used systems as to their ability to adequately perform on demand when compared to a system or piece of equipment that operates on a frequent basis. Maintenance is performed as required to insure continued reliable operation.

The above feature applies to both equipment utilized for reactor core forced circulation cooling and PCRV liner cooling.

Conclusions:

The Fort St. Vrain Station does not have a conventional containment building or the types of safety systems utilized in Light Water Reactors. Thus, long term Light Water Reactor environmental conditions are not possible and the majority of the environmental concerns of IE-79-01B do not apply.

Since the FSV HELB is short term in nature and radiological concerns are minimal, access to any location within the station will be possible shortly following any accident situation.

This access coupled with the time available to restore Forced Circulation Cooling or PCRV Liner Cooling provides very desirable flexibility in terms of manual overrides and maintenance (details are presented in the following paragraphs):

Redundant Forced Circulation Cooling equipment is physically located in different areas of the plant to preclude failures from a single accident. Further redundancy (flow paths and sources) exists within each redundant loop. This physical separation alone will insure continued operation of critical systems following an accident.

Additional assurance has been provided by valves that have manual overrides and/or "designed failure modes" to insure that they will continue to function following an accident.

In the extremely unlikely event that the designed safety features should fail, time is available to work on damaged equipment to make it functional following an accident.

In the unlikely event that Forced Circulation Cooling is not restored, PCRV Liner Cooling will protect the safety and health of the public.

The PCRV Liner Cooling System, like the Forced Circulation Cooling has redundancy and physical separatior design features that preclude failure from a single accident.

As concluded in Amendment 26 of the FSAR "no single pipe failure outside of the reactor building could produce conditions wherein a single active failure could disable the PCRV Liner Cooling System so as to prevent safe reactor shutdown."

In the unlikely event that the normal PCRV Liner Cooling should fail during an accident, an alternate cooling system is available with a power source cabling and controls that are physically separate from the normal emergency equipment. This equipment is located outside* of the HELB environment.

*Cables for two depressurization system valves are in the Reactor Building HELB environment. Manual operators outside of the HELB environment have subsequently been added.

Because of the above reasons, the Fort St. Vrain Station has adequate means of protecting the safety and health of the public, should "aged" equipment fail during an HELB.

In conclusion, the ability of the thermally "aged" electrical equipment to survive a HELB accident is not a credible concern at Fort St. Vrain and no aging qualifications are deemed to be necessary.

Summary of PSC Response to IE-79-01B:

To insure that sufficient information has been submitted to allow for preparation of an SER, the topics itemized in the NRC Regional Meetings will be covered here.

A. Licensees Equipment Qualification Procedure and Quality Assurance

The validity of the Fort St. Vrain safety related lists and drawings has been reviewed by both PSC and General Atomic Company several times in the past 4 years. These reviews established the basis for the Class I components included on the lists, the categorization of the components based upon safety function and location and the existence, nature and content of seismic and environmental qualification documentation. These reviews were conducted on tagged components as well as subtier (untagged) components by both, GAC Engineering and QA personnel and PSC Engineering and QA personnel.

Reviews included seismic qualification of Class I components, environmental qualification of Class I/Safe Shutdown components subject to exposure during a postulated high energy line break and environmental qualification of Class 1/Safe Shutdown components located in the 3-room control complex (control room, auxiliary electric room, 480V room) subject to exposure to a postulated loss of HVAC. These reviews have been documented by numerous Field Change Notices, Change Notices, PSC & GAC correspondence Inspection Reports, Corrective Action Requests, QA Deviation Reports and the Seismic and Environmental Punch List and are available for review and inspection at the plant site. These activities have been reviewed with various NRC officials in the past, both at the Betheseda, Maryland offices and at the site and have been found to be acceptable.

B. Identification of Safety Related Systems and Components

This information was submitted by PSC's March 18, 1980 letter P-80051.

See Page 2 of P-80051 under the heading "Partial Submittal" and Attachments A and B.

C. Identification of Service Conditions for Each Environmental Zone

This information was submitted by PSC's March 18, 1980 letter P-80051.

See Page 1 of P-80051 under the heading "General" and Attachment D.

D. Qualification Methods Utilized by Licensee

The qualification methods utilized were Qualification by Test, and Qualification by Similarity to Tested Articles. These details are present in the Environmental Qualification Records.

E. Conditions for Which Equipment is Qualified

The latest revision of this information was supplied by PSC's April 18, 1980 letter P-80090.

See Enclosure 3 of P-80090.

F. Comparison with DOR Guideline or NUR-0588

Discussions of the non-applicability of the above were included in the March 18, 1980 letter P-80051 and in this letter.

G. Conclusions

The equipment identified in IE-79-01B is qualified with criteria consistent with the criteria for the Fort St. Vrain facility as established in our response to IE-79-01B.

Per our letter of September 17, 1980 (P-80321 Request for Hearing), the above completes PSC's response to IE Bulletin 79-01B.

Very truly yours,

J. K. Fuller, Vice President
Engineering and Planning

JKF/MEN:pa

Attachments

GENERAL ATOMIC COMPANY
REP80 BY SYSTEM

SAFETY RELATED TAGGED COMPONENTS
(RESPONSE TO BULLETIN IE 79-01B)

REV277 22AUGB0 PAGE 1
359/2,8/9,1/6 26SEP80

COMPONENT 1	SRB LOC 35
PSH- 11177	RX2
PSH- 11178	RX2
PSH- 11179	RX2
PSH- 11180	RX2
PSH- 11181	RX2
PSH- 11182	RX2
PSH- 11183	RX2
PSH- 11184	RX2
PSH- 11185	RX2
PSH- 11186	RX2
PSH- 11187	RX2
PSH- 11188	RX2
P- 2101	RX2
P- 2101-S	RX2
P- 2102	RX2
P- 2102-S	RX2
P- 2103	RX2
P- 2103-S	RX2
SV- 2105	RX2
ZS- 2105	RX2
P- 2106	RX2
SV- 2106	RX2
ZS- 2106	RX2
P- 2107	RX2
P- 2108	RX2
P- 2109	TB2
SV- 2109	RX2
HV- 2109-1	RX2
HV- 2109-2	RX2
ZS- 2109-2	RX2
P- 2110	TB2
SV- 2110	RX2
HV- 2110-1	RX2
HV- 2110-2	RX2
ZS- 2110-2	RX2
SV- 2111	RX2
ZS- 2111	RX2
SV- 2112	RX2
ZS- 2112	RX2
SV- 2115	RX2
HV- 2115-1	RX2
HV- 2115-2	RX2
ZS- 2115-2	RX2
SV- 2116	RX2
HV- 2116-1	RX2
HV- 2116-2	RX2
ZS- 2116-2	RX2
LSV- 2135	RX2
HSV- 2135-1	RX2
LSV- 2135-1	RX2
HSV- 2135-2	RX2
LSV- 2136	RX2
HSV- 2136-1	RX2
LSV- 2136-1	RX2
HSV- 2136-2	RX2
LV- 2137	RX2
LSL- 2137	RX2
LV- 2138	RX2
LSL- 2138	RX2
PDIS- 2155	RX2
PDIS- 2156	RX2
XEP- 2175	RX2
XEP- 2176	RX2
XEP- 2177	RX2
XEP- 2178	RX2
FIS- 2183	RX2
FIS- 2184	RX2
FIS- 2185	RX2
FIS- 2186	RX2
HV- 2193	RX2
HV- 2194	RX2
LSL- 21113	RX2
PV- 21120	RX2
LT- 21121	RX2
LT- 21122	RX2
LT- 21123	RX2
LT- 21124	RX2
LT- 21129	RX2
LS- 21130	RX2
LV- 21130	RX2
LSH- 21132	RX2
FIS- 21137	RX2
FIS- 21138	RX2
FIS- 21139	RX2
FIS- 21140	RX2
PDIS- 21149	RX2
PDIS- 21150	RX2
PDIS- 21151	RX2
PDIS- 21152	RX2
PDIS- 21153	RX2
PDIS- 21154	RX2
PDIS- 21155	RX2
PDIS- 21156	RX2
PDIS- 21157	RX2
PDIS- 21158	RX2
PDIS- 21159	RX2
PDIS- 21160	RX2
PDIS- 21173	RX2
PDIS- 21174	RX2
PDIS- 21175	RX2
PDIS- 21176	RX2
PDIS- 21177	RX2
PDIS- 21178	RX2
PDIS- 21179	RX2
PDIS- 21180	RX2
PDIS- 21181	RX2
PDIS- 21182	RX2
PDIS- 21183	RX2
PDIS- 21184	RX2
HV- 21185	RX2
XEP- 21185	RX2

P80350
Attachment A
Page A1

COMPONENT 1	SRB LOC 55
HV- 21186	RX2
xEP- 21186	RX2
HV- 21187	RX2
xEP- 21187	RX2
HV- 21188	RX2
xEP- 21188	RX2
FV- 21213	RX2
HV- 21214	RX2
HV- 21257	RX2
HV- 21258	RX2
HV- 21259	RX2
HV- 21260	RX2
PT- 21285	RX2
PDI- 21285-1	RX2
xEP- 21285-1	RX2
PDI- 21285-2	RX2
xEP- 21285-2	RX2
PT- 21286	RX2
PDI- 21286-1	RX2
xEP- 21286-1	RX2
PDI- 21286-2	RX2
xEP- 21286-2	RX2
FV- 21297	RX2
FSL- 21297	RX2
FV- 21298	RX2
FSL- 21298	RX2
PDIS- 21319	RX2
PDIS- 21320	RX2
PDIS- 21321	RX2
PDIS- 21322	RX2
PDIS- 21323	RX2
PDIS- 21324	RX2
PDIS- 21325	RX2
PDIS- 21326	RX2
PDIS- 21327	RX2
PDIS- 21328	RX2
PDIS- 21329	RX2
PDIS- 21330	RX2
PDIS- 21393	RX2
PDIS- 21395	RX2
PDIS- 21396	RX2
PDIS- 21397	RX2
PDIS- 21398	RX2
PDI- 21411	RX2
PDI- 21412	TB2
PDI- 21413	RX2
PDI- 21414	TB2
HV- 21415-1	RX2
ZS- 21415-1	RX2
HV- 21415-2	RX2
HV- 21416-1	RX2
ZS- 21416-1	RX2
HV- 21416-2	RX2
FT- 21425	RX2
FT- 21426	RX2
FT- 21427	RX2
FT- 21428	RX2
HV- 2201	TB2
ZS- 2201	TB2
HV- 2202	TB2
ZS- 2202	TB2
HV- 2203	TB2
ZS- 2203	TB2
HV- 2204	TB2
ZS- 2204	TB2
FT- 2205	TB2
FV- 2205	TB2
FT- 2206	TB2
FV- 2206	TB2
FT- 2209	TB2
FT- 2210	TB2
FT- 2211	TB2
FT- 2212	TB2
FT- 2213	TB2
FT- 2214	TB2
HV- 2215	RX2
ZS- 2215	RX2
HV- 2216	RX2
ZS- 2216	RX2
HV- 2217	RX2
ZS- 2217	RX2
HV- 2218	RX2
ZS- 2218	RX2
HV- 2223	TB2
HV- 2224	TB2
FT- 2225-1	RX2
FT- 2225-2	RX2
FT- 2225-3	RX2
FT- 2225-4	RX2
FT- 2225-5	RX2
FT- 2225-6	RX2
FT- 2226-1	RX2
FT- 2226-2	RX2
FT- 2226-3	RX2
FT- 2226-4	RX2
FT- 2226-5	RX2
FT- 2226-6	RX2
FV- 2229	TB2
PV- 2230	TB2
PSL- 2231	TB2
PSL- 2233	TB2
PSL- 2235	TB2
HV- 2237	TB2
HV- 2238	TB2
FT- 2239	RX2
FV- 2239	RX2
xEP- 2239	RX2
FT- 2240	RX2
FV- 2240	RX2
xEP- 2240	RX2
HV- 2241	RX2
HV- 2242	RX2
PV- 2243	RX2
PV- 2244	RX2
HV- 2249	RX2
ZS- 2249	RX2
HV- 2250	RX2
ZS- 2250	RX2
HV- 2251	RX2
ZS- 2251	RX2
HV- 2252	RX2
ZS- 2252	RX2
HV- 2253	TB2
HV- 2254	TB2
HV- 2265	TB2
HV- 2266	TB2
PT- 2267	TB2
xEP- 2267	TB2
PT- 2268	TB2
xEP- 2268	TB2
PSL- 2269	TB2
PSL- 2271	TB2
PSL- 2273	TB2
HV- 2290	RX2
ZS- 2290	RX2
HV- 2291	RX2
ZS- 2291	RX2
HV- 2292	TB2
HV- 2293	TB2
ZS- 22115	RX2
ZS- 22116	RX2
ZS- 22117	RX2
ZS- 22118	RX2
FV- 22129	TB2
xEP- 22129	TB2
PT- 22129-1	TB2
xEP- 22129-1	TB2

COMPONENT I	SRB LOC 35
PV- 22130	IB2
XEP- 22130	IB2
PT- 22130-1	IB2
XEP- 22130-1	IB2
HV- 22131	IB2
HV- 22132	IB2
HV- 22133	IB2
HV- 22134	IB2
TE- 22135	RX2
TE- 22136	RX2
TE- 22137	RX2
TE- 22138	RX2
TE- 22139	RX2
TE- 22140	RX2
TE- 22142	RX2
TE- 22143	RX2
TE- 22144	RX2
TE- 22146	RX2
PV- 22153	IB2
XEP- 22153	IB2
XEP- 22153-1	IB2
PV- 22154	IB2
XEP- 22154	IB2
XEP- 22154-1	IB2
PSH- 22197	IB2
PSH- 22198	IB2
HV- 22200	RX2
HV- 22201	RX2
HV- 22202	RX2
HV- 22203	RX2
HV- 22204	RX2
HV- 22205	RX2
HV- 22206	RX2
HV- 22207	RX2
HV- 22208	RX2
HV- 22209	RX2
HV- 22210	RX2
HV- 22211	RX2
HV- 22212	RX2
HV- 22213	RX2
HV- 22221	IB2
HV- 22222	IB2
HV- 22223	IB2
HV- 22224	IB2
HV- 22225	IB2
HV- 22226	IB2
HV- 22227	IB2
HV- 22228	IB2
HV- 2366-1	RX2

COMPONENT I	SRB LOC 35
HV- 2366-2	RX2
PSL- 3123	IB2
PSL- 3124	IB2
PSL- 3125	IB2
HV- 4225	IB2
HV- 4257	IB2
PS- 4266	IB2
HSV- 4266	IB2
TE- 4637-3	RX2
TE- 4638-5	RX2
L- 8201	IB2
L- 8201-S	IB2
L- 8203	IB2
PS- 8207	IB2
PS- 8208	IB2
TS- 8208	IB2
PS- 8214	IB2
TS- 8214	IB2
TS- 8218	IB2
TS- 8219	IB2
PS- 8221	IB2
PS- 8222	IB2
TS- 8236	IB2
TS- 8237	IB2
PS- 8244	IB2
TS- 8245	IB2
TS- 8246	IB2
PS- 8247	IB2
PS- 8248	IB2
TS- 8249	IB2
HS- 9101-2	RX2
P- 9101-SX	RX2
P- 9101-X	RX2
HS- 9102-2	RX2
P- 9102-SX	RX2
P- 9102-X	RX2
HS- 9103-2	RX2
HS- 9104-2	RX2
HS- 9105	RX2
P- 9105-X	RX2
HS- 9106	RX2
P- 9106-X	RX2
LSL- 91147	RX2
LSL- 91148	RX2
H- 9206	IB2
H- 9219	IB2
H- 9220	IB2

COMPONENT I	SRB LOC 35
N- 9231	RX2
PDSH- 93129	RX2
PDSH- 93130	RX2
PDSH- 93131	RX2
PDSH- 93132	RX2
PDSH- 93133	RX2
PDSH- 93134	RX2
TSH- 93448	RX2
TSH- 93449	RX2
TSH- 93450	RX2
TSH- 93451	RX2
TSH- 93452	RX2
TSH- 93453	RX2
XE- 93454-A	RX2
XE- 93454-B	RX2
XE- 93454-C	RX2
XE- 93455-A	RX2
XE- 93455-B	RX2
XE- 93455-C	RX2
XE- 93456-A	RX2
XE- 93456-B	RX2
XE- 93456-C	RX2
XE- 93457-A	RX2
XE- 93457-B	RX2
XE- 93457-C	RX2
XE- 93470-A	RX2
XE- 93470-B	RX2
XE- 93470-C	RX2
XE- 93471-A	RX2
XE- 93471-B	RX2
XE- 93471-C	RX2
TE- 93472	RX2
TE- 93473	RX2
TE- 93474	RX2
XE- 93479-A	RX2
XE- 93479-B	RX2
XE- 93479-C	RX2
XE- 93480-A	RX2
XE- 93480-B	RX2
XE- 93480-C	RX2

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DATE: 100280      TIME: 072119
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*** @@ PROCESSING COMPLETE. ***
>@XQT SRB#0.I

>3=SUBT

REV277  22AUG80
>15=

>581=ELEC

>271:1,2,4,5,A,G

>286=2

>R:1,4,23,24,35,58,60
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COMPONENT 1		PRODUCT 4	SCI SUPPLIER 23	SCI MODEL 24	SRB LOC 35	ELEM SCHM DWG 58	ELECTRIC CONN DWG 60
SUBT-	009	RELAY	ALLEN BRADLEY	700N400	RX2	ELEC	ELEC
SUBT-	010	RELAY	ALLEN BRADLEY	700N800	RX2	ELEC	ELEC
SUBT-	011	VALVE	ASCO	HB8302C25F	RX2	ELEC	ELEC
SUBT-	012	VALVE	ASCO	HB8302C29U	RX2	ELEC	ELEC
SUBT-	013	VALVE	ASCO	HB8302C29F	RX2	ELEC	ELEC
SUBT-	015	VALVE	ASCO	LB8320A108	IB2	ELEC	ELEC

SUBT-	016	VALVE	ASCO	HB8302C256	RX2	ELEC	ELEC
SUBT-	017	VALVE	ASCO	8302C26U	TB2	ELEC	ELEC
SUBT-	018	VALVE	ASCO	HB8302C25U	RX2	ELEC	ELEC
SUBT-	019	VALVE	ASCO	8320A89	RX2	ELEC	ELEC
SUBT-	023	VALVE	BARKSDALE	12453	RX2	ELEC	ELEC
SUBT-	024	TRANSMITTER	COLLINS	SS409	RX2	ELEC	ELEC
SUBT-	071	RELAY	GENERAL ELECTRI	CR120A04222AA	RX2	ELEC	ELEC
SUBT-	072	CONTROL SW	GENERAL ELECTRI	CR2940UM200AC	RX2	ELEC	ELEC
SUBT-	073	MOTOR	ITT GEN CONT'L	AH91	RX2	ELEC	ELEC
SUBT-	093	AIR SET	KIELEY MUELLER	467	RX2	ELEC	ELEC
SUBT-	116	E/P TRANSDUCER	MASONEILAN	8006	RX2	ELEC	ELEC
SUBT-	123	VALVE	MOOG	72-101D	TB2	ELEC	ELEC
SUBT-	129	VALVE	PARKER HANNIFIN	D1W20HVY-10	TB2	ELEC	ELEC
SUBT-	131	VALVE	PARKER HANNIFIN	3MD20UBHP-38	TB2	ELEC	ELEC
SUBT-	205	VALVE	ASCO	8300C9U	TB2	ELEC	ELEC
SUBT-	209	VALVE	ASCO	8302C25F	RX2	ELEC	ELEC
SUBT-	248	RELAY	WESTINGHOUSE	AR440A	TB2	ELEC	ELEC
SUBT-	261	RELAY	AGASTAT	2412AE	TB2	ELEC	ELEC
SUBT-	287	VALVE ACTUATOR	ROTORK	70A	RX2	ELEC	ELEC
SUBT-	305	RELAY	GENERAL ELECTRI	HEA61A293	TB2	ELEC	ELEC
SUBT-	320	VALVE ACTUATOR	ROTORK	30A	TB2	ELEC	ELEC
SUBT-	390	VALVE	VICKERS	DG5S4-042AT-21	TB2	ELEC	ELEC
SUBT-	391	VALVE	VICKERS	DG5S4-042AE-21	TB2	ELEC	ELEC
SUBT-	400	VALVE	ASCO	8316B16	RX2	ELEC	ELEC
SUBT-	466	VALVE	ASCO	8300B1U	TB2	ELEC	ELEC
SUBT-	487	STARTER	ITE	EF3-B015	TB2	ELEC	ELEC
SUBT-	495	VALVE	MOOG	72-102	TB2	ELEC	ELEC
SUBT-	509	CIRCUIT BREAKER	ITE	HE3A-100	TB2	ELEC	ELEC
SUBT-	511	VALVE	VICKERS	DG5S4-C42AWB-40	RX2	ELEC	ELEC
SUBT-	512	VALVE ACTUATOR	LIMITORQUE	SMB-4T	TB2	ELEC	ELEC
SUBT-	513	VALVE	VICKERS	DG5S4-042AT-30	RX2	ELEC	ELEC
SUBT-	514	VALVE	VICKERS	DG5S4-042AT-31	RX2	ELEC	ELEC
SUBT-	515	THERMAL OVRLD	HI TEMP	21A1002	RX2	ELEC	ELEC

SUBT-	516	THERMAL HOOD	HI TEMP	71M1001	RX2	ELEC	ELEC
GSUBT-	001	TERMINAL BLOCK	BUCHANAN	0511	RX2	ELEC	
GSUBT-	002	JUNCTION BOX	CIRCLE AW PRODU	312J	RX2	ELEC	
GSUBT-	003	WIRE	BELCO	LINKE 1832	RX2	ELEC	
GSUBT-	004	RING TOUNGE TERM	MISC	MISC	RX2	ELEC	
GSUBT-	005	CRIMP WIRE CONN	MISC	MISC	RX2	ELEC	
GSUBT-	006	JB FITTING	SCRUTITE	3104120	RX2	ELEC	
GSUBT-	007	FUSE HOLDER	GENERAL ELECTRI	108C-96336	RX2	ELEC	
GSUBT-	008	FUSE HOLDER	BUCHANAN	0351	RX2	ELEC	
GSUBT-	009	CONNECTOR	CANNON	MS3100A20-33S	RX2	ELEC	
GSUBT-	010	CONNECTOR	CANNON	MS3100A20-33P	RX2	ELEC	
GSUBT-	011	CONNECTOR	CANNON	UG260A/U	RX2	ELEC	
GSUBT-	012	CONNECTOR	CANNON	UG1094A/U	RX2	ELEC	
GSUBT-	013	CONNECTOR	AMP	20276-2P71-28	RX2	ELEC	
GSUBT-	014	CONNECTOR	AMP	20277-272447	RX2	ELEC	

COMPONENT	PRODUCT	SCI SUPPLIER	SCI MODEL	SKB LOC	ELEM SCHM DWG	ELECTRIC CONN DWG
1	4	23	24	35	50	60

GSUBT-	015	FUSE	BUSS	NON-20	RX2	ELEC	
GSUBT-	016	FUSE	FUSETRON	FNM-5	RX2	ELEC	
GSUBT-	017	CABLE	931-170#12-B-27	600VXLP/NEO-2C12	RX2	ELEC	
GSUBT-	018	WIRE	CERRO WIRE CO	FIRE ZONE 101 WI	RX2	ELEC	
GSUBT-	019	CABLE	931-170#12-C-46	300VFE/PVC-4PR16	RX2	ELEC	
GSUBT-	020	CABLE	931-170#12-B-28	600VXLP/PVC-3C12	RX2	ELEC	

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GSUBT-   021   CABLE          93I-170#12-C-39 0/ASATM/PVC2PR10 RX2  ELEC
GSUBT-   022   CABLE          93I-170#12-B-27 600VXLP/PVC-2C12 RX2  ELEC
GSUBT-   023   CABLE          93I-170#12-C-92 300VPE/PVC-3C16  RX2  ELEC
GSUBT-   024   CABLE          93I-170#12-C-49 0/ASHPE/PVC1PR16 RX2  ELEC
GSUBT-   025   CABLE          93I-170#12-C-50 0/ASHPE/PVC4PR16 RX2  ELEC
GSUBT-   026   CABLE          93I-170#12-A-17 600VBR/PVC-3C12  RX2  ELEC
GSUBT-   027   CABLE          93I-170#12-B-27 600VXLP/PVC-2C12 RX2  ELEC
GSUBT-   028   CABLE          93I-170#12-B-35 600VXLP/PVC-3C10 RX2  ELEC
GSUBT-   029   CABLE          93I-170#12-B-29 600VXLP/PVC-5C12 RX2  ELEC
GSUBT-   030   CABLE          93I-170#12-B-30 600VXLP/PVC-7C12 RX2  ELEC
GSUBT-   031   CABLE          93I-170#12-B-31 600VXLP/PVC-9C12 RX2  ELEC
GSUBT-   032   CABLE          93I-170#12-B-32 600VXLP/PVC12C12 RX2  ELEC
GSUBT-   033   CABLE          93I-170#12-C-44 300VTWPE/PVC1PR1 RX2  ELEC
GSUBT-   034   CABLE          BELDEN          300V-VNL/CRVNL   RX2  ELEC
GSUBT-   035   CABLE          BELDEN          RG-108U          RX2  ELEC
GSUBT-   036   CABLE          ROCKBESTOS      RG-108-XL/PLYFN  RX2  ELEC
GSUBT-   037   WIRE           GENERAL ELECTRI SIS              RX2  ELEC
GSUBT-   038   WIRE           PARKER-COLEMAN  WE2011304        RX2  ELEC
GSUBT-   039   CABLE          ROCKBESTOS      FRWL SR TC CABLE RX2  ELEC
GSUBT-   040   CABLE          REVERE          T/C EBR/NPL4PR16 RX2  ELEC
>@@TERM

-@@ERROR - ILLEGAL TYPE
>@@TERM

N
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ALPHA PREFIXES

Designation	Description
A	Absorbers, Traps and Demineralizers
C	Compressors, Blowers, Vacuum Pumps, Fans Including Drives
E	Exchangers, Cooling Towers
F	Filters, Strainers, and Dryers
I	Instrument and/or Control Racks and Panels
N	Electrical Power/Control Cabinets
P	Pumps and Drives
S	Special Packaged Items
T	Tanks and Vessels
FV	Flow Valve
FT	Flow Transmitter
HS	Hand Switch
HV	Hand Valve
LS	Level Switch
LT	Level Transmitter
LV	Level Valve
PS	Pressure Switch
PT	Pressure Transmitter
PV	Pressure Valve
SV	Speed Valve
TS	Temperature Switch
XE	Special Element (Steamline Rupture Sensor)
ZS	Position Switch
FIS	Flow Indicating Switch
FSL	Flow Switch Low
HSV	Hand Solenoid Valve
LSH	Level Switch High
LSL	Level Switch Low
LSV	Level Solenoid Valve
PDT	Pressure Differential Transmitter
PSH	Pressure Switch High
PSL	Pressure Switch Low
TSH	Temperature Switch High
XEP	Special Electrical Pneumatic Transducer
PDIS	Pressure Differential Indicating Switch
PDSH	Pressure Differential Switch High

SYSTEM NUMBERS

System	Description
11	Reactor Vessel and Internal Components
21	Primary Coolant System
22	Secondary Coolant System
23	Helium Purification System
31	Feedwater and Condensate
42	Service Water System
46	Reactor Plant Cooling Water System
82	Instrument and Service Air
91	Piping-Hydraulic Oil System
92	Electrical-Including Switchgear and Standby Diesel Generator
93	Control and Instrumentation

Section 2.1.6.b -- Design Review of Plant Shielding and Environmental Qualification of Equipment for Spaces/Systems Which May Be Used In Post-Accident Operations

PSC December 12, 1979 (P-79299) REPLY:

"PSC will perform the radiation protection design reviews required by Section 2.1.6.b, utilizing the source terms recommended in Regulatory Guides 1.3, 1.4, and 1.7, and will submit the results of the review to the NRC by January 1, 1980. Where doses received are in excess of GDC 19 guidelines, PSC will take those steps necessary to permit post-accident operations in vital areas. Any required modifications will be completed by January 1, 1981."

PSC December 27, 1979 (P-79312) SUBMITTAL:

The assessment of post-accident operator actions in vital areas at Fort St. Vrain (FSV) indicates that doses received from a hypothetical FSV accident scenario will not be in excess of the GDC 19 guidelines for the duration of the accident, provided the FSV reactor plant exhaust filters are adequately shielded.

PSC hereby commits to providing necessary shielding modifications to the FSV reactor plant exhaust filters by January 1, 1981 to permit operator access to vital areas under accident conditions.

The hypothetical Fort St. Vrain (FSV) accident scenario consists of the FSV Design Basis Accident (DBA) #1 combined with successive PCRV primary coolant leakage after depressurization. For clarification, the DBA #1 and PCRV leakage scenarios are explained below.

DISCUSSION:

To obtain a post-accident release of radioactivity equivalent to that described in Regulatory Guides 1.3, 1.4 and 1.7 requires a permanent loss of all forced circulation for the FSV HTGR. This specific accident was identified as DBA #1 in FSAR Section 14.10 and Appendix D. These analyses performed by General Atomic Company at the time of licensing did not consider Regulatory Guides 1.3 and 1.4 source terms (i.e., the equivalent of the 50% of the core radioiodine and 100% of the core noble gas inventory for release to the primary coolant) appropriate for the HTGR. However, because of past precedence by the then Atomic Energy Commission (AEC) of using the above source terms, offsite doses resulting from the postulated accident were calculated and presented in the previously mentioned FSAR sections using both the General Atomic Company release assumptions and AEC TID-14844 release assumptions. In both cases the offsite doses are within 10CFR100 limits.

DBA #1 Description:

A non-mechanistic loss of forced circulation is postulated from full power operation, where the reactor is scrammed by the plant protection system and all attempts to restore forced circulation using the multiple heat sinks, circulators and motive power for the circulators fail. Because of the large heat sink provided by the graphite core, considerable time is available to initiate primary coolant depressurization and to restore forced circulation. The FSV FSAR specifies the time available to initiate depressurization to be 5 hours, which was later amended by PSC letter P-77250 dated December 22, 1977 to be 2 hours. The reduction in time was due to the capability of the helium purification system to process primary coolant during the planned blowdown of the clean primary coolant to the reactor building ventilation stack. Thus, the depressurization of the PCRV is initiated after 2 hours and completed 7 hours later (or 9 hours from the onset of the accident), at which time the PCRV has been depressurized to 5 psig.

The fuel is slow to heat up due to the large heat sink provided by the core graphite. A peak average active core temperature of 5400°F is reached about 80 hours after the onset of the accident. At this temperature, the core structural integrity and geometry are not compromised since the vaporization temperature of graphite is 6900°F. Peak activity released to the primary coolant, considering decay, is reached about 24 hours into the accident.

Heat removal is provided by the liner cooling system in the redistribute mode which maximizes cooling in the top head of the PCRV.

Leakage of primary coolant from the PCRV is assumed to occur at a conservatively high leakage rate of 0.2% of the primary coolant inventory per day.

Offsite doses were calculated for a 6 month duration of the accident, but most of the offsite dose occurs in the first 200 hours of the accident, due to fission product decay.

The reactor building ventilation system maintains continuous venting of the reactor building environment at 1.5 volumes/hr during the entire period of the accident.

Primary Coolant Leakage Rate During DBA #1:

The FSV FSAR DBA #1 (Appendix D, page D.1-56) assumed an arbitrarily conservative and non-mechanistic estimate of PCRV leakage after the intentional depressurization by assuming that the liner has failed completely (or does not exist) and only concrete permeability controls the leakage. An internal 5 psi pressure differential was assumed which purportedly gave a PCRV leak rate of 8.33×10^{-5} fraction per hr (0.2%/day). Reference was made to Question IX.7 of Amendment No. 9 of the FSV FSAR for the calcualtion of the permeation rate for the FSV PCRV concrete under these conditions.

Examination of Question D.2 revealed simply the conclusion that a 5 psi positive differential pressure led to 0.2%/day and 2 psi positive differential pressure led to 0.08%/day. Question IX.7 also did not provide details of the calculation of the 0.2%/day rate. However, considerable

detail and a derivation was provided for the analysis of leakage rate tests at high pressures. The following equation was provided (eqn.14 on page IX.7-8):

$$W\ (lb/day) = 1.13 \times 10^{-5} \frac{\Delta P}{\Delta P_e} \frac{A}{X} \ln\left(\frac{P_1}{P_2}\right) + 2.2 \times 10^{-6} \frac{\Delta P}{\Delta P_e} \frac{A}{X} \left(P_1^2 - P_2^2\right) \qquad \text{(eqn. 14)}$$

Where ΔP = PCRV inside pressure in psig

ΔP_e = PCRV inside pressure in psig for which the net compressive stress in concrete = 0

A = Face area of concrete, ft^2

X = Concrete thickness, ft

P_1 = Permeation or high side pressure, psia

P_2 = Ambient or low side pressure, psia

Numerical values were inserted for P_1 = 845 psig with the assumption that ΔP_e was approximately equal to P_1 in the following equation (eqn.15 on same page):

$$W = 1.13 \times 10^{-5} \times \frac{9000}{10} \ln \frac{857.5}{12.5} + 9.1 \times 10^{-7} \frac{9000}{10} \left(857.5^2 - 12.5^2\right)$$

$$= 0.043 + 602 = 600\ lb/day \qquad \text{(eqn. 15)}$$

The first item to note is that the coefficient for the second (laminar flow) term is in error which is most likely a single error in transcribing from equation 14 to 15 since equation 13 has the 9.1×10^{-7} coefficient. Equation 15 should read:

$$W = 1.13 \times 10^{-5} \times \frac{9000}{10} \ln \frac{857.5}{12.5} + 2.2 \times 10^{-6} \frac{9000}{10} \left(857.5^2 - 12.5^2\right)$$

$$= 0.043 + 1445 = 1450\ lb/day \qquad \text{(eqn. 15 revised)}$$

The second item is that the $\Delta P/\Delta P_e$ term has been dropped in going from eqn.14 to eqn.15, which is significant if it is assumed that these equations are appropriate for evaluating the leak rate at P_1 = 5 psig.

LEAK RATE

Pressure P_1 (psig)	lb/day			%/day			
	Eqn 14	15	15 Revised	14	15	15 revised	Given
							App D; Amend 9 Question D.2
5	.0019	.13	.30	.001	.07	.17	.20
							Amend 9 Question D.2
2	.0003	.046	.107	.0001	.025	.059	.08

Since equation 14 is the appropriate equation, the 0.2%/day leak rate is conservative by a factor of 200. Furthermore, the only equation that comes close to the values given in the SAR is 15 Revised, that is, $\Delta P/\Delta P_o$ has been neglected which accounts for the factor of 200.

For purposes of plant shielding and equipment environmental evaluations, the historic 0.2%/day is assumed to exist as an upper limit of all potential contaminated primary coolant leakage including permeability through the PCRV concrete. This is judged to be conservative since the primary coolant with any significant activity is contained within the PCRV or helium purification components contained in wells within the PCRV.

Radionuclide Source Terms for DBA-1.

As previously stated, the fuel within the graphite core is slow to heatup during DBA#1. Once it has reached the FSAR fuel particle coating failure temperature of 1725°C (3137°F), the fission products are assumed, for purposes of this shielding evaluation, to be realeased per the TID-14844 assumptions. For release to the primary coolant within the PCRV, this is 100% of noble gases, 50% of the iodines and 1% others. The total activity in curies contained in the primary coolant, assuming no leakage from the PCRV, as a function of lapsed time, is given in Table 2.1.6.b-1.

Consistent with TIC-14844 release assumptions, 50% of the iodines plateaut within the primary coolant system resulting in a depletion of the iodine to 25% of core inventory in the reactor building air. Thus, the total activity in curies in the reactor building, assuming the upper limit of 0.2%/day leakage (which is being purged by the reactor building ventilation system at the rate 1.5 volumes/hr), is given in Table 2.1.6.b-2.

TABLE 2.1.6.b-1

NUREG-0578 STUDY TOTAL ACTIVITY (CI) PRESENT IN THE PCRV PRIMARY COOLANT AT GIVEN ELAPSED TIME (hours). PCRV PRESSU BOUNDARY REMAINS INTACT. TID-14844 NORMALIZATION FRACTIONS USED, 100% NOBLE GASES, 50% IODINE 1% OTHERS

	ELAPSED TIME (Hours)													
CLIDE	2	8	24	34	40	48	52	58	72	120	240	475	720	4320
-88	1.05+04	2.89+05	2.80+05	2.39+04	5.89+03	1.37+03	5.50+02	1.76+02	7.04+01	0	0	0	0	0
-88	8.57+03	2.79+05	2.80+05	2.66+04	6.51+03	1.46+03	6.07+02	1.89+02	7.08+01	0	0	0	0	0
-95	3.15+01	6.66+03	1.84+05	2.57+05	3.01+05	3.59+05	3.69+05	3.84+05	4.18+05	4.12+05	3.88+05	3.43+05	3.02+05	4.60+0
-95	3.18+01	6.74+03	1.87+05	2.63+05	3.09+05	3.69+05	3.80+05	3.97+05	4.35+05	4.37+05	4.31+05	4.12+05	3.88+05	8.90+0
131	1.33+03	3.50+05	6.18+06	6.91+06	7.33+06	7.88+06	7.90+0	7.93+06	7.98+06	7.57+06	4.89+06	2.07+06	8.45+05	0
132	1.44+03	2.34+05	1.79+06	6.09+05	5.64+05	5.61+05	3.68+05	2.96+05	2.72+05	1.76+05	4.92+04	4.99+03	5.46+02	0
133	2.48+03	5.30+05	6.44+06	5.25+06	4.70+06	4.12+06	3.65+06	3.05+06	2.04+06	4.84+05	8.81+03	0	0	0
-133	5.25+03	1.40+06	2.50+07	2.78+07	2.94+07	3.14+07	3.14+07	3.12+07	3.09+07	2.73+07	1.41+07	3.86+06	9.90+05	0
135	1.98+03	2.46+05	1.40+06	5.49+05	3.31+05	1.88+05	1.25+05	6.83+04	1.78+04	2.94+02	0	0	0	0
-135M	7.28+02	8.34+04	4.59+05	1.72+05	1.04+05	5.97+04	3.91+04	2.14+04	5.58+03	0	0	0	0	0
-135	1.75+03	5.43+05	6.24+06	3.86+06	2.93+06	2.11+06	1.62+06	1.08+06	4.39+05	1.81+04	0	0	0	0
-140	5.44+01	1.44+04	2.58+05	2.92+05	3.13+05	3.39+05	3.42+05	3.45+05	3.54+05	3.57+05	2.70+05	1.56+05	8.80+04	0
-140	3.34+01	7.37+03	2.01+05	2.60+05	2.93+05	3.36+05	3.43+05	3.54+05	3.75+05	3.96+05	3.10+05	1.80+05	1.01+05	0

TABLE 2.1.6.b-2

UREG-0578 STUDY TOTAL ACTIVITY (CI) PRESENT IN THE REACTOR BUILDING ATMOSPHERE AT GIVEN ELAPSED TIME (hours). PCRV LEAK RATE TO BUILDING 0.2%/DAY. REACTOR BUILDING VENTED AT 1.5 VOLUMES/HR. TID-14844 NORMALIZED FRACTIONS USED, 100% NOBLE GASES, 25% IODINE, 1% OTHERS

NUCLIDE	ELAPSED TIME (Hours) 2	8	24	34	40	48	52	58	72	120	240	475	720	4320
88	3.77-01	1.31+01	1.33+01	1.32+00	3.22-01	7.10-02	3.00-02	9.23-03	3.38-03	0	0	0	0	0
88	3.55-01	1.37+01	1.42+01	1.48+00	3.58-01	7.77-02	3.34-02	1.02-0_	3.61-03	0	0	0	0	0
95	1.20-03	3.29-01	9.81+00	1.40+01	1.64+01	1.97+01	2.04+01	2.12+01	2.31+01	2.29+01	2.16+01	1.91+01	1.68+01	2.56+00
95	1.21-03	3.31-01	9.98+00	1.43+01	1.69+01	2.02+01	2.10+01	2.19+01	2.41+01	2.43+01	2.39+01	2.29+01	2.16+01	4.94+00
31	2.52-02	8.64+00	1.65+02	1.90+02	2.02+02	2.17+02	2.19+02	2.20+02	2.21+02	2.10+02	1.36+02	5.76+01	2.35+01	0
32	2.57-02	5.24+00	4.24+01	1.58+01	1.46+01	1.46+01	1.05+01	8.46+00	7.75+00	5.14+00	1.30+00	1.61-01	1.77-02	0
33	4.68-02	1.30+01	1.70+02	1.44+02	1.29+02	1.13+02	1.01+02	8.45+01	5.65+01	1.34+01	2.45-01	0	0	0
133	1.99-01	6.94+01	1.34+03	1.54+03	1.63+03	1.75+03	1.75+03	1.75+03	1.75+03	1.52+03	7.85+02	2.14+02	5.50+01	0
35	3.68-02	5.89+00	3.60+01	1.51+01	9.05+00	5.09+00	3.47+00	1.89+00	4.89-01	0	0	0	0	0
135M	3.14-02	7.71+00	8.59+01	7.38+01	5.53+01	3.53+01	2.75+01	1.81+01	6.20+00	1.07-01	0	0	0	0
135	6.75-02	2.73+01	3.40+02	2.26+02	1.72+02	1.22+02	9.56+01	6.40+01	2.56+01	1.01+00	0	0	0	0
140	2.06-03	7.12-01	1.38+01	1.61+01	1.72+01	1.87+01	1.89+01	1.91+01	1.96+01	1.98+01	1.50+01	8.67+00	4.89+00	0
140	1.27-03	3.66-01	1.08+01	1.43+01	1.61+01	1.85+01	1.90+01	1.96+01	2.08+01	2.20+01	1.72+01	9.98+00	5.62+00	0

Radiation Levels During DBA-1:

Based upon TID-14844 source term release assumptions, the radiation levels were calculated in the reactor building and the control room to determine the operator accessibility. Details are described herein.

Assumptions

In addition to the assumptions used in deriving the source terms, the following assumptions were made for evaluating shielding adequacy:

1. Credit was taken for a 50% depletion of the iodines due to plateout in the primary coolant system prior to release to the reactor building atmosphere.

2. All fission products were assumed to remain gasborne. In other words, no plateout of fission products was contemplated.

3. All the activities were uniformly distributed throughout the free space of the reactor building or the PCRV.

4. The iodines and particulates removed by the reactor-building ventilation filters were deposited in any two of the three filters available.

5. Only major shielding such as concrete walls was considered.

Reactor Building

To determine the accessibility of the reactor building during the course of DBA-1, the gamma dose rate in the reactor building was calculated as a function of elapsed time. The contributing sources consist of the gasborne activity in the reactor building as a result of PCRV leakage, the primary coolant activity contained in the PCRV, and the buildup of iodines and particulates on the reactor building ventilation HEPA and charcoal adsorbers. The contribution from the ventilation filters was not considered, as the filters will be properly shielded.

Two dose points were selected for the dose-rate calculation. The first point is located at the center of the space above the refueling floor (≈ 40 ft from the floor), and the second point is on the refueling floor directly above the refueling penetration. The PATH code described in FSAR Section 11.2.2.4 was utilized to perform the calculation.

Figure 1 shows the dose rate at the first dose point. Essentially all the contributions come from the gasborne activity in the reactor building. The activity in the PCRV is relatively insignificant to the first dose point, because of a large separation distance between the source and dose point. Short-term access to the reactor building is possible.

The dose rate at the second dose point (i.e., on the refueling floor) is given in Figure 2. The contributions from the reactor building and from the PCRV are individually represented, along with the total dose rate. The contribution from the PCRV is due to the primary coolant activity present in the interspace below the primary closure for the control rod drive. The maximum dose rate on the floor is 1.0 rem/hr, which is less than the peak dose rate of 1.4 rem/hr at the first dose point. Therefore, the refueling floor is accessible on a short-term basis.

Control Room

The dose rates in the control room include the contributions from the airborne activity in the reactor building atmosphere, and from the iodine and particulate activity accumulated in the plant ventilation filters. The PATH code was used to determine the contribution from each source as a function of time into accident. The dose point was located in the reactor engineer's office, as shown in Figure 3.

The results of the PATH calculations are shown in Figure 3 as a function of elapsed time. It is apparent that the contribution from the airborne activity in the reactor building is relatively small or negligible as compared with that from the reactor building ventilation filters. The dose rate reaches a peak of 700 mrem/hr about one month into accident. The important nuclides are Zr95, Nb95 and La140 accumulated in the filters.

The dose rate in the control room appears to be excessive for continuous manned access. Adequate shielding will be provided for the ventilation filters so that the dose rate from the filters can be reduced to an acceptable level.

Summary Results

The peak dose rates in the reactor building and control room are summarized below. Also indicated are the time at which the peak dose rate occurs following an accident, and the total dose accumulated over a period of 180 days from the initiation of the accident.

Location & Condition	Peak Gamma Dose Rate	Time of Peak	180 Day Accumulated Dose (rem)
Reactor Building (above refueling floor)	1.4 R/hr	24 hrs.	400
Control Room			
From Vent Filters (Unshielded)	700 mR/hr	≈ 720 hrs.	2400
From Reactor Building	3 mR/hr	24 hrs.	0.9

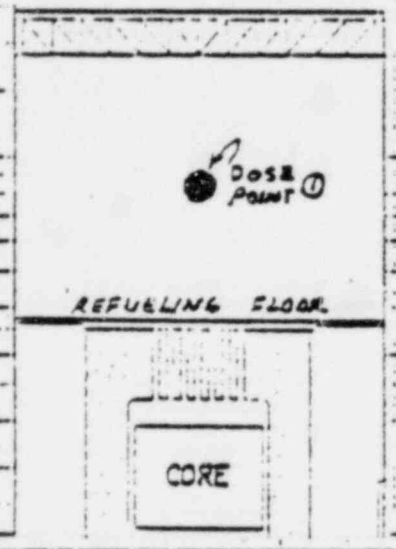
Conclusion

The following conclusions are reached from the review of shielding design adequacy for DBA-1 conditions and TID-14844 source term release assumptions:

1. The reactor building ventilation filters will be adequately shielded to reduce the dosage contribution from the filters.

2. Areas immediately outside the reactor building should be accessible only on a restricted basis, because of direct radiation from the activity in the reactor building.

FIG. 1 - RADIATION LEVELS IN REACTOR BUILDING - DURING DBA - ±



GAMMA DOSE RATE (REM/HR)

10^3 5 2 10^2 5 2 0 5 1 2 1 5 2 10^{-1} 5 2 10^{-2}

0.2 % per day PCRV Leak Rate
Vent System ON

1 10 10^2 10^3

ELAPSED TIME (HR)

FIG. 2 - RADIATION LEVELS ON REFUELING FLOOR DURING DBA-1

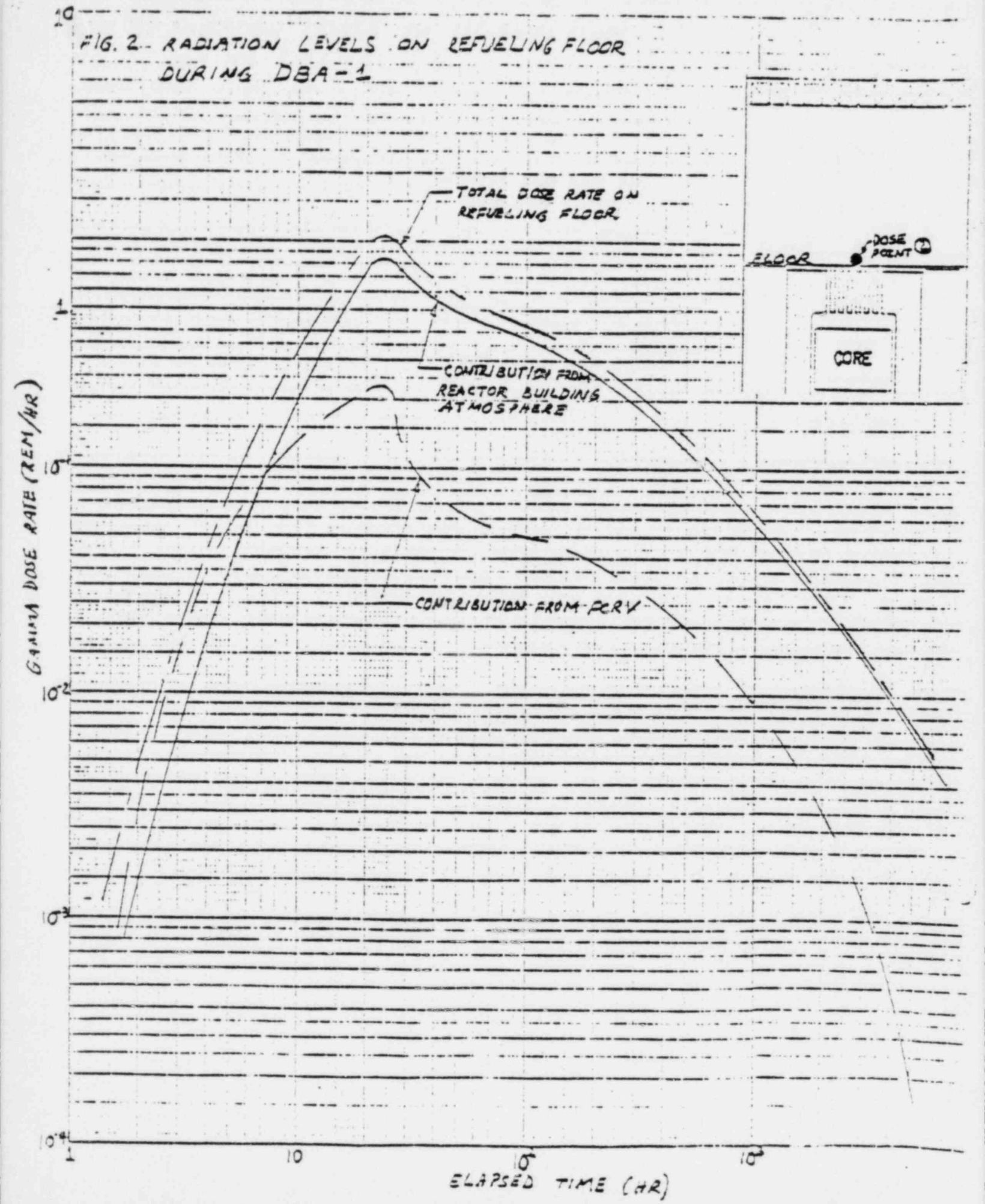
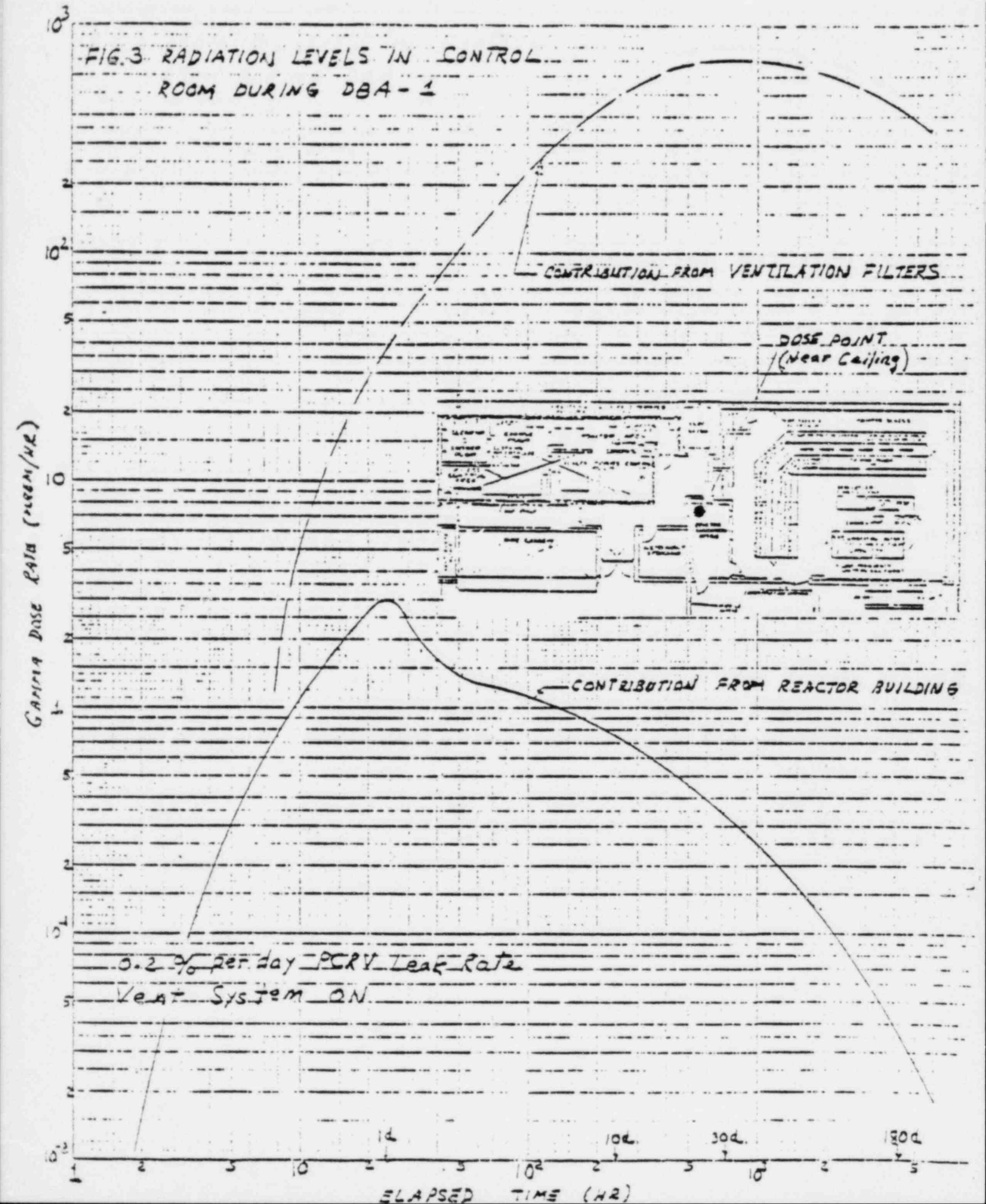


FIG. 3 RADIATION LEVELS IN CONTROL ROOM DURING DBA-1



P80350
ATTACHMENT D

GENERAL ATOMIC

GA-A14212

ENVIRONMENTAL TEMPERATURES IN THE VICINITY OF THE RUPTURE POINT OF STEAM LINES FOR FORT ST. VRAIN EQUIPMENT QUALIFICATION

by
J. V. DEL BENE

NOVEMBER 1976

CONTENTS

FIGURES

TABLE

1. SUMMARY

This report presents temperature response curves for the environment within 20 ft of a steam pipe rupture for use in equipment qualification. Worst case blowdown conditions were taken from the test and analysis report on the qualification of Fort St. Vrain safe shutdown equipment (Ref. 1).

For distances up to 10 ft from the rupture, the environment temperature is in the range of 600° to 650°F for the 4-minute steam blowdown period. Cooldown temperatures to 30 minutes are in the range of 300° to 350°F.

2. INTRODUCTION

For the qualification of the Fort St. Vrain safe shutdown equipment, the environmental temperature response for the worst case pipe rupture was determined for the reactor building and the turbine building (Ref. 1). Response curves of the environmental temperature were determined at several distances from the steam pipe rupture for distances equal to or greater than 20 ft. This report presents response curves for distances less than 20 ft.

3. ANALYSIS

3.1. SPECIFICATION OF WORST STEAM LEAK

As indicated in Ref. 1, a double-ended rupture of the cold reheat pipe in the reactor building produces the most severe environmental blowdown condition. With this rupture, the steam line is not immediately isolated and the steam blowdown is postulated to last for 4 min. The blowdown flow rate and enthalpy for a reactor building cold reheat rupture are taken from Fig. 3.3 of Ref. 1. They are reproduced in Fig. 1. The rupture of a main steam pipe or a hot reheat pipe in the reactor building is isolated within several seconds, and the steam blowdown flow rate decays to zero in about 10 to 15 sec. Thus, initially high main steam or hot reheat temperatures of approximately 900°F would only last 10 to 15 sec with a rapidly decreasing steam flow rate during this time period.

Reference 1 indicates that the most severe environmental conditions in the turbine building occur with a double-ended rupture of a hot reheat pipe. The rupture flow rate is not terminated until 4 min, and the enthalpy of the hot reheat steam is higher than the enthalpy of the main steam. The blowdown flow rate and enthalpy for a turbine building hot reheat rupture are given in Fig. 2. These curves were reproduced from Fig. 3.4 of Ref. 1.

3.2. ANALYTICAL MODEL AND ASSUMPTIONS

The analytical model considers a double-ended rupture of a 20-in.-diameter cold reheat pipe in the lower portion of the reactor building and a double-ended rupture of a 34-in.-diameter hot reheat pipe in the lower portion of the turbine building. Since the reactor and turbine building are vented, there is no storage of blowdown steam or environmental pressure buildup in the buildings. Instead, the escaping steam blows past walls,

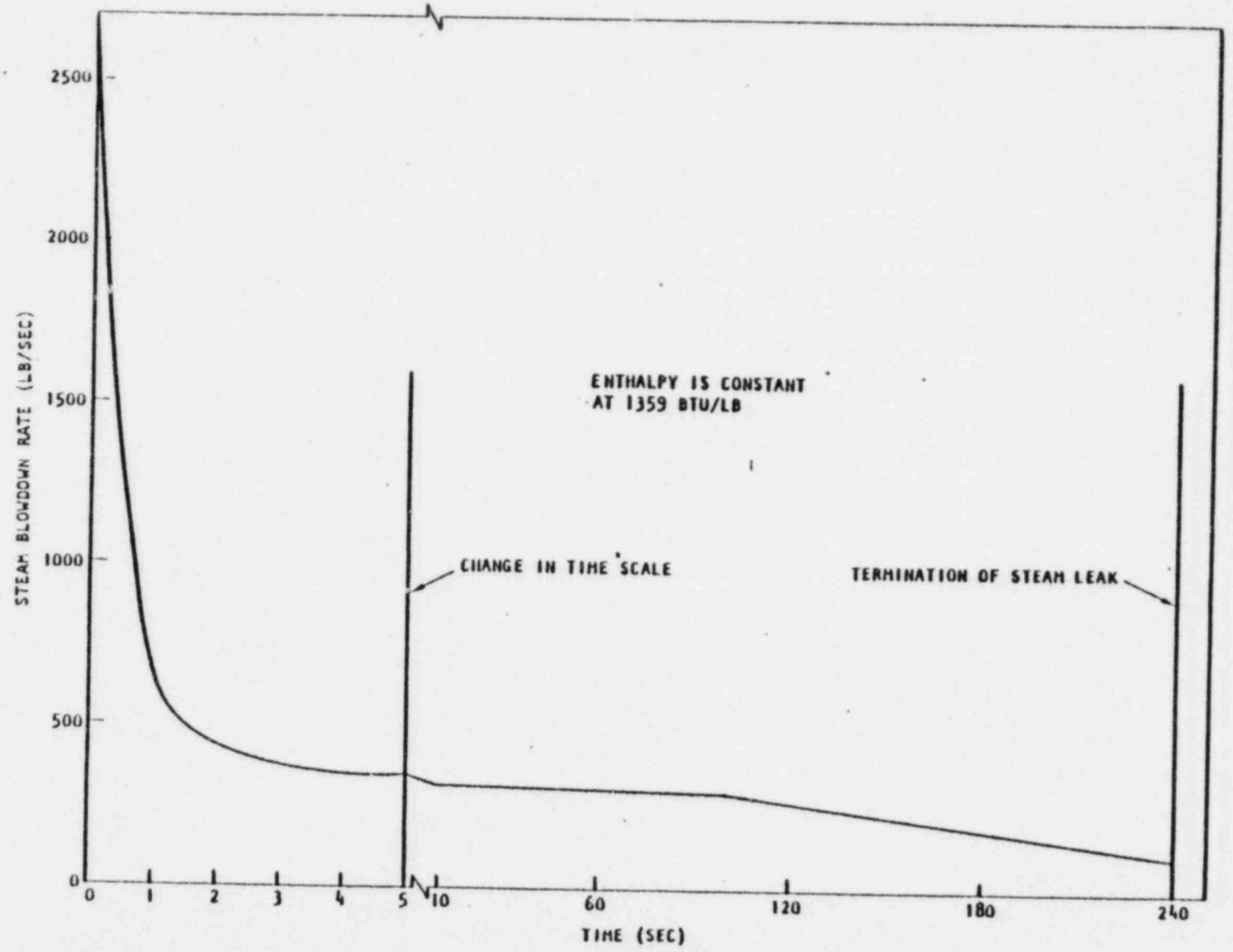


Fig. 1. Steam blowdown rate and enthalpy for a postulated cold reheat pipe rupture in the reactor building

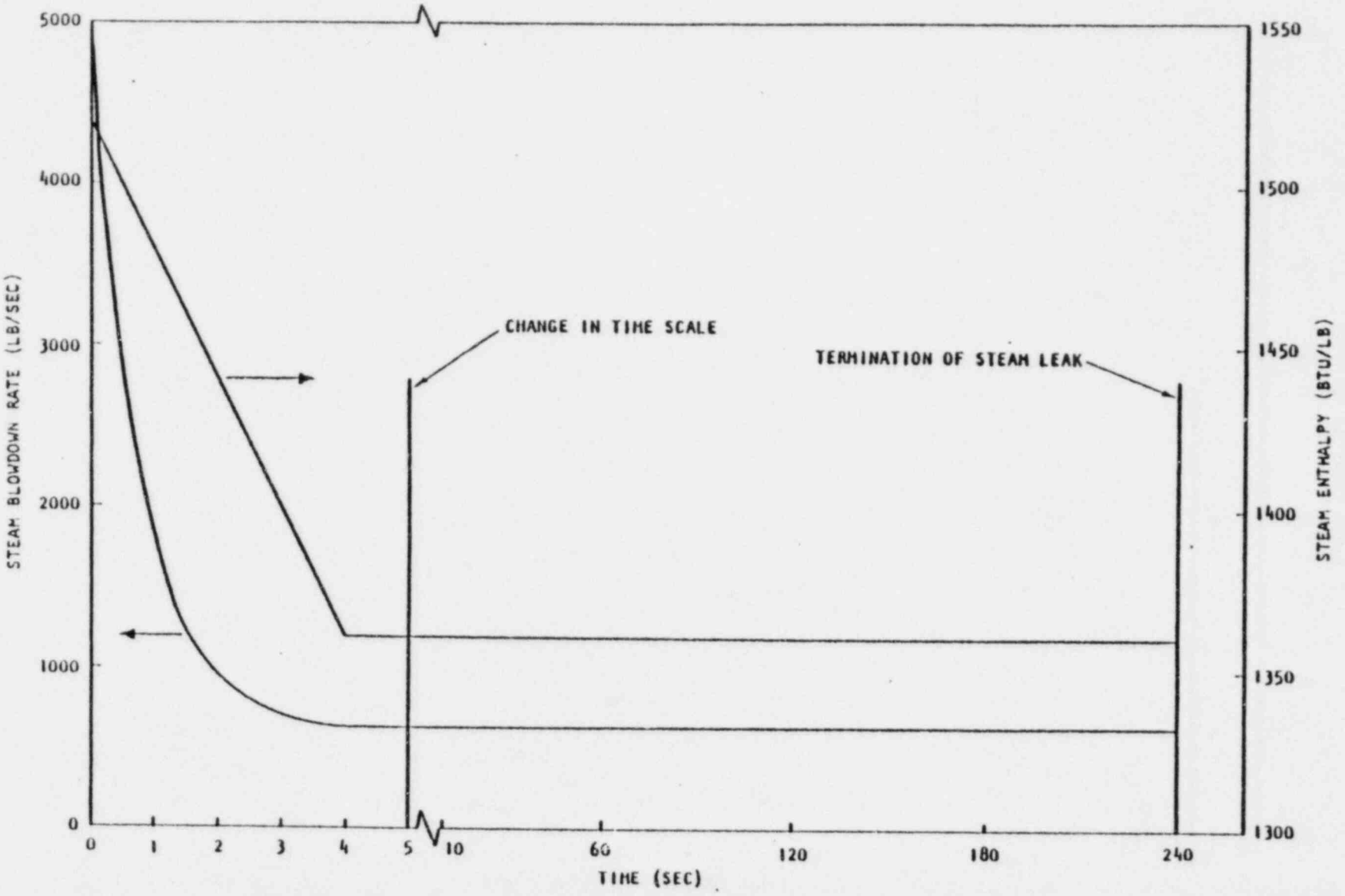


Fig. 2. Steam blowdown rate and enthalpy for a postulated hot reheat pipe rupture in the turbine building without scram action

structures, and equipment within the buildings. This scenario is especially true for the conditions near the rupture point. The scenario is also supported by the fact that both buildings are very crowded with piping, structural steel, walkways, and instrument racks.

The analytical model is based on the blowdown steam flowing past heat transfer surfaces. The model yields the temperature response of these surfaces and the response of the steam temperature with respect to distance from the rupture and time. The assumptions and input for the model are:

1. The steam expands spherically outward from its rupture. The volume enclosed as a function of distance r from the rupture is $V = 4/3\ \pi r^3$.

2. The heat transfer surface areas of the steel and concrete are distributed homogeneously throughout the regions in consideration. Data from Ref. 1 are used to calculate these distributions. The results are given in Table 1.

3. The decay of the heat transfer coefficient versus distance from the steam leak during the steam blowdown period is the same as used in Ref. 1. The value at 10 ft (86.9 Btu/hr-ft^2-°F) is used for all distances less than 10 ft. The heat transfer coefficient after the termination of the steam leak is taken as 5 Btu/hr-ft^2-°F.

4. The initial temperature of all the steel and concrete is taken as 100°F.

The calculations were performed using the TAC2D thermal analysis computer program (Ref. 2). Since no collection of blowdown steam in the buildings is considered in the analytical model, it was more convenient and expedient to use a thermal analysis program rather than a containment blowdown program. The TAC2D program was modeled to simulate the steam expanding spherically outward and passing over the steel and concrete

TABLE 1
UNIFORM DISTRIBUTION OF HEAT TRANSFER SURFACE AREAS

Reactor Building
(Ref. 1, Table 3.1)

Volume of lower portion of reactor building	198,000 ft^3
Total surface area of steel in this volume	104,000 ft^2
Total surface area of concrete in this volume	33,800 ft^2
Steel surface area per unit volume of reactor building	0.525 ft^2/ft^3
Concrete surface area per unit volume of reactor building	0.171 ft^2/ft^3

Turbine Building
(Ref. 1, Table 3.2)

Volume of lower portion of turbine building	750,000 ft^3
Total surface area of steel in this volume	216,200 ft^2
Total surface area of concrete in this volume	80,800 ft^2
Steel surface area per unit volume of turbine building	0.288 ft^2/ft^3
Concrete surface area per unit volume of turbine building	0.108 ft^2/ft^3

surface areas. The steam blowdown flow rate as a function of time was taken from Figs. 1 and 2. The steam temperature at the rupture point corresponds to the steam enthalpy from Figs. 1 and 2 and atmospheric pressure.

4. CALCULATED RESULTS

The calculated temperature response of the steam environment at several distances within 20 ft from the rupture are given in Fig. 3 for the reactor building and Fig. 4 for the turbine building. The response curves very close to the rupture are approximately the same and are drawn as one curve. The response curves after the termination of the steam leak are conservative. They are representative of the cooldown of steam remaining stagnant and coming to equilibrium with the local surrounding surfaces.

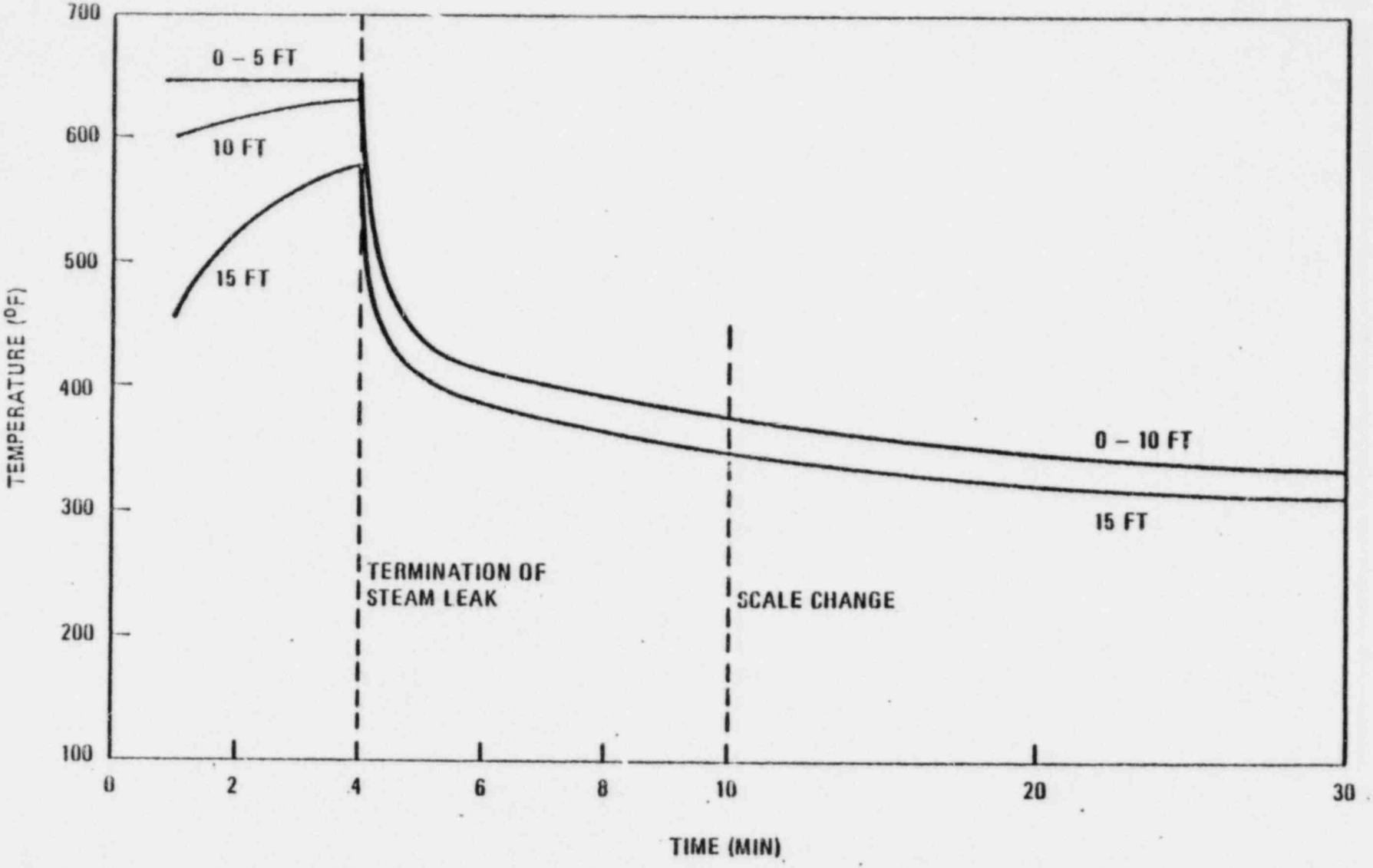


Fig. 3. Temperature response of the environment near the rupture for a reactor building cold reheat pipe rupture

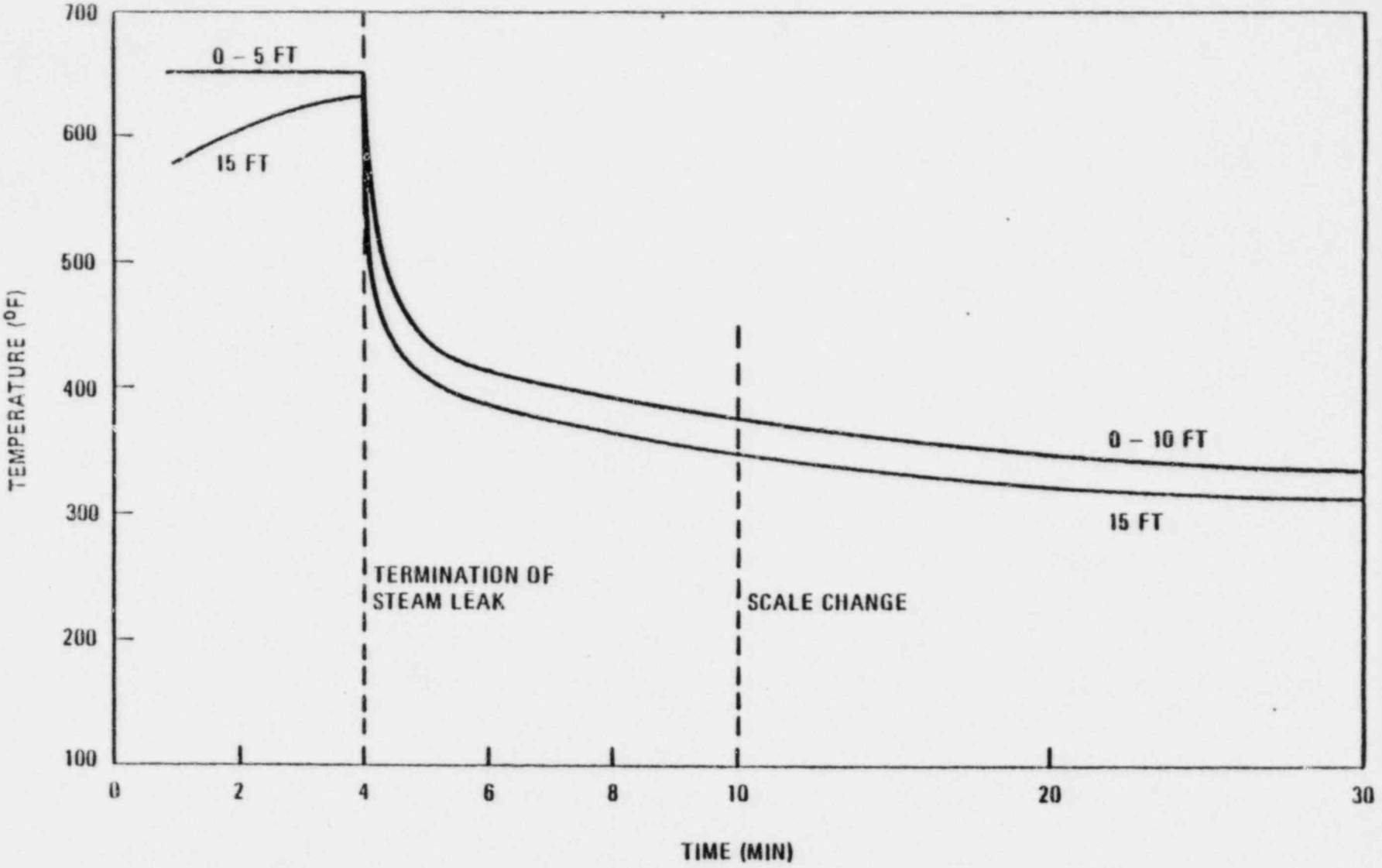


Fig. 4. Temperature response of the environment near the rupture for a turbine building hot reheat pipe rupture

REFERENCES

1. Benham, R. G., et al., "Qualification of Fort St. Vrain Safe Shutdown Equipment for Steam Environment Resulting from Pipe Ruptures," USAEC Report Gulf-GA-A12045, Gulf General Atomic, May 30, 1972.

2. Boonstra, R. H., "TAC2D - A General Purpose Two-Dimensional Heat Transfer Computer Code," General Atomic Report GA-A14032, July 15, 1976.

Location of Equipment in the Plant

Fort St. Vrain Nuclear Generating Station has been divided into areas for purposes of identifying components and equipment requiring environmental qualification. These areas are:

RX1 -Above the Refueling Floor, Reactor Building
RX2 -Beneath the Refueling Floor, Reactor Building
RX3 -Process Area, Reactor Building
CR -Control Room
AX -Auxiliary Equipment Room
SWR -480 Volt Switchgear and Battery Room
TB1 -Turbine Building - All Other Areas
TB2 -Below Operating Floor - Turbine Building
TB3 -Diesel Generator Room - Turbine Building
OPL -Outside the Plant
PCRV -Internal to the RCRV Pressure Boundary

Figures 1 through 5 depict the area described above. RX2 and TB2 are the High Energy Line Break Areas.

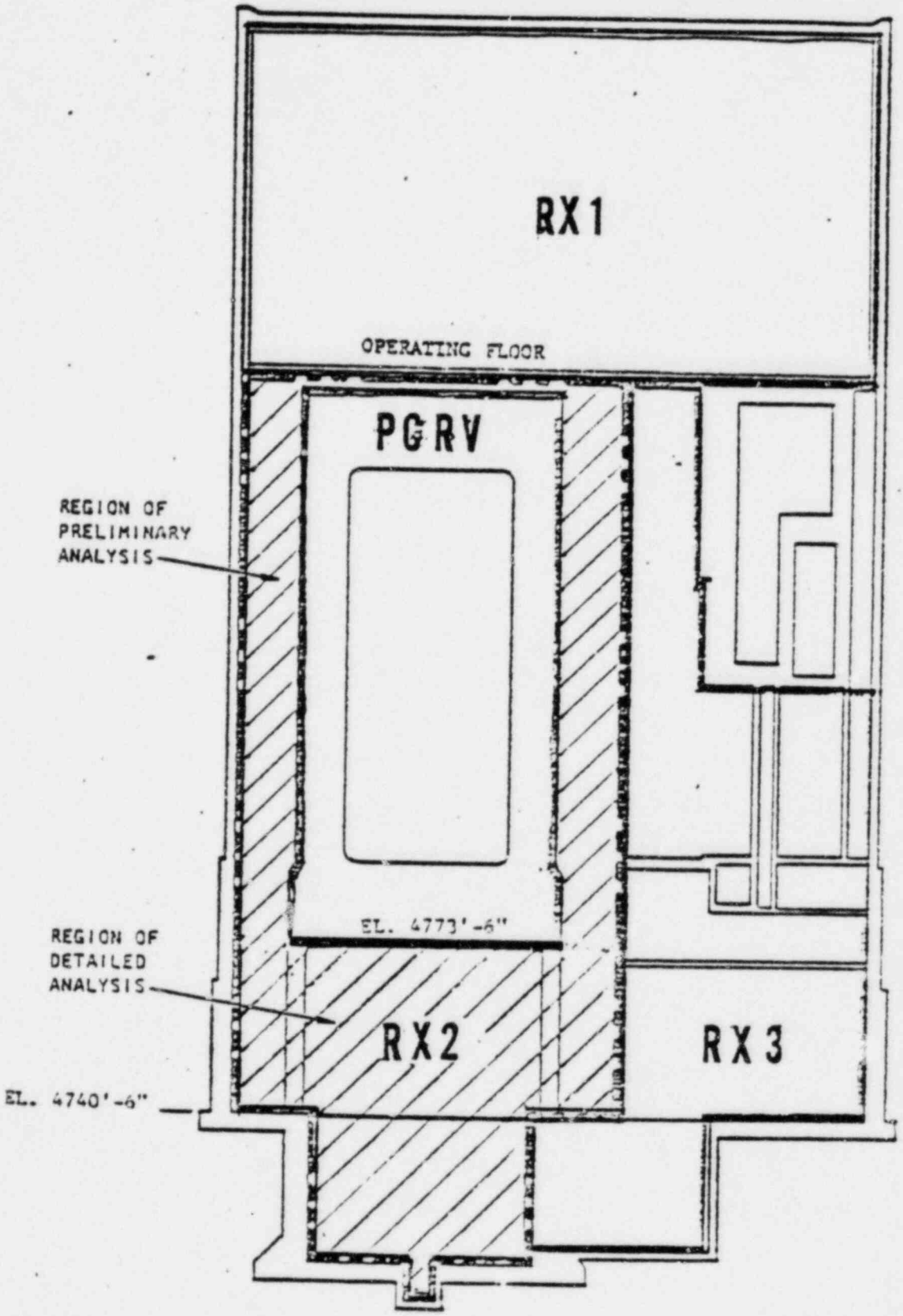


Fig. 1. Reactor building elevation showing regions that were analyzed

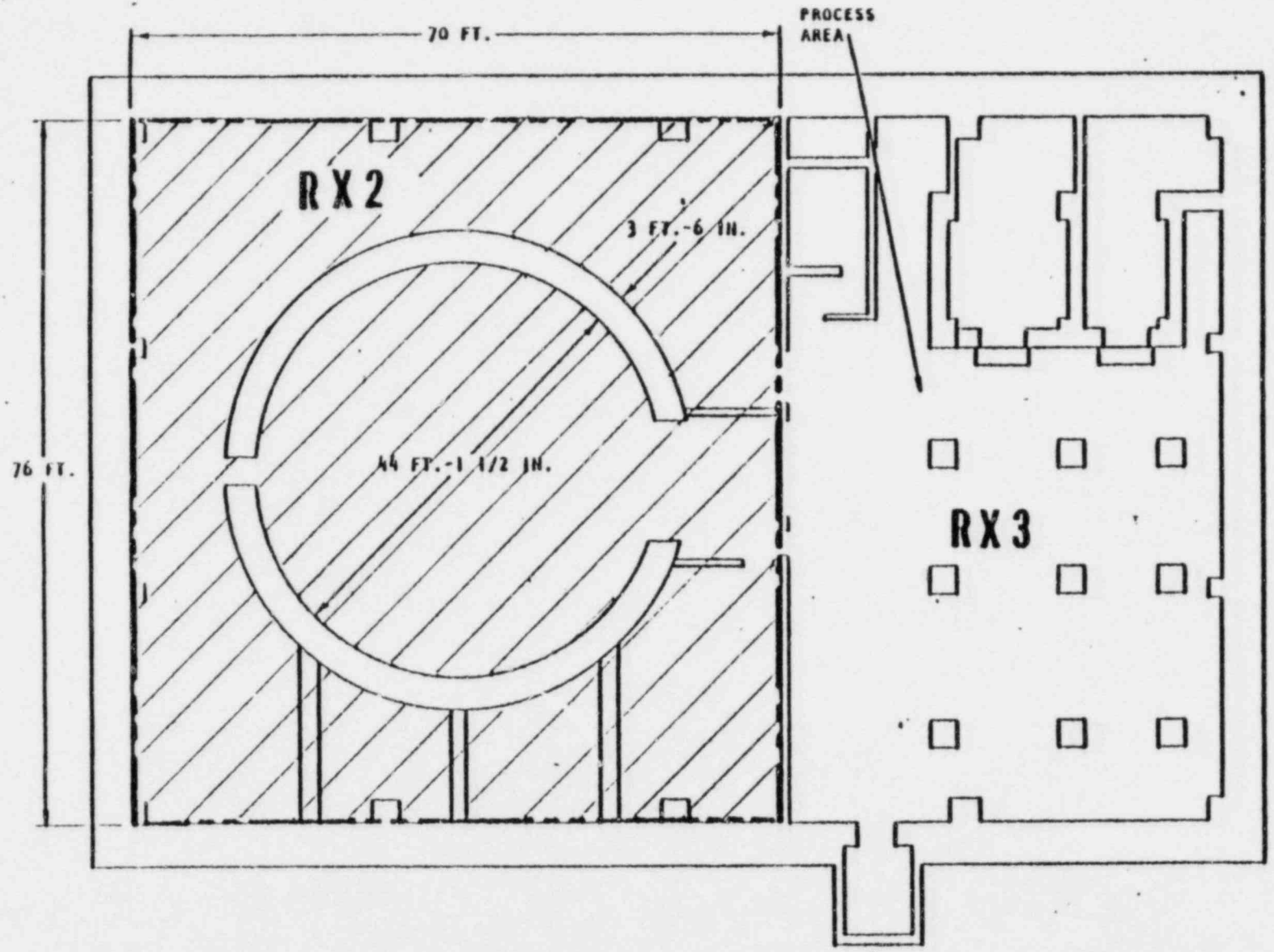


Fig. 2. Reactor building plan view at elevation 4740 ft-6 in. showing region of detailed analysis

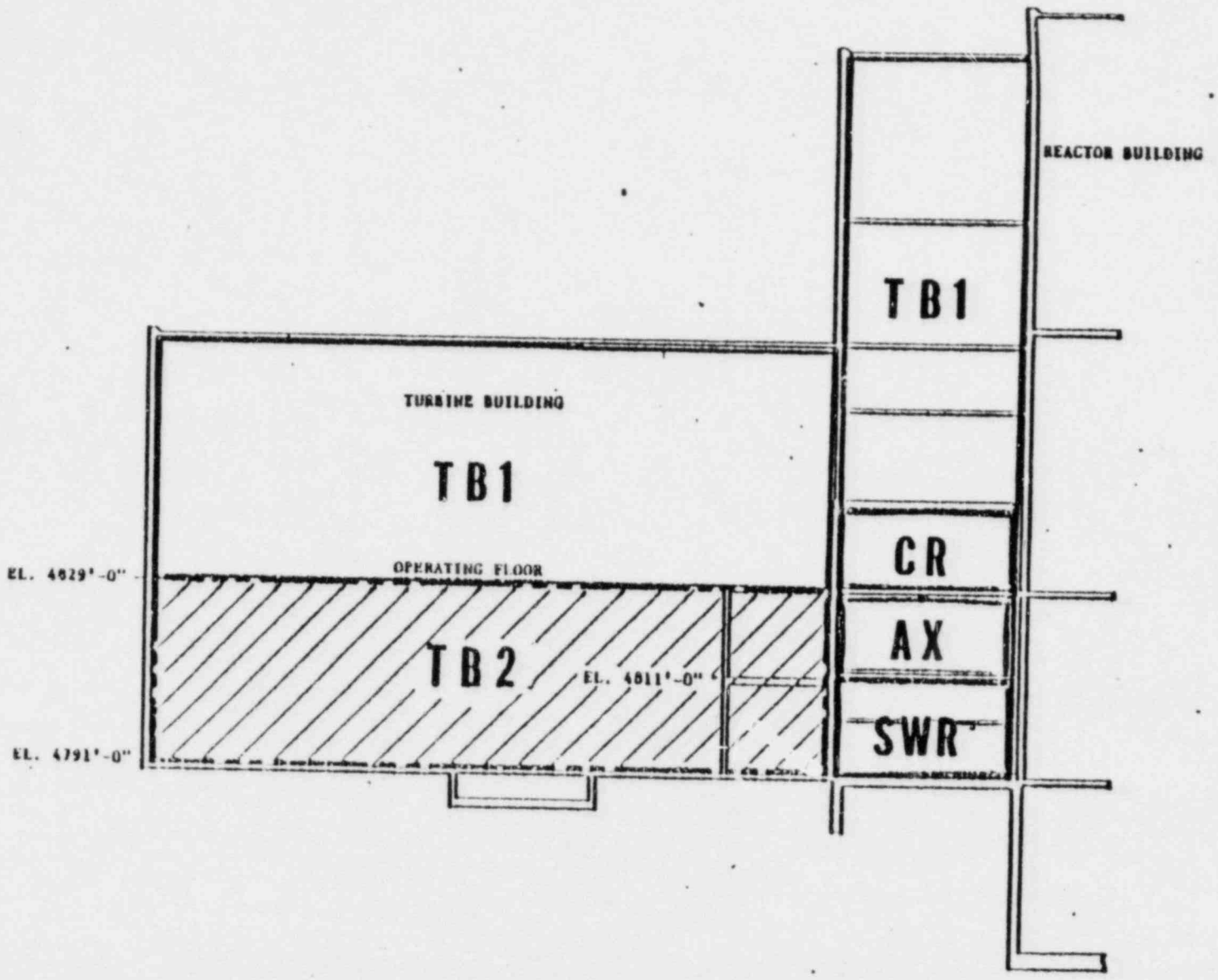


Fig. 3. Turbine building elevation showing region that was analyzed

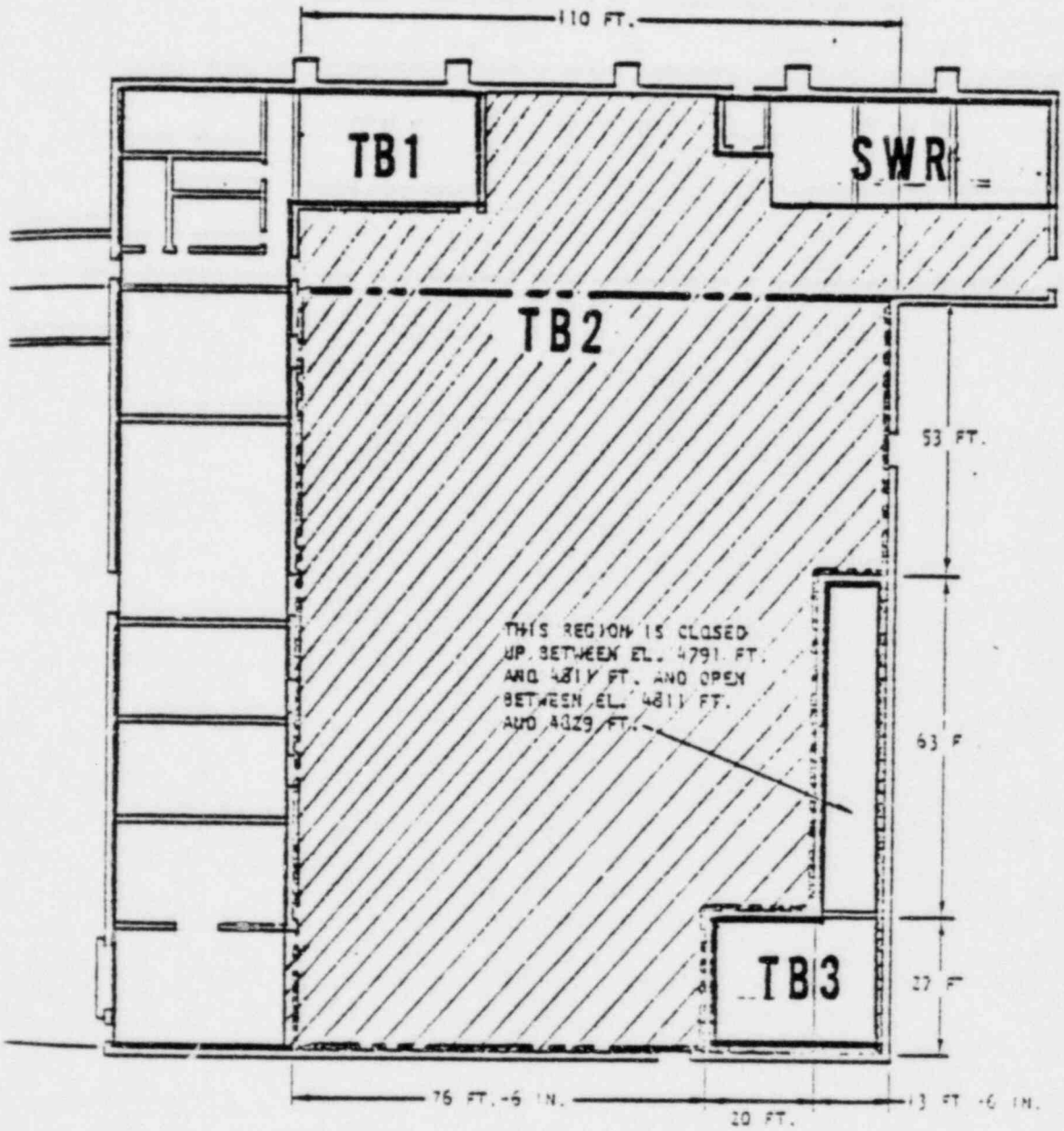


Fig. 4. Turbine building plan view at elevation 4791 ft showing region of detailed analysis

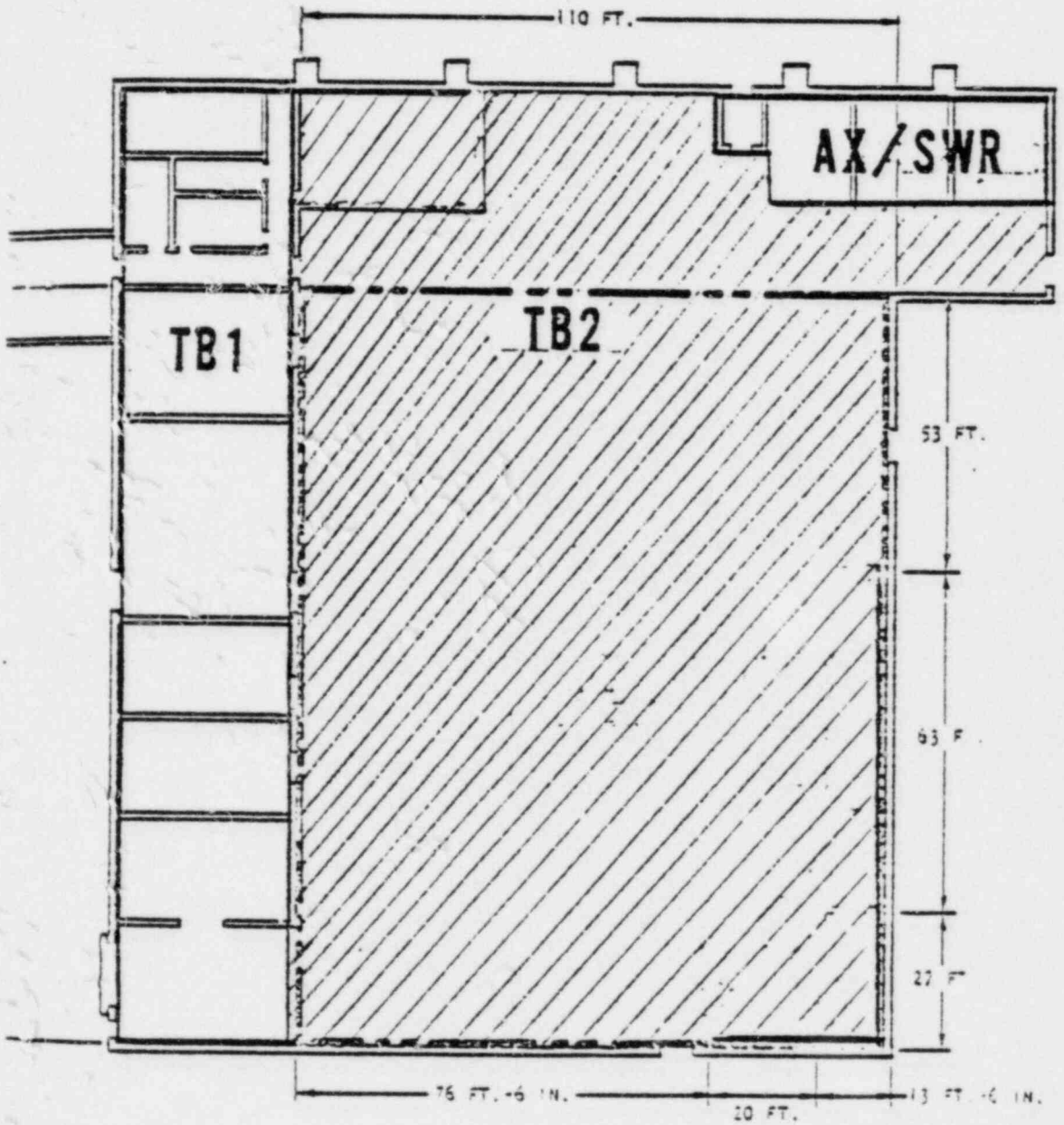


Fig. 5. Turbine Building Plan View Below Elevation 4829 Ft. Showing Region of Detailed Analysis

PARENT - COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
C-8201 C-8201S C-8203	DESCR.	MOTOR	
	MFR.	GENERAL ELECTRIC	
	MODEL	5K365AK2033	
	TEST RPT.	RECORD SECT. B49	
	NOTES	----------	----------
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES	----------	----------
P-2101 P-2101S P-2102 P-2102S P-2106 P-2107	DESCR.	MOTOR	
	MFR.	WESTINGHOUSE	
	MODEL	TBDP-7206	
	TEST RPT.	RECORD SECT. B49	
	NOTES	----------	----------
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES	----------	----------
P-2103 P-2103S	DESCR.	MOTOR	
	MFR.	WESTINGHOUSE	
	MODEL	TBDP-6902	
	TEST RPT.	RECORD SECT. B49	
	NOTES	----------	----------
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES	----------	----------

PARENT - COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
P-2108	DESCR.	MOTOR	
	MFR.	U.S. ELECTRIC	
	MODEL	H1706-03-171	
	TEST RPT.	RECORD SECT. B54	
	NOTES		
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
P-2109 P-2110	DESCR.	MOTOR	
	MFR.	WESTINGHOUSE	
	MODEL	TBDP-7801	
	TEST RPT.	RECORD SECT. A47	
	NOTES		
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
P-9101-SX	DESCR.	MOTOR	
	MFR.	RELIANCE	
	MODEL	P25G12A	
	TEST RPT.	RECORD SECT. B54	
	NOTES		
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		

PARENT - COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
P-9101-X	DESCR.	MOTOR	
	MFR.	U.S. ELECTRIC	
	MODEL	R8591-02-049	
	TEST RPT.	RECORD SECT. B54	
	NOTES		
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
P-9102-SX P-9102-X	DESCR.	MOTOR	
	MFR.	GENERAL ELECTRIC	
	MODEL	BE-1474499	
	TEST RPT.	RECORD SECT. B54	
	NOTES		
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
P-9105-X	DESCR.	MOTOR	
	MFR.	GENERAL ELECTRIC	
	MODEL	LD-1459657	
	TEST RPT.	RECORD SECT. B54	
	NOTES		
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		

PARENT-COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
P-9106-X	DESCR.	MOTOR	
	MFR.	GENERAL ELECTRIC	
	MODEL	D14J0147	
	TEST RPT.	RECORD SECT. B54	
	NOTES	----------	----------
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES	----------	----------
FV-2205 FV-2206	DESCR.	SERVO VALVE	
	MFR.	MOOG CONTROLS	
	MODEL	72-101	
	TEST RPT.	RECORD SECT. AB	
	NOTES	LISTED AS SUBT. 123	----------
	DESCR.	POSITIONER	
	MFR.	COLLINS	
	MODEL	SS-409	
	TEST RPT.	RECORD SECT. AL	
	NOTES	LISTED AS SUBT. 024	----------
	DESCR.	SOLENOID VALVE	
	MFR.	VICKERS	
	MODEL	DG5S4042AE21	
	TEST RPT.	RECORD SECT. AP	
	NOTES	LISTED AS SUBT. 391	----------
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES	----------	----------

PARENT - COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
FV-2239 FV-2240	DESCR.	TRANSDUCER	
	MFR.	MASONEILAN	
	MODEL	8006	
	TEST RPT.	RECORD SECT. AX	
	NOTES	LISTED AS SUBT. 116	
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
FV-21297 FV-21298 LV-2137 LV-2138 PV-21120 HV-21257 HV-21258 HV-21259 HV-21260	DESCR.	SOLENOID VALVE	
	MFR.	ASCO	
	MODEL	HB8302C25F	
	TEST RPT.	REPORT SECT. A46	
	NOTES	LISTED AS SUBT. 011	
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
HV-2265 HV-2266	DESCR.	SOLENOID VALVE	
	MFR.	ASCO	
	MODEL	LB8320A108	
	TEST RPT.	RECORD SECT. B52	
	NOTES	LISTED AS SUBT. 015	
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		

PARENT-COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
HV-2201 HV-2202	DESCR.	SOLENOID VALVE	← COIL
	MFR.	MANATROL	G.W. LISK CO. INC.
	MODEL	DIW-20-HVY-10	K12-90-66
	TEST RPT.	RECORD SECT. AC	
	NOTES	LISTED AS SUBT. 131	
	DESCR.	LIMIT SWITCH	LIMIT SWITCH
	MFR.	NAMCO	NAMCO
	MODEL	D2400X-2	D2400X-2SR
	TEST RPT.	RECORD SECT. BI	RECORD SECT BI
	NOTES	BY SIMILARITY-(ZS-2201 & ZS-2202)	BY SIMILARITY-(ZS-2201 & ZS-2202)
	DESCR.	LIMIT SWITCH	
	MFR.	NAMCO	
	MODEL	EA-170-31100	
	TEST RPT.	RECORD SECT. BI	
	NOTES	BY SIMILARITY-(ZS-2201 & ZS-2202)	
HV-2203	DESCR.	SOLENOID VALVE	← COIL
	MFR.	MANATROL	DECCO
	MODEL	DIW-20-HVY-10	11-111
	TEST RPT.	RECORD SECT. AC	
	NOTES	LISTED AS SUBT. 131	
	DESCR.	LIMIT SWITCH	LIMIT SWITCH
	MFR.	NAMCO	NAMCO
	MODEL	D2400X-2	D2400X-2SR
	TEST RPT.	RECORD SECT. BI	RECORD SECT. BI
	NOTES	BY SIMILARITY-(ZS-2203)	BY SIMILARITY-(ZS-2203)
	DESCR.	LIMIT SWITCH	
	MFR.	NAMCO	
	MODEL	EA-170-31100	
	TEST RPT.	RECORD SECT. BI	
	NOTES	BY SIMILARITY-(ZS-2203)	

PARENT-COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
HV-2109-1 HV-2109-2 HV-2110-1 HV-2110-2 HV-2115-1	DESCR.	SOLENOID VALVE	
	MFR.	ASCO	
	MODEL	HB8302C25F	
	TEST RPT.	RECORD SECT. A46	
	NOTES	LISTED AS SUBT. 011	
HV-2115-2 HV-2116-1 HV-2116-2 HV-22133 HV-22134	DESCR.	SOLENOID VALVE	
	MFR.	ASCO	
	MODEL	HB8302C25G	
	TEST RPT.	RECORD SECT. A46	
	NOTES	LISTED AS SUBT. 016	
	DESCR.	LIMIT SWITCH	
	MFR.	MICROSWITCH	
	MODEL	BZE6-2RN	
	TEST RPT.	RECORD SECT. J	
	NOTES		
HV-2193 HV-2194 HV-21213 HV-21214 HV-2366-1 HV-2366-2	DESCR.	SOLENOID VALVE	
	MFR.	ASCO	
	MODEL	HB8302C25F	
	TEST RPT.	RECORD SECT. A46	
	NOTES	LISTED AS SUBT. 011	
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		

PARENT-COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
HV-2204 HV-2242	DESCR.	SOLENOID VALVE	← COIL
	MFR.	MANATROL	G.W. LISK CO. INC.
	MODEL	DIW-20-HVY-31	K12-90-66
	TEST RPT.	RECORD SECT. AC (*)	
	NOTES	SIMILAR TO SUBT. 131 (*) BY SIMILARITY	----------
	DESCR.	LIMIT SWITCH	LIMIT SWITCH
	MFR.	NAMCO	NAMCO
	MODEL	D2400X-2	D2400X-2SR
	TEST RPT.	RECORD SECT. BI	RECORD SECT. BI
	NOTES	----------	----------
	DESCR.	LIMIT SWITCH	
	MFR.	NAMCO	
	MODEL	EA-170-31100	
	TEST RPT.	RECORD SECT. BI	
	NOTES	----------	----------
HV-2223 HV-2224 HV-2254	DESCR.	SOLENOID VALVE	← COIL
	MFR.	MANATROL	DECCO
	MODEL	DIW-20-HVY-10	11-111
	TEST RPT.	RECORD SECT. AC	
	NOTES	LISTED AS SUBT. 131	----------
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES	----------	----------
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES	----------	----------

PARENT - COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
HV-2249	DESCR.	SOLENOID VALVE	← COIL
	MFR.	MANATROL	G. W. LISK CO. INC.
	MODEL	DIW-20-HVY-10	K12-90-66
	TEST RPT.	RECORD SECT. AC	
	NOTES	LISTED AS SUBT. 131	
	DESCR.	LIMIT SWITCH	
	MFR.	NAMCO	
	MODEL	D2400X-2	
	TEST RPT.	RECORD SECT. BI	
	NOTES	BY SIMILARITY-(ZS-2249)	
	DESCR.	LIMIT SWITCH	
	MFR.	NAMCO	
	MODEL	EA-170-32100	
	TEST RPT.	RECORD SECT BI	
	NOTES	BY SIMILARITY-(ZS-2249)	
HV-2250 HV-2251 HV-2252	DESCR.	SOLENOID VALVE	← COIL
	MFR.	MANATROL	DECCO
	MODEL	DIW-20-HVY-10	11-111
	TEST RPT.	RECORD SECT. AC	
	NOTES	LISTED AS SUBT. 131	
	DESCR.	LIMIT SWITCH	LIMIT SWITCH
	MFR.	NAMCO	NAMCO
	MODEL	D2400X-2	D2400X-2SR
	TEST RPT.	RECORD SECT. BI	RECORD SECT. BI
	NOTES	BY SIMILARITY-(ZS-2250, ZS-2251 & ZS-2252)	BY SIMILARITY-(ZS 2250, ZS-2251 & ZS-2252)
	DESCR.	LIMIT SWITCH	
	MFR.	NAMCO	
	MODEL	EA-170-32100	
	TEST RPT.	RECORD SECT. BI	
	NOTES	BY SIMILARITY-(ZS-2250, ZS-2251 & ZS-2252)	

PARENT-COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
HV-2253	DESCR.	SOLENOID VALVE	← COIL
	MFR.	MANATROL	DECCO
	MODEL	DIW-20-HVY-10	11-111
	TEST RPT.	RECORD SECT. AC	
	NOTES	LISTED AS SUBT. 131	
	DESCR.	SOLENOID VALVE	← COIL
	MFR.	MANATROL	G.W. LISK CO. INC.
	MODEL	DIW-20-HVY-31	K12-90-66
	TEST RPT.	RECORD SECT. AC (*)	
	NOTES	SIMILAR TO SUBT. 131 (*) BY SIMILARITY	
	DESCR.	LIMIT SWITCH	
	MFR.	NAMCO	
	MODEL	D2400X-SR	
	TEST RPT.	RECORD SECT. BI	
	NOTES	BY SIMILARITY-(ZS-2253)	
	DESCR.	LIMIT SWITCH	
	MFR.	NAMCO	
	MODEL	D2400X-2SR	
	TEST RPT.	RECORD SECT. BI	
	NOTES	BY SIMILARITY-(ZS-2253)	
HV-2237 HV-2238	DESCR.	ELECT. ACTUATOR	
	MFR.	LIMITORQUE	
	MODEL	TYPE SMB-SIZE 4T	
	TEST RPT.	RECORD SECT. B53(*)	
	NOTES	LISTED AS SUBT. 512 (*) BY SIMILARITY	
HV-4225 HV-4257	DESCR.	ELECT. ACTUATOR	
	MFR.	LIMITORQUE	
	MODEL	TYPE SMB-SIZE 000	
	TEST RPT.	RECORD SECT. B53	
	NOTES	LISTED AS SUBT. 512	

PARENT - COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
HV-2292 HV-2293	DESCR.	SOLENOID VALVE	← COIL
	MFR.	MANATROL	G.W. LISK CO. INC.
	MODEL	DIW-20-HVY-10	K12-90-66
	TEST RPT.	RECORD SECT. AC	
	NOTES	LISTED AS SUBT. 131	
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
HV-2290 HV-2291	DESCR.	ELECT. ACTUATOR	
	MFR.	ROTORK	
	MODEL	70A	
	TEST RPT.	RECORD SECT. B75(*)	
	NOTES	LISTED AS SUBT. 287 (*) SIMILARITY TO A39	
HV-22131 HV-22132	DESCR.	ELECT. ACTUATOR	
	MFR.	ROTORK	
	MODEL	30A	
	TEST RPT.	RECORD SECT. A39	
	NOTES	LISTED AS SUBT. 320	
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		

PARENT - COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
HV-21185 HV-21186 HV-21187 HV-21188	DESCR.	POSITIONER	
	MFR.	MASONEILAN	
	MODEL	8012	
	TEST RPT.	RECORD SECT. A32	
	NOTES		
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
HV-22200 HV-22201 HV-22202 HV-22203 HV-22204	DESCR.	SOLENOID VALVE	
	MFR.	ASCO	
	MODEL	HB8302C25U	
	TEST RPT.	RECORD SECT. B52	
	NOTES	LISTED AS SUBT. 018	
HV-22205 HV-22206 HV-22207 HV-22208 HV-22209 HV-22210	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
HV-22211 HV-22212 HV-22213	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		

PARENT-COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
HV-21415-1 HV-21416-1	DESCR.	SOLENOID VALVE	
	MFR.	ASCO	
	MODEL	HB8316B16	
	TEST RPT.	RECORD SECTION B52	
	NOTES	LISTED AS SUBT. 400	
	DESCR.	SOLENOID VALVE	
	MFR.	ASCO	
	MODEL	HB8302C29F	
	TEST RPT.	RECORD SECT. B52	
	NOTES	LISTED AS SUBT. 013	
	DESCR.	LIMIT SWITCH	
	MFR.	MICROSWITCH	
	MODEL	BZE6-2RN	
	TEST RPT.	RECORD SECT. J	
	NOTES	(ZS-21415-1 & ZS-21416-1)	
HV-21415-2 HV-21416-2	DESCR.	SOLENOID VALVE	← COIL
	MFR.	BARKSDALE	BARKSDALE
	MODEL	12453	2003
	TEST RPT.	RECORD SECT. AF	←(AF)
	NOTES	LISTED AS SUBT. 023	PART OF 12453 UNIT TESTED
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		

PARENT - COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
HV-22221	DESCR.	SOLENOID VALVE	
	MFR.	ASCO	
	MODEL	8300C9U	
	TEST RPT.	RECORD SECT. B52	
	NOTES	LISTED AS SUBT. 205	
	DESCR.	SOLENOID VALVE	
	MFR.	ASCO	
	MODEL	8300-81U	
	TEST RPT.	RECORD SECT. B52	
	NOTES	LISTED AS SUBT. 466	
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
HV-22222 HV-22223 HV-22224 HV-22225 HV-22226 HV-22227 HV-22228	DESCR.	SOLENOID VALVE	
	MFR.	ASCO	
	MODEL	8300C9U	
	TEST RPT.	RECORD SECT. B52	
	NOTES	LISTED AS SUBT. 205	
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		

PARENT - COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
LV-21130	DESCR.	SOLENOID VALVE	
	MFR.	ASCO	
	MODEL	HB8302C29F	
	TEST RPT.	RECORD SECT. BS2	
	NOTES	LISTED AS SUBT. 013	
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
PV-2229 PV-2230	DESCR.	POSITIONER	
	MFR.	COLLINS	
	MODEL	SS-409	
	TEST RPT.	RECORD SECT. AL	
	NOTES	LISTED AS SUBT. 024	
	DESCR.	SERVO VALVE	
	MFR.	MOOG CONTROLS	
	MODEL	72-101	
	TEST RPT.	RECORD SECT. AB	
	NOTES	LISTED AS SUBT. 123	
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		

PARENT - COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
PV-2243 PV-2244	DESCR.	POSITIONER	
	MFR.	COLLINS	
	MODEL	SS-410	
	TEST RPT.	SIMILAR TO SECT. AL	
	NOTES	SIMILAR TO SS-409 LISTED AS SUBT. 024	
	DESCR.	SERVO VALVE	
	MFR.	MOOG CONTROLS	
	MODEL	72-101	
	TEST RPT.	RECORD SECT. AB	
	NOTES	LISTED AS SUBT. 123	
PV-22129 PV-22130	DESCR.	POSITIONER	
	MFR.	COLLINS	
	MODEL	SS-410	
	TEST RPT.	SIMILAR TO SECT. AL	
	NOTES	SIMILAR TO SS-409 LISTED AS SUBT. 024	
	DESCR.	TRANSDUCER	
	MFR.	MASONEILAN	
	MODEL	8005	
	TEST RPT.	RECORD SECT. B62	
	NOTES	LISTED AS SUBT. 101	
PV-22153 PV-22154	DESCR.	POSITIONER	
	MFR.	COLLINS	
	MODEL	SS-409	
	TEST RPT.	RECORD SECT. AL	
	NOTES	LISTED AS SUBT. 024	
	DESCR.	TRANSDUCER	
	MFR.	MASONEILAN	
	MODEL	8005	
	TEST RPT.	RECORD SECT. B62	
	NOTES	LISTED AS SUBT. 101	

PARENT - COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
SV-2105 SV-2112	DESCR.	POSITIONER	
	MFR.	COLLINS	
	MODEL	SS-410	
	TEST RPT.	SIMILAR TO SECT. AL	
	NOTES	SIMILAR TO SS-409 LISTED AS SUBT. 024	
	DESCR.	SERVO VALVE	
	MFR.	MOOG CONTROLS	
	MODEL	72-103	
	TEST RPT.	SIMILAR TO SECT AB	
	NOTES	SIMILAR TO 72-101 LISTED AS SUBT. 123	
	DESCR.	SOLENOID VALVE	
	MFR.	VICKERS	
	MODEL	DG5S4042AT21	
	TEST RPT.	RECORD SECT. AP (*)	
	NOTES	SIMILAR TO SUBT. 390 (*) BY SIMILARITY	
	DESCR.	SOLENOID VALVE	
	MFR.	VICKERS	
	MODEL	DG5S4042AWB40	
	TEST RPT.	RECORD SECT. AP (*)	
	NOTES	SIMILAR TO SUBT. 390 (*) BY SIMILARITY	
	DESCR.	LIMIT SWITCH	
	MFR.	MICROSWITCH	
	MODEL	EXD-AR-	
	TEST RPT.	RECORD SECT. BI	
	NOTES	(ZS-2105 & ZS-2112)	
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		

PARENT - COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
SV-2106 SV-2111	DESCR.	POSITIONER	
	MFR.	COLLINS	
	MODEL	SS-410	
	TEST RPT.	SIMILAR TO SECT. AL	
	NOTES	SIMILAR TO SS-409 LISTED AS SUBT. 024	
	DESCR.	SERVO VALVE	
	MFR.	MOOG CONTROLS	
	MODEL	72-103	
	TEST RPT.	SIMILAR TO SECT AB	
	NOTES	SIMILAR TO 72-101 LISTED AS SUBT. 123	
	DESCR.	SOLENOID VALVE	
	MFR.	VICKERS	
	MODEL	DG5S4042AT21	
	TEST RPT.	RECORD SECT. AP (*)	
	NOTES	SIMILAR TO SUBT. 390 (*) BY SIMILARITY	
	DESCR.	SOLENOID VALVE	
	MFR.	VICKERS	
	MODEL	MOD 042A-31	
	TEST RPT.	RECORD SECT. AP (*)	
	NOTES	SIMILAR TO SUBT. 390 (*) BY SIMILARITY	
	DESCR.	LIMIT SWITCH	
	MFR.	MICROSWITCH	
	MODEL	EXD-AR-	
	TEST RPT.	RECORD SECT. BI	
	NOTES	(ZS-2106 & ZS-2111)	
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		

PARENT-COMPONENT TAG NO'S.	ASSOCIATED ELECTRICAL EQUIPMENT (SUBTIER ITEMS)		
SV-2109 SV-2110 SV-2115 SV-2116	DESCR.	ELECT. ACTUATOR	
	MFR.	ITT GEN. CONTROLS	
	MODEL	AH91HG102A217	
	TEST RPT.	RECORD SECT. A9	
	NOTES	LISTED AS SUBT. 073	
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
HV-2241	DESCR.	SOLENOID VALVE	← COIL
	MFR.	MANATROL	G.W. LISK CO. INC.
	MODEL	DIW-20-HVY-21	K12-90-66
	TEST RPT.	RECORD SECT. AC (*)	
	NOTES	SIMILAR TO SUBT. 131 (*) BY SIMILARITY	
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		
	DESCR.		
	MFR.		
	MODEL		
	TEST RPT.		
	NOTES		

APPENDIX D

DETAILED AND SUPPLEMENTARY INFORMATION PERTAINING TO A PERMANENT LOSS OF FORCED CIRCULATION (LOFC) FOR THE FORT ST. VRAIN HTGR

D.1 DETAILED DESCRIPTION OF DESIGN BASIS ACCIDENT NO. 1

D.1.1 Background and Summary

A hypothetical permanent loss of forced circulation of primary coolant helium would require the extended failure of all four helium circulators, their steam and water drives or their multiple sources of motive power, or failure of both the main steam and reheat steam sections of both steam generators. This condition is the hypothetical extension of the 30 min temporary loss-of-normal shutdown cooling accidents described in Section 14.1 and is not considered credible. The LOFC accident consequences reported in this Appendix are identified as "design basis" information and was requested by the AEC-DRL during the construction permit application period.

D.1.1.1 Accident Conditions

Subcriticality. At the time of this hypothetical loss of forced circulation, the reactor would have scrammed, most probably on "two-loop trouble" as defined in Table 7.1-3. Loss of forced circulation in one loop causes isolation of that loop while subsequent loss of circulation in the second loop constitutes two-loop trouble signal due to either loss of circulator power, reheat steam temperature or pressure increases, high core exit gas temperatures or loss of feedwater function. Manual scram would result if automatic scram signals did not function. The reserve shutdown system would be operated after a few hours to assure an adequate shutdown margin at all times during the accident. Thus, the reactor will remain subcritical during the accident.

Depressurization. When it becomes apparent to the plant operator that the loss of forced circulation is permanent, e.g. before about 5 *hr when resumption of cooling would cause steam generator damage (see Appendix D.2, Section D.2.5), the primary coolant system would be depressurized to storage in the normal manner through the helium purification system as described in Section 9.4.3.3. This depressurization to atmospheric presssure requires several hours and would be nearly completed before primary coolant gas temperature or fission product activity increase to levels affecting normal helium purification system performance.

*Amended to be 2 hours by PSC letter P-77250 dated December 22, 1977.

Should one of the two helium purification trains fail during depressurization, or if one train is being regenerated (one day each year) at the time of the accident, then depressurization can either proceed more slowly while continuing purge helium to the PCRV penetrations, or at the normal rate without supplying purge helium. Should the helium transfer compressor fail, or lose power during depressurization, then the purified helium can be vented directly to the ventilation system exhaust filters as described in Section 9.5.4**.

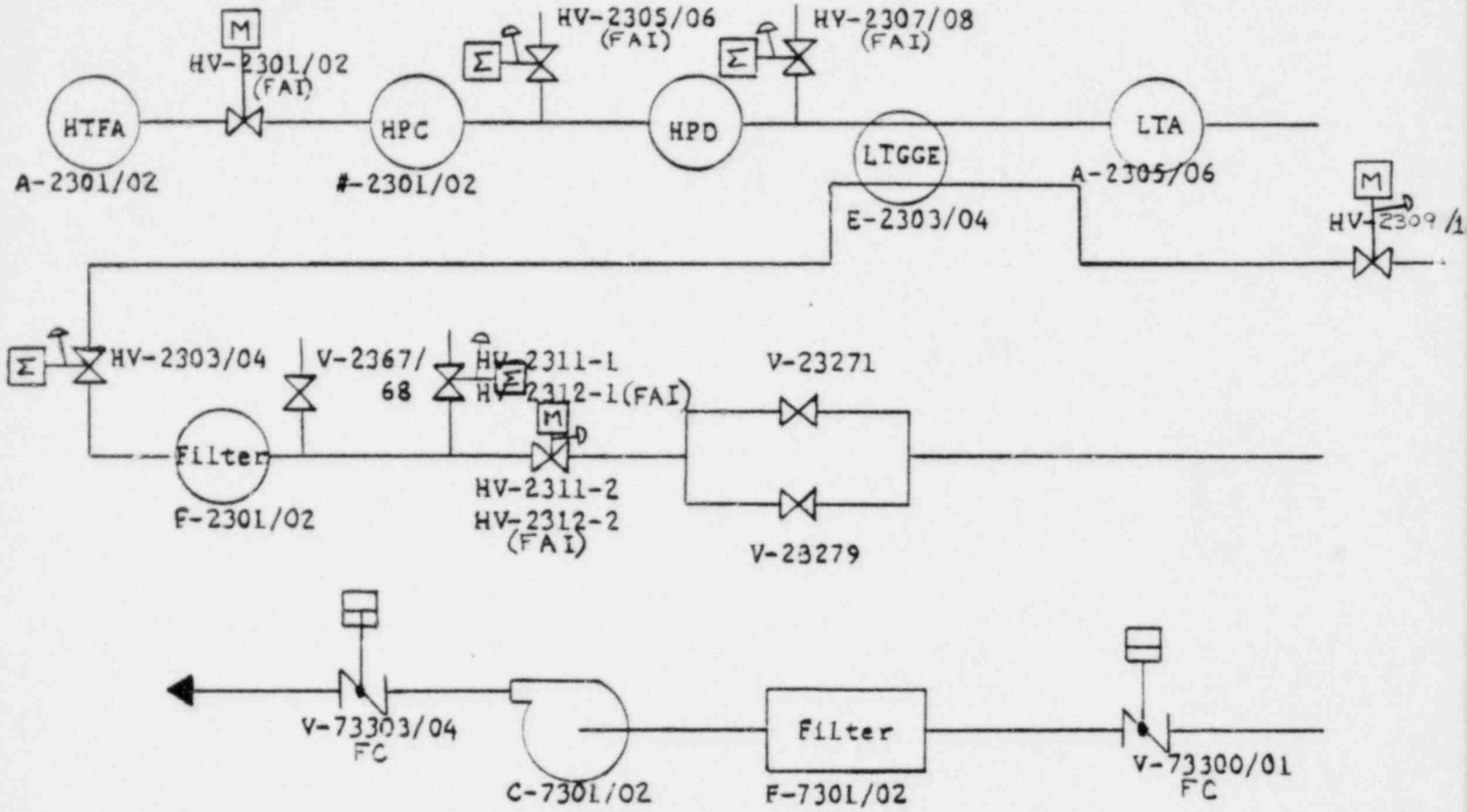
Purification Systems. Following depressurization, the helium purification system would be shut down. The purified helium purge gas normally supplied by this system to the PCRV top head penetrations and penetration interspaces would not be supplied during the accident since PCRV penetration leakage during the accident with the maximum primary coolant system pressure remaining close to atmospheric pressure is extremely low (see Section D.1.3.4.2). Thus, no helium buffer gas would be supplied to the PCRV penetration interspaces during the accident. After PCRV depressurization is completed, cooling water flow to the helium and charcoal cooling systems in each helium purification system high temperature filter-adsorber unit is initiated as described in Section 9.4.3.3. This measure would permit further PCRV depressurization in the unlikely event that it should be required.

PCRV Liner Cooling. The PCRV cooling water system would continue in operation and be closely monitored since its operation is vital to the PCRV integrity during the accident. This system which is described in Section 9.7, is a Class I system and is connected to the essential electrical bus. Two separate identical closed loops supply cooling water to three separate zones of the PCRV: the top head penetrations; the core support floor, PCRV liner on the side wall, and top head; and the PCRV bottom head and bottom penetrations. Either one of the two PCRV cooling water loops is adequate to maintain safe PCRV liner and concrete temperatures during the accident, and the consequences of the accident reported here are based on the premise that the system operates at 50T capacity during the accident with a revised distribution of water flow and at an increased cover pressure as described below. Thus, half capacity liner cooling (one of two identical loops operating) is assumed as the conservative limiting case.

The accident calculations show that even with this reduced performance adequate PCRV liner temperatures and cooling during the accident are maintained. Thus, the liner will retain its integrity and the PCRV envelope will remain intact and leaktight throughout the accident as demonstrated by the analysis (see also Section D.2.1).

Plant Ventilation. The reactor plant ventilation system would continue to operate normally during the accident in order to provide filtration and elevated release for any fission product activity escaping from the PCRV during the course of the accident. This system is described in Section 6.1.3.2 as an engineered safeguard and is connected to the essential electrical bus.

**This is the mode of depressurization utilized in the alternate cooling system. (See Figure 2).



PRIMARY COOLANT DEPRESSURIZATION FLOW PATH

FIGURE 2

Other Plant Equipment. No other reactor plant equipment is required to function during this accident, although continued operation of equipment, instruments and controls normally operating during reactor shutdown is assumed for purposes of monitoring plant conditions. This equipment has no effect on the course of consequences of the accident.

D.1.1.2 Operator Actions

The following operator actions have been determined to be either necessary or desirable to mitigate the consequences of this accident:

1. Post scram operations to assure subcriticality.

2. Actions required to reestablish helium circulation (attempts assumed to be unsuccessful for this hypothetical accident).

3. Primary coolant system depressurization.

4. Connection of the high temperature filter absorber units to the plant cooling water system.

5. Operation of the reserve shutdown system.

6. Adjustment of the PCRV cooling system water flow rates and cover pressure to increase cooling ability in areas affected. The cooling water flow to the bottom head, bottom head penetrations and PCRV side wall below the core support floor, will be reduced to approximately 10% of normal flow. Reduced flow to these areas of the PCRV will be adequate during the accident because heat transfer to these areas is negligible. The cooling water flow rate to the top head and PCRV side wall liner region above the bottom of the core support floor will be approximately doubled. The core support floor cooling water flow rate will not be changed because heat transfer to the floor during the accident is less than during normal operation. The changes in PCRV cooling water flow will be accomplished by remote-manual valves actuated from the control room.

7. Adjustment of the PCRV cooling water system pressure. The gas cover pressure of the cooling water system (normally at about 2 psig of H_2) will be increased to about 30 psig of He as described in Section 9.7.3.5.4 This is accomplished remotely in the control room by activating a separate overriding helium pressure control system for the cooling water supply tank. This 30 psig cover pressure plus the approximately 60 psi pump head will ensure that the saturation temperature of the cooling water will be above about 300°F at all high flux locations.

There is ample time for these operations to be carried out in a methodical and unhurried manner since none of the above items require rapid operator response. They will be completed before large fission product release from the core develops.

D.1.1.3 Accident Consequences

The effects of this accident involve both core damage and fission product release causing off-site doses. The core hot regions slowly heat up to about 5400°F maximum occurring after 83 hr. After maximum temperature attainment, approximately 95% of the fuel particles in the core will suffer failed coatings resulting in a release of about 28% of the core fission product inventory from the core and top reflector. Of this 28% of the inventory, less than 5% remains gas borne in the PCRV. This 5% is essentially all noble gas with a small amount of iodine. In addition, melting of the steel components of the control rod assembly and some local failure of PCRV liner insulation will occur, but no other damage to the core or PCRV internals is expected. The core will remain subcritical during all periods of the accident due to control rod and reserve shutdown system poisons.

The doses resulting from this accident are several orders of magnitude lower than the guidelines of 10 CFR 100. The total duration (6 month) doses at the low population zone boundary (16,000 meters) are listed below.

Whole body gamma	0.37 mrem
Thyroid	36. mrem
Bone	1. mrem

D.1.1.4 Conclusions

The analysis of the LOFC accident has led to the following principal conclusions:

1. The PCRV liner, penetrations and cooling systems will remain intact during the accident.

2. The core support structure will remain intact during the accident and the core configuration will not be affected.

3. The core will remain subcritical throughout the accident transient.

4. About 5% of the total (decaying) core iodine, 0.02% of the strontium and 99% of the noble gas fission product inventory will escape from the graphite core and reflector and remain gas borne within the PCRV during the accident.

5. Fission product release from the PCRV was conservatively assumed to be 0.2%/day into the reactor building during the accident assuming an arbitrary 5 psig leakage pressure differential. All of the leakage would be collected and filtered before release at high velocity from roof elevation. The resulting conservative atmospheric release of activity (after six months) is about 8.0×10^{5} curies of which 98.7% is Kr and Xe.

6. Using the above releases, the total duration doses at the low population zone (16,000 meters) would be orders of magnitude less than the guidance levels given in 10 CFR 100.

7. Using the TID-14844 arbitrary release values, the off-site doses at the low population zone would also be much less than the 10 CFR 100 guideline levels.

In general, no adverse thermal, structural or nuclear consequences of the LOFC have been found which would threaten either the reactor system integrity or the ability of the reactor plant to prevent uncontrolled fission product release to the atmosphere.

PSH- 11177 SUPP(23) PERCUID MOD(24) DAN-7023-153R11S SERV(55) CIRC 1A PENETR OVER PRESS ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(74)

PSH- 11178 SUPP(23) PERCUID MOD(24) DAN-7023-153R11S SERV(55) CIRC 1C PENETR OVER PRESS ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(74)

PSH- 11179 SUPP(23) PERCUID MOD(24) DAN-7023-153R11S SERV(55) CIRC 1A PENETR OVER PRESS ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(74)

PSH- 11180 SUPP(23) PERCUID MOD(24) DAN-7023-153R11S SERV(55) CIRC 1C PENETR OVER PRESS ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(74)

PSH- 11181 SUPP(23) PERCUID MOD(24) DAN-7023-153R11S SERV(55) CIRC 1A PENETR OVER PRESS ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(74)

PSH- 11182 SUPP(23) PERCUID MOD(24) DAN-7023-153R11S SERV(55) CIRC 1C PENETR OVER PRESS ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(74)

PSH- 11183 SUPP(23) MERCOID MOD(20) DAW-7023-1538118 SERV(55) CIRC IR PENETR OVER PRESS ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 820 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(78)

PSH- 11184 SUPP(23) MERCOID MOD(20) DAW-7023-1538118 SERV(55) CIRC IR PENETR OVER PRESS ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 820 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(78)

PSH- 11185 SUPP(23) MERCOID MOD(20) DAW-7023-1538118 SERV(55) CIRC IR PENETR OVER PRESS ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 820 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(78)

PSH- 11186 SUPP(23) MERCOID MOD(20) DAW-7023-1538118 SERV(55) CIRC IR PENETR OVER PRESS ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 820 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(78)

PSH- 11187 SUPP(23) MERCOID MOD(20) DAW-7023-1538118 SERV(55) CIRC IR PENETR OVER PRESS ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 820 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(78)

PSH- 11188 SUPP(23) MERCOID MOD(20) DAW-7023-1538118 SERV(55) CIRC IR PENETR OVER PRESS ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 820 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(78)

P- 2101 SUPP(23) GOULD PUMP MOD(24) VIC-CC-RJL0-11ST SERV(55) BEARING WATER PUMP 1 ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(81) A12005 AGING(74)

P- 2101-S SUPP(23) GOULD PUMP MOD(24) VIC-CC-RJL0-11ST SERV(55) BEARING WATER PUMP 1 ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(81) A12005 AGING(74)

P- 2102 SUPP(23) GOULD PUMP MOD(24) VIC-CC-RJL0-11ST SERV(55) BEARING WATER PUMP 1 ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(81) A12005 AGING(74)

P- 2102-S SUPP(23) GOULD PUMP MOD(24) VIC-CC-RJL0-11ST SERV(55) BEARING WATER PUMP 1 ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(81) A12005 AGING(74)

P- 2103 SUPP(23) GOULD PUMP MOD(24) 3405 SERV(55) TB WATER REMOVAL PUM ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(81) A12005 AGING(74)

P- 2103-S SUPP(23) GOULD PUMP MOD(24) 3405 SERV(55) TB WATER REMOVAL PUM ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-U-6F -REPORT(81) A12005 AGING(74)

SV- 2105 SUPP(23) ANDIN MOD(24) 207 SERV(55) CIRC 1A STM TURB CTL VAL ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(70)

ZS- 2105 SUPP(23) MICROSWITCH MOD(24) EXD-AR SERV(55) CIRC 1A STM TURB CTL VAL ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-653 -REPORT(41) S7519WYLE AGING(70)

P- 2106 SUPP(23) GOULD PUMP MOD(24) VIC-CC-RJL0-11ST SERV(55) BEARING WATER PUMP 1 ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(70)

SV- 2106 SUPP(23) ANDIN MOD(24) 207 SERV(55) CIRC 1C STM TURB CTL VAL ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(70)

ZS- 2106 SUPP(23) MICROSWITCH MOD(24) EXD-AR SERV(55) CIRC 1C STM TURB CTL VAL ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-653 -REPORT(41) S7519WYLE AGING(70)

P- 2107 SUPP(23) GOULD PUMP MOD(24) VIC-CC-RJL0-11ST SERV(55) BEARING WATER PUMP 1 ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(70)

P- 2108 SUPP(23) MEYERS MOD(24) C-50-A SERV(55) STBY BRNG WTR MAKEUP ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) X-93-0-6F -REPORT(81) A12085 AGING(74)

P- 2109 SUPP(23) GOULD PUMP MOD(24) 3196BI SERV(55) EMERG WTR BOOSTER PU ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) 93-1-695 -REPORT(81) SR299-3 KYLE AGING(74)

SV- 2109 SUPP(23) MASONEILAN MOD(24) 71-20721 SERV(55) CIRC 1A WTR TURB CONTROL ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R30 -SPEC(72) NONE -REPORT(81) 5265-1 GARWOOD AGING(74)

HV- 2109-1 SUPP(23) VELAN MOD(24) P-33876-2/1 SERV(55) CIRC 1A WTR TURB SUPP ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-566 -REPORT(81) 5860-6800-2AE1L AGING(74)

HV- 2109-2 SUPP(23) VELAN MOD(24) P-33876-37 SERV(55) CIRC 1A WTR TURB DRAIN ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-566 -REPORT(81) 5860-6800-2AE1L AGING(74)

ZS- 2109-2 SUPP(23) NIEDUSNITCH MOD(24) DE26-2SV SERV(55) CIRC 1A WTR TURBINE ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-599 -REPORT(81) SR080-BKYLE AGING(74)

P- 2110 SUPP(23) GOULD PUMP MOD(29) 5196N1 SERV(55) EMERG WTR BOOSTER PU ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) 93-1-695 -REPORT(81) SR299-3 MYLE AGING(70)

SV- 2110 SUPP(23) MASONEILAN MOD(29) 71-20721 SERV(55) CIRC IC WTR TURB CONTROL ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R30 -SPEC(72) NONE -REPORT(81) 5265-1 GARWOOD AGING(70)

HV- 2110-1 SUPP(23) VELAN MOD(29) P-33876-271 SERV(55) CIRC IC WTR TURB SUPPLY ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-566 -REPORT(81) 5860-6R00-2AETL AGING(70)

HV- 2110-2 SUPP(23) VELAN MOD(29) P-33876-37 SERV(55) CIRC IC WTR TURB DISCH ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-566 -REPORT(81) 5860-6R00-2AETL AGING(70)

ZS- 2110-2 SUPP(23) MICROSWITCH MOD(29) BE76-2RN SERV(55) CIRC IC WTR TURBINE ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-588 -REPORT(81) SR0R8-RMYLE AGING(70)

SV- 2111 SUPP(23) ANVIL MOD(29) 247 SERV(55) CIRC IR STM TURB CTL VA ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-0-6F -REPORT(81) A12095 AGING(70)

ZS- 2111 SUPP(23) MICROSWITCH MOD(24) EXD-AR SERV(55) CIRC 1B STM TURB CTL VAL ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-653 -REPORT(41) 57519WYLE AGING(74)

SV- 2112 SUPP(23) ALNIN MOD(24) 247 SERV(55) CIRC 1D STM TURB CTL VAL ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) X-93-0-6F -REPORT(41) A12885 AGING(74)

ZS- 2112 SUPP(23) MICROSWITCH MOD(24) EXD-AR SERV(55) CIRC 1D STM TURB CTL VAL ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-653 -REPORT(41) 57519WYLE AGING(74)

SV- 2115 SUPP(23) MASONEILAN MOD(24) 71-20721 SERV(55) CIRC 1B WTR TURB CONTROL ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R30 -SPEC(72) NONE -REPORT(41) 5265-1 GARWOOD AGING(74)

HV- 2115-1 SUPP(23) VELAN MOD(24) P-33876-2/1 SERV(55) CIRC 1B WTR TURB SUPPLY ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-566 -REPORT(41) 5460-6808-2AETL AGING(74)

HV- 2115-2 SUPP(23) VELAN MOD(24) P-33876-37 SERV(55) CIRC 1B WTR TURB DISCH ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-566 -REPORT(41) 5460-6808-2AETL AGING(74)

ZS- 2115-2 SUPP(23) MICROSWITCH MOD(24) HE76-2RR SERV(55) CIRC 1B WTR TURBINE ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-588 -REPORT(81) 5808-RKYLE AGING(74)

SV- 2116 SUPP(23) PASHNEILAN MOD(24) 71-20721 SERV(55) CIRC 1D WTR TURB CONTROL ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) K30 -SPEC(72) NONE -REPORT(81) 5265-1 GARWOOD AGING(74)

HV- 2116-1 SUPP(23) VELAN MOD(24) P-33876-271 SERV(55) CIRC 1D WTR TURB SUPPLY ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-566 -REPORT(81) 5860-6808-2AETL AGING(74)

HV- 2116-2 SUPP(23) VELAN MOD(24) P-33876-37 SERV(55) CIRC 1D WTR TURB DISCH ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-566 -REPORT(81) 5860-6808-2AETL AGING(74)

ZS- 2116-2 SUPP(23) MICROSWITCH MOD(24) HE76-2RR SERV(55) CIRC 1D WTR TURBINE ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-588 -REPORT(81) 5808-RKYLE AGING(74)

ESV- 2135 SUPP(23) ASCO MOD(24) 8302C25F SERV(55) HPG WTR SURGE TANK 1 ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) X-93-0-6F -REPORT(81) A12045 AGING(74)

HSV- 2135-1 SUPP(23) ASCO MOD(24) R300C90 SERV(55) BRG WTR SURGE TANK 1 ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

LSV- 2135-1 SUPP(23) ASCO MOD(24) R300R1U SERV(55) BEARING WTR SURGE TK ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

HSV- 2135-2 SUPP(23) ASCO MOD(24) R300C90 SERV(55) BRG WTR SURGE TANK 1 ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

LSV- 2136 SUPP(23) ASCO MOD(24) R302C25F SERV(55) BRG WTR SURGE TANK 1 ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

HSV- 2136-1 SUPP(23) ASCO MOD(24) R300C90 SERV(55) BRG WTR SURGE TANK 1 ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

LSV- 2136-1 SUPP(23) ASCO MOD(24) R300C61U SERV(55) BEARING WTR SURGE TK ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

HSV- 2136-2 SUPP(23) ASCO MOD(24) K300C9U SERV(55) BRG WTR SURGE TANK 1 ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(74)

LV- 2137 SUPP(23) VELAN MOD(24) P-33876-2/3R SERV(55) BRG WTR SURGE TK 1A OUT ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R25 -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(74)

ESI- 2137 SUPP(23) MAGNETROL MOD(24) B-751-SPX-M100 SERV(55) BRG WTR SURGE TANK 1A ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R50 -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(74)

LV- 2138 SUPP(23) VELAN MOD(24) P-33876-2/3 SERV(55) BRG WTR SURGE TK 1B OUT ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R25 -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(74)

ESI- 2138 SUPP(23) MAGNETROL MOD(24) B-751-SPX-M100 SERV(55) BRG WTR SURGE TANK 1B ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R50 -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(74)

PDIS- 2155 SUPP(23) BARTON MOD(24) 288 SERV(55) LOOP 1 BRG WTR FILTERS ACCY(73) 0.5% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(74)

PDIS- 2156 SUPP(23) RAPTON MOD(24) 288 SERV(55) LOOP 2 RRC WTR FILTERS ACCY(73) 0.5% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(81) A12005 AGING(74)

XEP- 2175 SUPP(23) MASONEILAN MOD(24) 8005 SERV(55) HE CIRC 1A MN DRN CNTL ACCY(73) +-1% RDG
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(81) A12005 AGING(74)

XEP- 2176 SUPP(23) MASONEILAN MOD(24) 8005 SERV(55) HE CIRC 1C MN DRN CNTL ACCY(73) +-1% RDG
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(81) A12005 AGING(74)

XEP- 2177 SUPP(23) MASONEILAN MOD(24) 8005 SERV(55) HE CIRC 1B MN DRN CNTL ACCY(73) +-1% RDG
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(81) A12005 AGING(74)

XEP- 2178 SUPP(23) MASONEILAN MOD(24) 8005 SERV(55) HE CIRC 1D MN DRN CNTL ACCY(73) +-1% RDG
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(81) A12005 AGING(74)

PIS- 2183 SUPP(23) RAPTON MOD(24) 288 SERV(55) CIRC 1A RRC WTR SUPPLY ACCY(73) 0.5% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(81) A12005 AGING(74)

FIS- 2184 SUPP(23) HARTON MOD(24) 288 SERV(55) CIRC IC RRG WTR SUPPLY ACCY(73) 0.5% F.S.

EQC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(78)

FIS- 2185 SUPP(23) HARTON MOD(24) 288 SERV(55) CIRC 1B RRG WTR SUPPLY ACCY(73) 0.5% F.S.

EQC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(78)

FIS- 2186 SUPP(23) HARTON MOD(24) 288 SERV(55) CIRC 1D RRG WTR SUPPLY ACCY(73) 0.5% F.S.

EQC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(78)

HV- 2193 SUPP(23) VELAN MOD(24) P-33876-8738 SERV(55) HOPE HE RECIRCULATOR IA ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-0-68 -REPORT(41) A12085 AGING(78)

HV- 2194 SUPP(23) VELAN MOD(24) P-33876-8738 SERV(55) HOPE HE RECIRCULATOR IC ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) 93-1-65? -REPORT(41) S7521RYEE AGING(78)

ESL- 21113 SUPP(23) MAGNETROL MOD(24) 1-751-SPX-P1A0 SERV(55) TURB MTR DRAIN TANK ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R30 -SPEC(72) X-93-0-68 -REPORT(41) A12085 AGING(78)

PV- 21120 SUPP(23) VELAN MOD(24) P-33B76-8 SERV(55) TURB WTR DRAIN TK VENT ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 820 -SPEC(72) X-93-U-6F -REPORT(81) A12005 AGING(74)

LT- 21121 SUPP(23) FOXBORO MOD(24) E13DM-KAM2-0-XJR SERV(55) HP SEPARATOR 1A ACCY(73) +-1/2%F.S.
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(81) A12005 AGING(74)

LT- 21122 SUPP(23) FOXBORO MOD(24) E13DM-KAM2-0-XJR SERV(55) HP SEPARATOR 1C ACCY(73) +-1/2%F.S.
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(81) A12005 AGING(74)

LT- 21123 SUPP(23) FOXBORO MOD(24) E13DM-KAM2-0-XJR SERV(55) HP SEPARATOR 1B ACCY(73) +-1/2%F.S.
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(81) A12005 AGING(74)

LT- 21124 SUPP(23) FOXBORO MOD(24) E13DM-KAM2-0-XJR SERV(55) HP SEPARATOR 1D ACCY(73) +-1/2%F.S.
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(81) A12005 AGING(74)

LT- 21129 SUPP(23) FOXBORO MOD(24) E13DM SERV(55) TURB WTR DRAIN TANK ACCY(73) +-1/2%F.S.
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(81) A12005 AGING(74)

LS- 21130 SUPP(23) MAGNETROL MOD(24) B-751-SPX-N14H SERV(55) TURB WTR DRAIN TANK ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R30 -SPEC(72) X-93-U-6F -REPORT(81) A12085 AGING(74)

LV- 21130 SUPP(23) VELAN MOD(24) B-33876-32/AIR SERV(55) TURB WTR DRAIN TANK ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(81) A12085 AGING(74)

LSH- 21132 SUPP(23) MAGNETROL MOD(24) B-751-SP-S1DS SERV(55) TURB WTR DRAIN TANK ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-623 -REPORT(81) 57513-7 WYLE AGING(74)

FIS- 21137 SUPP(23) BARTON MOD(24) 288 SERV(55) CIRC 1A EMERG RRG WTR ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(81) A12085 AGING(74)

FIS- 21138 SUPP(23) BARTON MOD(24) 288 SERV(55) CIRC 1C EMERG RRG WTR ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(81) A12085 AGING(74)

FIS- 21139 SUPP(23) BARTON MOD(24) 288 SERV(55) CIRC 1B EMERG RRG WTR ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(81) A12085 AGING(74)

PIS- 21100 SUPP(23) BARTON MOD(24) 288 SERV(55) CIRC ID EMERG BRG WTR ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(81) A12085 AGING(74)

PDIS- 21149 SUPP(23) BARTON MOD(24) 289 SERV(55) CIRC IA BRG WTR LEAK ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(81) A12085 AGING(74)

PDIS- 21150 SUPP(23) BARTON MOD(24) 289 SERV(55) CIRC IC BRG WTR LEAK ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(81) A12085 AGING(74)

PDIS- 21151 SUPP(23) BARTON MOD(24) 289 SERV(55) CIRC IA BRG WTR LEAK ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(81) A12085 AGING(74)

PDIS- 21152 SUPP(23) BARTON MOD(24) 289 SERV(55) CIRC IC BRG WTR LEAK ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(81) A12085 AGING(74)

PDIS- 21153 SUPP(23) BARTON MOD(24) 289 SERV(55) CIRC IA BRG WTR LEAK ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(81) A12085 AGING(74)

PDIS- 21154 SUPP(23) BARTON MOD(24) 289 SERV(55) CIRC 1C HRG WTR LEAK ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PDIS- 21155 SUPP(23) BARTON MOD(24) 289 SERV(55) CIRC 1B HRG WTR LEAK ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PDIS- 21156 SUPP(23) BARTON MOD(24) 289 SERV(55) CIRC 1D HRG WTR LEAK ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-572 -REPORT(41) 57507-A RYLE AGING(74)

PDIS- 21157 SUPP(23) BARTON MOD(24) 289 SERV(55) CIRC 1A HRG WTR LEAK ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PDIS- 21158 SUPP(23) BARTON MOD(24) 289 SERV(55) CIRC 1D HRG WTR LEAK ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-572 -REPORT(41) 57507-A RYLE AGING(74)

PDIS- 21159 SUPP(23) BARTON MOD(24) 289 SERV(55) CIRC 1B HRG WTR LEAK ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PDIS- 21160 SUPP(23) BARTON MOD(24) 289 SERV(55) CIRC ID BRG WTR LEAK ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-I-572 -REPORT(91) 57507-8 MYLE AGING(78)

PDIS- 21173 SUPP(23) BARTON MOD(24) 288 SERV(55) CIRC IA LOSS OF BRG WTR ACCY(73) +-1 1/8%FS
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(91) A12085 AGING(78)

PDIS- 21178 SUPP(23) BARTON MOD(24) 288 SERV(55) CIRC IC LOSS OF BRG WTR ACCY(73) +-1 1/8%FS
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(91) A12085 AGING(78)

PDIS- 21175 SUPP(23) BARTON MOD(24) 288 SERV(55) CIRC IA LOSS OF BRG WTR ACCY(73) +-1 1/8%FS
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(91) A12085 AGING(78)

PDIS- 21176 SUPP(23) BARTON MOD(24) 288 SERV(55) CIRC IC LOSS OF BRG WTR ACCY(73) +-1 1/8%FS
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(91) A12085 AGING(78)

PDIS- 21177 SUPP(23) BARTON MOD(24) 288 SERV(55) CIRC IA LOSS OF BRG WTR ACCY(73) +-1 1/8%FS
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(91) A12085 AGING(78)

PDIS- 21178 SUPP(23) BARTON MOD(28) 288 SERV(55) CIRC ID LOSS OF ARG WIR ACCY(73) +-1 1/8%FS
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(81) A12085 AGING(74)

PDIS- 21179 SUPP(23) BARTON MOD(28) 288 SERV(55) CIRC ID LOSS OF ARG WIR ACCY(73) +-1 1/8%FS
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(81) A12085 AGING(74)

PDIS- 21180 SUPP(23) BARTON MOD(28) 288 SERV(55) CIRC ID LOSS OF ARG WIR ACCY(73) +-1 1/8%FS
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-528 -REPORT(81) 57507-2 WYLE AGING(74)

PDIS- 21181 SUPP(23) BARTON MOD(28) 288 SERV(55) CIRC ID LOSS OF ARG WIR ACCY(73) +-1 1/8%FS
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(81) A12085 AGING(74)

PDIS- 21182 SUPP(23) BARTON MOD(28) 288 SERV(55) CIRC ID LOSS OF ARG WIR ACCY(73) +-1 1/8%FS
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-528 -REPORT(81) 57507-2 WYLE AGING(74)

PDIS- 21183 SUPP(23) BARTON MOD(28) 288 SERV(55) CIRC ID LOSS OF ARG WIR ACCY(73) +-1 1/8%FS
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(81) A12085 AGING(74)

P01S= 21180 SUPP(23) HARTUR MOD(24) 288 SERV(55) CIRC 1D LOSS OF BRG WTR ACCY(73) +-1 1/8%FS
LOC(35) RX2 TEST-DIST(10) R1P -SPEC(72) 93-1-528 -REPORT(41) 57507-2 HYLE AGING(74)

HV= 21185 SUPP(23) MASONEILAN MOD(24) 87-20721 SERV(55) CIRC 1A BRG WTR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R2D -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(74)

XEP= 21185 SUPP(23) MASONEILAN MOD(24) A012 SERV(55) CIRC 1A BRG WTR ACCY(73) +-1% RGE
LOC(35) RX2 TEST-DIST(10) R2D -SPEC(72) 93-1-527 -REPORT(41) 5860-7025-1RAEIL AGING(74)

HV= 21186 SUPP(23) MASONEILAN MOD(24) 87-20721 SERV(55) CIRC 1C BRG WTR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R2D -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(74)

XEP= 21186 SUPP(23) MASONEILAN MOD(24) A012 SERV(55) CIRC 1C BRG WTR ACCY(73) +-1% RGE
LOC(35) RX2 TEST-DIST(10) R2D -SPEC(72) 93-1-527 -REPORT(41) 5860-7025-1RAEIL AGING(74)

HV= 21187 SUPP(23) MASONEILAN MOD(24) 87-20721 SERV(55) CIRC 1B BRG WTR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R2D -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(74)

REP= 21187 SUPP(23) MASONEILAN MOD(24) 8012 SERV(55) CIRC ID HRG WTR ACCY(73) +-1% RGE
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) 93-1-527 -REPORT(81) 5860-7025-18AE1L AGING(74)

HV= 21188 SUPP(23) MASONEILAN MOD(24) 87-20721 SERV(55) CIRC ID HRG WTR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(81) A12085 AGING(74)

REP= 21188 SUPP(23) MASONEILAN MOD(24) 8012 SERV(55) CIRC ID HRG WTR ACCY(73) +-1% RGE
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) 93-1-527 -REPORT(81) 5860-7025-18AE1L AGING(74)

HV= 21213 SUPP(23) VELAN MOD(24) P-33876-9/02 SERV(55) BUFF HE RECIRC 1B ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(81) A12085 AGING(74)

HV= 21218 SUPP(23) VELAN MOD(24) P-33876-8/02 SERV(55) BUFF HE RECIRC 1D ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) 93-1-657 -REPORT(81) 57521WYLE AGING(74)

HV= 21257 SUPP(23) VELAN MOD(24) P-33876-9/10 SERV(55) EM CONDSATE TO WTR TUNNEL ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R25 -SPEC(72) X-93-U-6F -REPORT(81) A12085 AGING(74)

HV- 21258 SUPP(23) VELAN MOD(24) F-33876-9/10 SERV(55) EM CONDSATE TO WTR TURBIE ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R25 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(70)

HV- 21259 SUPP(23) VELAN MOD(24) F-33876-9/10 SERV(55) EM CONDSATE TO WTR TURBIR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R25 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(70)

HV- 21260 SUPP(23) VELAN MOD(24) F-33876-9/10 SERV(55) EM CONDSATE TO WTR TURBID ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R25 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(70)

PT- 21285 SUPP(23) FOXBORO MOD(24) E13DH SERV(55) LP1 ACCUM BRG WTR ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(70)

PDT- 21285-1 SUPP(23) FOXBORO MOD(24) E13DH SERV(55) CIRC A ACCUM BRG WTR ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-568 -REPORT(41) 57509-7 WYLE AGING(70)

XEP- 21285-1 SUPP(23) MASONEILAN MOD(24) 8005 SERV(55) CIRC A ACCUM BRG WTR ACCY(73) +-1% RGE
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-585 -REPORT(41) 57507-3 WYLE AGING(74)

PDI- 21285-2 SUPP(23) FOXBORO MOD(24) F13DM SERV(55) CIRC A ACCUM BRG WTR ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-568 -REPORT(41) 57508-7MYLE AGING(74)

XEP- 21285-2 SUPP(23) NASONEILAN MOD(24) 8005 SERV(55) CIRC A ACCUM BRG WTR ACCY(73) +-1% RGE
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-585 -REPORT(41) 57507-3 MYLE AGING(74)

PI- 21286 SUPP(23) FOXBORO MOD(24) F13DM SERV(55) LP 2 ACCUM BRG WTR ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) X-93-0-6F -REPORT(41) A12005 AGING(74)

PDI- 21286-1 SUPP(23) FOXBORO MOD(24) F13DM SERV(55) CIRC C ACCUM BRG WTR ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-568 -REPORT(41) 57508-7MYLE AGING(74)

XEP- 21286-1 SUPP(23) NASONEILAN MOD(24) 8005 SERV(55) CIRC C ACCUM BRG WTR ACCY(73) +-1% RGE
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) X-93-0-6F -REPORT(41) A12005 AGING(74)

PDI- 21286-2 SUPP(23) FOXBORO MOD(24) F13DM SERV(55) CIRC D ACCUM BRG WTR ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) T15 -SPEC(72) 93-1-582 -REPORT(41) 57507-1MYLE AGING(74)

REF= 21286-2 SUPP(23) MASONEILAN MOD(24) 4005 SERV(55) CIRC D ACCUM BRG WTR ACCY(73) +-1% RGE
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(91) A12085 AGING(74)

FV- 21297 SUPP(23) VELAN MOD(24) P-3307G-9/13P SERV(55) BRG WTR COOLER 1A/1B OUT ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(91) A12085 AGING(74)

FSL- 21297 SUPP(23) BARTON MOD(24) 288 SERV(55) BRG WTR COOLER 1A/1B OUT ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(91) A12085 AGING(74)

FV- 21298 SUPP(23) VELAN MOD(24) P-3307G-9/13W SERV(55) BRG WTR COOLER 1C/1D OUT ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(91) A12085 AGING(74)

FSL- 21298 SUPP(23) BARTON MOD(24) 288 SERV(55) BRG WTR COOLER 1C/1D OUT ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(91) A12085 AGING(74)

PDIS- 21319 SUPP(23) BARTON MOD(24) 288A SERV(55) CIRC 1A STM TURB TRIP ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(91) A12085 AGING(74)

PDIS- 21320 SUPP(23) BARTON MOD(24) 288A SERV(55) CIRC 1C STM TURB TRIP ACCY(73) +-1% F.S.

LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PDIS- 21321 SUPP(23) BARTON MOD(24) 288A SERV(55) CIRC 1A STM TURB TRIP ACCY(73) +-1% F.S.

LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PDIS- 21322 SUPP(23) BARTON MOD(24) 288A SERV(55) CIRC 1C STM TURB TRIP ACCY(73) +-1% F.S.

LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PDIS- 21323 SUPP(23) BARTON MOD(24) 288A SERV(55) CIRC 1A STM TURB TRIP ACCY(73) +-1% F.S.

LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PDIS- 21324 SUPP(23) BARTON MOD(24) 288A SERV(55) CIRC 1C STM TURB TRIP ACCY(73) +-1% F.S.

LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PDIS- 21325 SUPP(23) BARTON MOD(24) 288A SERV(55) CIRC 1B STM TURB TRIP ACCY(73) +-1% F.S.

LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PDIS- 21326 SUPP(23) BARTON MOD(29) 288A SERV(55) CIRC 1D STM TURB TRIP ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) 93-1-637 -REPORT(41) 5410-7130-637ALT AGING(74)

PDIS- 21327 SUPP(23) BARTON MOD(29) 288A SERV(55) CIRC 2B STM TURB TRIP ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(74)

PDIS- 21328 SUPP(23) BARTON MOD(29) 288A SERV(55) CIRC 1D STM TURB TRIP ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) 93-1-637 -REPORT(41) 5410-7130-637ALT AGING(74)

PDIS- 21329 SUPP(23) BARTON MOD(29) 288A SERV(55) CIRC 1B STM TURB TRIP ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(74)

PDIS- 21330 SUPP(23) BARTON MOD(29) 288A SERV(55) CIRC 1D STM TURB TRIP ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) 93-1-637 -REPORT(41) 5410-7130-637ALT AGING(74)

PDIS- 21395 SUPP(23) BARTON MOD(29) 288 SERV(55) MAKEUP MAKEUP PMP W1K PMP ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(74)

PDIS- 21395 SUPP(23) BARTON MOD(24) 288A SERV(55) DP ACROSS M21114 ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PDIS- 21396 SUPP(23) BARTON MOD(24) 288A SERV(55) DP ACROSS M21117 ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PDIS- 21397 SUPP(23) BARTON MOD(24) 288A SERV(55) DP ACROSS M21110 ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PDIS- 21398 SUPP(23) BARTON MOD(24) 288A SERV(55) DP ACROSS M21112 ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PDI- 21411 SUPP(23) FOXBORO MOD(24) E11GH SERV(55) CIRC A BRG WTR DIFF PRESS ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-568 -REPORT(41) 57504-7WYLE AGING(74)

PDI- 21412 SUPP(23) FOXBORO MOD(24) E11GH SERV(55) CIRC C BRG WTR DIFF PRESS ACCY(73) 1/2% F.S.
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) 93-1-568 -REPORT(41) 57504-7WYLE AGING(74)

PDI- 21413 SUPP(23) FOXBORO MOD(24) E11DM SERV(55) CIRC B BRG WTR DIFF PRESS ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-568 -REPORT(41) 57508-7MILE AGING(74)

PDI- 21414 SUPP(23) FOXBORO MOD(24) E11DM SERV(55) CIRC D BRG WTR DIFF PRESS ACCY(73) 1/2% F.S.
LOC(35) TB2 TEST-DIST(10) T15 -SPEC(72) 93-1-582 -REPORT(41) 57507-1MILE AGING(74)

HV- 21415-1 SUPP(23) MASONEILAN MOD(24) 4520 SERV(55) LP1 ACCUM GAS PRESS VA ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-571 -REPORT(41) 57504-1MILE AGING(74)

ZS- 21415-1 SUPP(23) MICROSWITCH MOD(24) HE26-2RN SERV(55) LP1 ACCUM GAS PRESS VA ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-548 -REPORT(41) 58084-8MILE AGING(74)

HV- 21415-2 SUPP(23) MASONEILAN MOD(24) 4620 SERV(55) LP1 ACCUM WTR PURGE BLK V ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-571 -REPORT(41) 57504-1MILE AGING(74)

HV- 21416-1 SUPP(23) MASONEILAN MOD(24) 4520 SERV(55) LP2 ACCUM GAS PRESS VA ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-571 -REPORT(41) 57504-1MILE AGING(74)

ZS- 21916-1 SUPP(23) MICROSWITCH MOD(24) FE76-2KN SERV(55) LP2 ACCUM GAS PRESS VA ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-544 -REPORT(41) S8084-RHYLE AGING(74)

ZV- 21916-2 SUPP(23) MASONEILAN MOD(24) 5620 SERV(55) LP2 ACCUM WTR PURGE BLK V ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-544 -REPORT(41) S7504-1RYLE AGING(74)

FI- 21925 SUPP(23) FOXBORO MOD(24) FI3DM SERV(55) HP SER FLOW 1A ACCY(73) +-0.5%F.S.
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) x-93-0-6F -REPORT(41) A12045 AGING(74)

FI- 21926 SUPP(23) FOXBORO MOD(24) FI3DM SERV(55) HP SER FLOW 1C ACCY(73) +-0.5%F.S.
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) x-93-0-6F -REPORT(41) A12045 AGING(74)

FI- 21927 SUPP(23) FOXBORO MOD(24) FI3DM SERV(55) HP SER FLOW 1B ACCY(73) +-0.5%F.S.
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) x-93-0-6F -REPORT(41) A12045 AGING(74)

FI- 21928 SUPP(23) FOXBORO MOD(24) FI3DM SERV(55) HP SER FLOW 1D ACCY(73) +-0.5%F.S.
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) x-93-0-6F -REPORT(41) A12045 AGING(74)

HV- 2201 SUPP(23) ROCKWELL MOD(24) 3914JMMY SERV(55) LOOP 1 FW. INLET ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) R20 -SPEC(72) x-93-U-6F -REPORT(41) A12045 AGING(74)

ZS- 2201 SUPP(23) NAMCO MOD(24) EA170-11100 SERV(55) LOOP 1 FW. INLET ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) 93-1-536 -REPORT(41) 58084-7 KYLE AGING(74)

HV- 2202 SUPP(23) ROCKWELL MOD(24) 3914JMMY SERV(55) LOOP 2 FW. INLET ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) R20 -SPEC(72) x-93-U-6F -REPORT(41) A12045 AGING(74)

ZS- 2202 SUPP(23) NAMCO MOD(24) EA170-11100 SERV(55) LOOP 2 FW. INLET ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) 93-1-536 -REPORT(41) 58084-7 KYLE AGING(74)

HV- 2203 SUPP(23) ROCKWELL MOD(24) 3916 JEMY SERV(55) LOOP 1 EMERG FW INLET ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) R20 -SPEC(72) x-93-U-6F -REPORT(41) A12045 AGING(74)

ZS- 2203 SUPP(23) NAMCO MOD(24) EA170-11100 SERV(55) LOOP 1 EMERG FW INLET ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) 93-1-536 -REPORT(41) 58084-7 KYLE AGING(74)

HV- 2208 SUPP(23) BUCK-SLE MOD(24) 3916 JPMY SERV(55) LOOP 2 EMERG FW INLET ACCY(73) N/A
LOC(35) 182 TEST-DIST(10) H20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PS- 2208 SUPP(23) BARED MOD(24) EA170-11100 SERV(55) LOOP 2 EMERG FW INLET ACCY(73) N/A
LOC(35) 182 TEST-DIST(10) I20 -SPEC(72) 93-1-536 -REPORT(41) 58080-7 KYLE AGING(74)

FT- 2205 SUPP(23) FOXBORO MOD(24) E13DH SERV(55) LOOP 1 FW FLOW CONTROL ACCY(73) +-0.5%
LOC(35) 182 TEST-DIST(10) I20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

FV- 2205 SUPP(23) MASONEILAN MOD(24) 57-20721 SERV(55) LOOP 1 FW FLOW CONTROL ACCY(73) N/A
LOC(35) 182 TEST-DIST(10) I20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

FT- 2206 SUPP(23) FOXBORO MOD(24) E13DH SERV(55) LOOP 2 FW FLOW CONTROL ACCY(73) +-0.5%
LOC(35) 182 TEST-DIST(10) I20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

FV- 2206 SUPP(23) MASONEILAN MOD(24) 57-20721 SERV(55) LOOP 2 FW FLOW CONTROL ACCY(73) N/A
LOC(35) 182 TEST-DIST(10) I20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

HV- 2208 SUPP(23) FOXBORO MOD(24) 5916 JPRT SERV(55) LOOP 2 EMERG FW INLET ACCY(73) N/A
LOC(35) 182 TEST-DIST(10) H20 -SPEC(72) X-93-U-0F -REPORT(41) A12045 AGING(74)

ZS- 2208 SUPP(23) NAMCO MOD(24) EA170-111B0 SERV(55) LOOP 2 EMERG FW INLET ACCY(73) N/A
LOC(35) 182 TEST-DIST(10) I20 -SPEC(72) 93-1-536 -REPORT(41) 58084-7 RYLE AGING(74)

FT- 2205 SUPP(23) FOXBORO MOD(24) E13DR SERV(55) LOOP 1 FW FLOW CONTROL ACCY(73) +-0.5%
LOC(35) 182 TEST-DIST(10) I20 -SPEC(72) X-93-U-0F -REPORT(41) A12045 AGING(74)

FV- 2205 SUPP(23) MASONEILAN MOD(24) 57-20721 SERV(55) LOOP 1 FW FLOW CONTROL ACCY(73) N/A
LOC(35) 182 TEST-DIST(10) I20 -SPEC(72) X-93-U-0F -REPORT(41) A12045 AGING(74)

FT- 2206 SUPP(23) FOXBORO MOD(24) E13DR SERV(55) LOOP 2 FW FLOW CONTROL ACCY(73) +-0.5%
LOC(35) 182 TEST-DIST(10) I20 -SPEC(72) X-93-U-0F -REPORT(41) A12045 AGING(74)

FV- 2206 SUPP(23) MASONEILAN MOD(24) 57-20721 SERV(55) LOOP 2 FW FLOW CONTROL ACCY(73) N/A
LOC(35) 182 TEST-DIST(10) I20 -SPEC(72) X-93-U-0F -REPORT(41) A12045 AGING(74)

BV- 2215 SUPP(23) ROCKWELL MOD(24) 3914 JMMY SERV(55) LOOP 1 SIM/WTR DUMP VALVE ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(41) A9 AGING(74)

ZS- 2215 SUPP(23) NAMCO MOD(24) EA17D-1111DD SERV(55) LOOP 1 SIM/WTR DUMP VALVE ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-653 -REPORT(41) 57519WYLE AGING(74)

BV- 2216 SUPP(23) ROCKWELL MOD(24) 3914 JMMY SERV(55) LOOP 2 SIM/WTR DUMP VALVE ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(41) A9 AGING(74)

ZS- 2216 SUPP(23) NAMCO MOD(24) EA17D-1111DD SERV(55) LOOP 2 SIM/WTR DUMP VALVE ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-653 -REPORT(41) 57519WYLE AGING(74)

BV- 2217 SUPP(23) ROCKWELL MOD(24) 3914 JMMY SERV(55) LOOP 1 SIM/WTR DUMP VALVE ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(41) A9 AGING(74)

ZS- 2217 SUPP(23) NAMCO MOD(24) EA17D-1111DD SERV(55) LOOP 1 SIM/WTR DUMP VALVE ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-653 -REPORT(41) 57519WYLE AGING(74)

HV- 2218 SUPP(23) ROCKWELL MOD(24) 3914 JIMMY SERV(55) LOOP 2 STM/WTR DUMP VALVE ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(41) A9 AGING(74)

ZS- 2218 SUPP(23) NAMCO MOD(24) EA170-111XX SERV(55) LOOP 2 STM/WTR DUMP VALVE ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-655 -REPORT(41) 57519WYLE AGING(74)

HV- 2223 SUPP(23) ROCKWELL MOD(24) 6402 (REV)JIMMY SERV(55) LOOP 1 SHT STM HDR ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(74)

HV- 2224 SUPP(23) ROCKWELL MOD(24) 6402 (REV)JIMMY SERV(55) LOOP 2 SHT STM HDR ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(74)

TE- 2225-1 SUPP(23) FOXBORO MOD(24) N/2075-E100RD SERV(55) STM GEN B-1-1 MAIN STM ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(41) A12 AGING(74)

TE- 2225-2 SUPP(23) FOXBORO MOD(24) N/2075-E100RD SERV(55) STM GEN B-1-2 MAIN STM ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(41) A12 AGING(74)

IE- 2225-3 SUPP(23) FOXBORO MOD(24) N/2075-E100MD SERV(55) STM GEM A-1-3 MAIN STM ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(41) A12 AGING(74)

IE- 2225-4 SUPP(23) FOXBORO MOD(24) N/2075-E100MD SERV(55) STM GEM A-1-4 MAIN STM ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(41) A12 AGING(74)

IE- 2225-5 SUPP(23) FOXBORO MOD(24) N/2075-E100MD SERV(55) STM GEM A-1-5 MAIN STM ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(41) A12 AGING(74)

IE- 2225-6 SUPP(23) FOXBORO MOD(24) N/2075-E100MD SERV(55) STM GEM A-1-6 MAIN STM ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(41) A12 AGING(74)

IE- 2226-1 SUPP(23) FOXBORO MOD(24) N/2075-E100MD SERV(55) STM GEM A-2-1 MAIN STM ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(41) A12 AGING(74)

IE- 2226-2 SUPP(23) FOXBORO MOD(24) N/2075-E100MD SERV(55) STM GEM A-2-2 MAIN STM ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(41) A12 AGING(74)

IE- 2226-3 SUPP(23) FOXBORO MOD(24) D/2075-E100MD SERV(55) STM GEN B-2-3 MAIN STM ACCY(73) 1/2% F.S.
LOC(35) RK2 TEST-DIST(10) -SPEC(72) NONE -REPORT(91) A12 AGING(74)

IE- 2226-4 SUPP(23) FOXBORO MOD(24) D/2075-E100MD SERV(55) STM GEN B-2-4 MAIN STM ACCY(73) 1/2% F.S.
LOC(35) RK2 TEST-DIST(10) -SPEC(72) NONE -REPORT(91) A12 AGING(74)

IE- 2226-5 SUPP(23) FOXBORO MOD(24) D/2075-E100MD SERV(55) STM GEN B-2-5 MAIN STM ACCY(73) 1/2% F.S.
LOC(35) RK2 TEST-DIST(10) -SPEC(72) NONE -REPORT(91) A12 AGING(74)

IE- 2226-6 SUPP(23) FOXBORO MOD(24) D/2075-E100MD SERV(55) STM GEN B-2-6 MAIN STM ACCY(73) 1/2% F.S.
LOC(35) RK2 TEST-DIST(10) -SPEC(72) NONE -REPORT(91) A12 AGING(74)

PV- 2229 SUPP(23) MASONEILAN MOD(24) 37-20721 SERV(55) LOOP 1 SHT STM DESUPERHT ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-0-6E -REPORT(91) A12005 AGING(74)

PV- 2230 SUPP(23) MASONEILAN MOD(24) 37-20721 SERV(55) LOOP 2 SHT STM DESUPERHT ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-0-6E -REPORT(91) A12005 AGING(74)

PSL- 2251 SUPP(23) MERCOID MOD(24) DA-97023-153R13S SERV(55) MAIN STEAM HEADER ACCY(73) N/A
LOC(35) IB2 TEST-DIST(10) I20 -SPEC(72) X-93-U-6F -REPORT(91) A12045 AGING(74)

PSL- 2253 SUPP(23) MERCOID MOD(24) DA-97023-153R13S SERV(55) MAIN STEAM HEADER ACCY(73) N/A
LOC(35) IB2 TEST-DIST(10) I20 -SPEC(72) X-93-U-6F -REPORT(91) A12045 AGING(74)

PSL- 2255 SUPP(23) MERCOID MOD(24) DA-97023-153R13S SERV(55) MAIN STEAM HEADER ACCY(73) N/A
LOC(35) IB2 TEST-DIST(10) I20 -SPEC(72) X-93-U-6F -REPORT(91) A12045 AGING(74)

HV- 2237 SUPP(23) ROCKWELL MOD(24) 5914 JMRY SERV(55) EM COND TO LOOP 1 SHT ACCY(73) N/A
LOC(35) IB2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(91) A12045 AGING(74)

HV- 2238 SUPP(23) ROCKWELL MOD(24) 5914 JMRY SERV(55) EM COND TO LOOP 2 SHT ACCY(73) N/A
LOC(35) IB2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(91) A12045 AGING(74)

FE- 2259 SUPP(23) FOXBORO MOD(24) E13GM SERV(55) EM COND TO LOOP 1 RHT ACCY(73) 1/2% F.S.
LOC(35) RB2 TEST-DIST(10) I20 -SPEC(72) X-93-U-6F -REPORT(91) A12045 AGING(74)

FV- 2239 SUPP(25) BASONEILAN MOD(24) 37-1013A-643 SERV(55) EM COND TO LOOP 1 RHI ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

XEP- 2239 SUPP(25) BASONEILAN MOD(24) X005 SERV(55) EM COND TO LOOP 1 RHIR ACCY(73) +-1% RGE
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

FI- 2240 SUPP(25) FOXBORO MOD(24) E13DH SERV(55) EM COND TO LOOP 2 RHI ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

FV- 2240 SUPP(25) BASONEILAN MOD(24) 37-1013A-643 SERV(55) EM COND TO LOOP 2 RHI ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

XEP- 2240 SUPP(25) BASONEILAN MOD(24) X005 SERV(55) EM COND TO LOOP 2 RHIR ACCY(73) +-1% RGE
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

HV- 2241 SUPP(25) ROCKWELL MOD(24) 9016 JOKY SERV(55) LOOP 1 RHI SIM BYPASS ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

BV- 2292 SUPP(23) ROCKWELL MOD(24) 4016 JMMY SERV(55) LOOP 2 RHT STM BYPASS ACCY(73) N/A
EQC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

BV- 2293 SUPP(23) NASHUEILAN MOD(24) 57-20721 SERV(55) LOOP 1 RHT STM BYPASS ACCY(73) N/A
EQC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

BV- 2294 SUPP(23) NASHUEILAN MOD(24) 57-20721 SERV(55) LOOP 2 RHT STM BYPASS ACCY(73) N/A
EQC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

BV- 2249 SUPP(23) ROCKWELL MOD(24) 1814 (W/CR)JMMY SERV(55) CIRC 1A STM TURB TRP VALV ACCY(73) N/A
EQC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

ZS- 2249 SUPP(23) NAPCO MOD(24) FA170-11100 SERV(55) CIRC 1A STM TM TRIP ACCY(73) N/A
EQC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-653 -REPORT(41) 57519WYLE AGING(74)

BV- 2250 SUPP(23) ROCKWELL MOD(24) 1814 (W/CR)JMMY SERV(55) CIRC 1C STM TURB TRP VALV ACCY(73) N/A
EQC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

ZS- 2250 SUPP(23) HANCH MOD(24) EA170-11100 SERV(55) CIRC 1C STM 1B TRIP ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-653 -REPORT(41) 57519WYLE AGING(74)

BV- 2251 SUPP(23) ROCKWELL MOD(24) 1814 (WCH)JIMMY SERV(55) CIRC 1B STM TURB TRP VALV ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

ZS- 2251 SUPP(23) HANCH MOD(24) EA170-11100 SERV(55) CIRC 1B STM 1B TRIP ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-653 -REPORT(41) 57519WYLE AGING(74)

BV- 2252 SUPP(23) ROCKWELL MOD(24) 1814 (WCH)JIMMY SERV(55) CIRC 1D STM TURB TRP VALV ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

ZS- 2252 SUPP(23) HANCH MOD(24) EA170-11100 SERV(55) CIRC 1D STM 1B TRIP ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-653 -REPORT(41) 57519WYLE AGING(74)

BV- 2253 SUPP(23) ROCKWELL MOD(24) 7502 (WCH)JIMMY SERV(55) LOOP 1 RRT STM BLOCK ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

HV- 2258 SUPP(25) ROCKWELL MOD(24) 7502 (*C9)JMNY SERV(55) LOOP 2 RHT STM BLOCK ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) H20 -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(74)

HV- 2265 SUPP(25) VELAN MOD(24) P-33876-11/21R SERV(55) 1A RHT STM ACT SAMPLE ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) 93-1-657 -REPORT(41) 57521WYLE AGING(74)

HV- 2266 SUPP(25) VELAN MOD(24) P-33876-11/21R SERV(55) 1B RHT STM ACT SAMPLE ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) 93-1-657 -REPORT(41) 57521WYLE AGING(74)

PT- 2267 SUPP(25) FOXBORO MOD(24) E11GM-SAE2 SERV(55) STM GEN 1A RHT STM MON ACCY(73) 1/2% F.S.
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) 93-1-568 -REPORT(41) 57504-7WYLE AGING(74)

XEP- 2267 SUPP(25) BASOMEILAN MOD(24) 8005 SERV(55) LOOP 1 RHT STM TO CO ACCY(73) +-1% RGE
LOC(35) TB2 TEST-DIST(10) T10 -SPEC(72) 93-1-585 -REPORT(41) 57507-5 WYLE AGING(74)

PT- 2268 SUPP(25) FOXBORO MOD(24) E11GM-SAE2 SERV(55) STM GEN 1B RHT STM MON ACCY(73) 1/2% F.S.
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) 93-1-568 -REPORT(41) 57504-7WYLE AGING(74)

REF- 2268 SUPP(23) HASKEL/LEAN MOD(24) R005 SERV(55) LOOP 2 RHT STM TO CU ACCY(73) +-1% RGE
LOC(35) T02 TEST-DIST(10) T10 -SPEC(72) 93-1-585 -REPORT(41) 57507-3 STYLE AGING(74)

PSE- 2269 SUPP(23) MERCOID MOD(24) DA-97023-153R13S SERV(55) RHT STM HDR ACCY(73) N/A
LOC(35) T02 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PSE- 2271 SUPP(23) MERCOID MOD(24) DA-97023-153R13S SERV(55) RHT STM HDR ACCY(73) N/A
LOC(35) T02 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PSE- 2273 SUPP(23) MERCOID MOD(24) DA-97023-153R13S SERV(55) RHT STM HDR ACCY(73) N/A
LOC(35) T02 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

HV- 2290 SUPP(23) VELAN MOD(24) P-53B76-10/13R SERV(55) EM COND TO LOOP 2 REHTR ACCY(73) N/A
LOC(35) EX2 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

ZS- 2290 SUPP(23) FOXBORO MOD(24) CODE1 9 SERV(55) EM COND TO LOOP 2 REHTR ACCY(73) N/A
LOC(35) EX2 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

BV- 2291 SUPP(25) VELAN MOD(24) P-33676-10/13R SERV(55) EM COND TO LOOP 1 REMTR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

ZS- 2291 SUPP(25) FOXBORO MOD(24) MODEL 9 SERV(55) EM COND TO LOOP 1 REMTR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

BV- 2292 SUPP(25) ROCKWELL MOD(24) 4414(MCA) JMMY SERV(55) STM GEN 1B SHT STM BYPASS ACCY(73) N/A
LOC(35) 1B2 TEST-DIST(10) M20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

BV- 2293 SUPP(25) ROCKWELL MOD(24) 4414(MCA) JMMY SERV(55) STM GEN 1A SHT STM BYPASS ACCY(73) N/A
LOC(35) 1B2 TEST-DIST(10) M20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

ZS- 22115 SUPP(25) MICROSWITCH MOD(24) GPD-AB SERV(55) STM/WTR DUMP VAL TEST ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) M10 -SPEC(72) 93-1-653 -REPORT(41) 57519WYLE AGING(74)

ZS- 22116 SUPP(25) MICROSWITCH MOD(24) GPD-AB SERV(55) STM/WTR DUMP VAL TEST ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) M10 -SPEC(72) 93-1-653 -REPORT(41) 57519WYLE AGING(74)

ZS- 22117 SUPP(23) MICROSWITCH MOD(24) CPD-AR SERV(55) STM/WTR DUMP VAL TEST ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-653 -REPORT(41) 57519WYLE AGING(74)

ZS- 22118 SUPP(23) MICROSWITCH MOD(24) CPD-AR SERV(55) STM/WTR DUMP VAL TEST ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) 93-1-653 -REPORT(41) 57519WYLE AGING(74)

PV- 22129 SUPP(23) MASONEILAN MOD(24) 37-20721 SERV(55) LOOP 1 MAIN STM ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(74)

XEP- 22129 SUPP(23) MASONEILAN MOD(24) 8005 SERV(55) LOOP 1 MAIN STEAM ACCY(73) +-1% RGE
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(74)

PT- 22129-1 SUPP(23) FOXBORO MOD(24) EJ5DH SERV(55) MAIN STM HDR LPI ACCY(73) 1/2% F.S.
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(74)

XEP- 22129-1 SUPP(23) MASONEILAN MOD(24) 8005 SERV(55) LOOP 1 MAIN STEAM ACCY(73) +-1% RGE
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12085 AGING(74)

PV- 22130 SUPP(23) MASONEILAN MOD(24) 37-20721 SERV(55) LOOP 2 MAIN STM ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

XEP- 22130 SUPP(23) MASONEILAN MOD(24) A005 SERV(55) LOOP 2 MAIN STEAM ACCY(73) +-1% RGE
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PI- 22130-1 SUPP(23) FOXBORO MOD(24) E13DM SERV(55) MAIN STM HDR EP2 ACCY(73) 1/2% F.S.
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

XEP- 22130-1 SUPP(23) MASONEILAN MOD(24) A005 SERV(55) LOOP 2 MAIN STEAM ACCY(73) +-1% RGE
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

HV- 22131 SUPP(23) VELAN MOD(24) F-$3876-1/15 SERV(55) LOOP 1 HOT STM TO CONDSER ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

HV- 22132 SUPP(23) VELAN MOD(24) F-$3876-1/15 SERV(55) LOOP 2 HOT STM TO CONDSER ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

HV- 22135 SUPP(25) VELAN MOD(24) F-33876-12/16 SERV(55) LOOP 1 FW TO STM ATTEMPT ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

HV- 22138 SUPP(25) VELAN MOD(24) F-33876-12/16 SERV(55) LOOP 2 FW TO STM ATTEMPT ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

TE- 22135 SUPP(25) FOXBORO MOD(24) N/2075-E100MD SERV(55) LOOP 1 REHEAT STEAM ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(41) A12 AGING(74)

TE- 22136 SUPP(25) FOXBORO MOD(24) N/2075-E100MD SERV(55) LOOP 2 REHEAT STEAM ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(41) A12 AGING(74)

TE- 22137 SUPP(25) FOXBORO MOD(24) N/2075-E100MD SERV(55) LOOP 1 REHEAT STEAM ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(41) A12 AGING(74)

TE- 22138 SUPP(25) FOXBORO MOD(24) N/2075-E100MD SERV(55) LOOP 2 REHEAT STEAM ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(41) A12 AGING(74)

IE- 22139 SUPP(23) FOXBORO MOD(24) M/2075-E100WD SERV(55) LOOP 1 REHEAT STEAM ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(91) A12 AGING(74)

IE- 22140 SUPP(23) FOXBORO MOD(24) M/2075-E100WD SERV(55) LOOP 2 RHT STM ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(91) A12 AGING(74)

IE- 22142 SUPP(23) FOXBORO MOD(24) M/2075-E100WD SERV(55) LOOP 2 RHT STM ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(91) A12 AGING(74)

IE- 22143 SUPP(23) FOXBORO MOD(24) M/2075-E100WD SERV(55) LOOP 1 REHEAT STEAM ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(91) A12 AGING(74)

IE- 22144 SUPP(23) FOXBORO MOD(24) M/2075-E100WD SERV(55) LOOP 2 RHT STM ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(91) A12 AGING(74)

IE- 22146 SUPP(23) FOXBORO MOD(24) M/2075-E100WD SERV(55) LOOP 2 RHT STM ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(91) A12 AGING(74)

PV- 22153 SUPP(23) MASONEILAN MOD(24) 37-20721 SERV(55) LOOP 1 SHTR DEPRESS ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

XEP- 22153 SUPP(23) MASONEILAN MOD(24) 0005 SERV(55) LOOP 1 SHTR DEPRESS ACCY(73) +-1% RGE
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

XEP- 22153-1 SUPP(23) MASONEILAN MOD(24) 0005 SERV(55) DEPRESS VALVE LP1 ACCY(73) +-1% RGE
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PV- 22154 SUPP(23) MASONEILAN MOD(24) 37-20721 SERV(55) LOOP 2 SHTR DEPRESS ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

XEP- 22154 SUPP(23) MASONEILAN MOD(24) 0005 SERV(55) LOOP 2 SHTR DEPRESS ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

XEP- 22154-1 SUPP(23) MASONEILAN MOD(24) 0005 SERV(55) DEPRESS VALVE LP2 ACCY(73) +-1% RGE
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PSH- 22197 SUPP(23) MERCOID MOD(24) DAW-7023-153R12S SERV(55) RMTR FLOOD OVERPRESS ACCY(73) N/A
LOC(35) 182 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PSH- 22198 SUPP(23) MERCOID MOD(24) DAW-7023-153R12S SERV(55) RMTR FLOOD OVERPRESS ACCY(73) N/A
LOC(35) 182 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

RV- 22200 SUPP(23) VELAN MOD(24) P-33876-11/14 SERV(55) LOOP 2 COLD RMT DR ACCY(73) N/A
LOC(35) RA2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

RV- 22201 SUPP(23) VELAN MOD(24) P-33876-11/14 SERV(55) LOOP 1 COLD RMT DR ACCY(73) N/A
LOC(35) RA2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

RV- 22202 SUPP(23) VELAN MOD(24) P-33876-11/14 SERV(55) LOOP 2 COLD RMT DR ACCY(73) N/A
LOC(35) RA2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

RV- 22203 SUPP(23) VELAN MOD(24) P-33876-11/14 SERV(55) LOOP 1 COLD RMT DR ACCY(73) N/A
LOC(35) RA2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

BV- 22208 SUPP(23) VELAN MOD(24) P-33876-11/14 SERV(55) L2 COLD RMT DR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(91) A12045 AGING(74)

BV- 22205 SUPP(23) VELAN MOD(24) P-33876-11/14 SERV(55) L1 COLD RMT DR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(91) A12045 AGING(74)

BV- 22206 SUPP(23) VELAN MOD(24) P-33876-11/14 SERV(55) L2 COLD RMT DR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(91) A12045 AGING(74)

BV- 22207 SUPP(23) VELAN MOD(24) P-33876-11/14 SERV(55) L1 COLD RMT DR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(91) A12045 AGING(74)

BV- 22208 SUPP(23) VELAN MOD(24) P-33876-11/14 SERV(55) L2 COLD RMT DR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(91) A12045 AGING(74)

BV- 22209 SUPP(23) VELAN MOD(24) P-33876-11/14 SERV(55) L1 COLD RMT DR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(91) A12045 AGING(74)

HV- 22210 SUPP(23) VELAN MOD(24) F-3387b-11/14 SERV(55) L2 COLD RHT DR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

HV- 22211 SUPP(23) VELAN MOD(24) F-3387b-11/14 SERV(55) L1 COLD RHT DR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

HV- 22212 SUPP(23) VELAN MOD(24) F-3387b-11/14 SERV(55) L2 CIRC BYPASS DR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

HV- 22213 SUPP(23) VELAN MOD(24) F-3387b-11/14 SERV(55) L1 CIRC BYPASS DR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

HV- 22221 SUPP(23) MASONEILAN MOD(24) u$621 SERV(55) SYS 22 ST TRAP ACCY(73) N/A
LOC(35) 182 TEST-DIST(10) T20 -SPEC(72) 93-1-571 -REPORT(41) 57504-1RYLE AGING(74)

HV- 22222 SUPP(23) MASONEILAN MOD(24) u$621 SERV(55) SYS 22 ST TRAP ACCY(73) N/A
LOC(35) 182 TEST-DIST(10) T20 -SPEC(72) 93-1-571 -REPORT(41) 57504-1RYLE AGING(74)

HV- 22223 SUPP(23) NASONEILAN MOD(24) 03621 SERV(55) ISOL LP1 ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) 93-1-571 -REPORT(41) 57508-1MYLE AGING(74)

HV- 22224 SUPP(23) NASONEILAN MOD(24) 03621 SERV(55) ISOL LP2 ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) 93-1-571 -REPORT(41) 57508-1MYLE AGING(74)

HV- 22225 SUPP(23) NASONEILAN MOD(24) 03621 SERV(55) ISOL LP1 ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) 93-1-571 -REPORT(41) 57508-1MYLE AGING(74)

HV- 22226 SUPP(23) NASONEILAN MOD(24) 03621 SERV(55) ISOL LP2 ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) 93-1-571 -REPORT(41) 57508-1MYLE AGING(74)

HV- 22227 SUPP(23) NASONEILAN MOD(24) 03621 SERV(55) ISOL LP1 ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) 93-1-571 -REPORT(41) 57508-1MYLE AGING(74)

HV- 22228 SUPP(23) NASONEILAN MOD(24) 03621 SERV(55) ISOL LP2 ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) 93-1-571 -REPORT(41) 57508-1MYLE AGING(74)

BV- 2566-1 SUPP(23) VELAN MOD(24) P-33876-4/20 SERV(55) BUFFER HE SUPPLY ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R9 -SPEC(72) 93-1-674 -REPORT(41) 57527WYLE AGING(74)

BV- 2566-2 SUPP(23) VELAN MOD(24) P-33876-13/23 SERV(55) BUFFER HE SUPPLY ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R9 -SPEC(72) 93-1-674 -REPORT(41) 57527WYLE AGING(74)

PSL- 3123 SUPP(23) MERCOID MOD(24) DSM-7223-153R15S SERV(55) FDWTR TO ECON ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) 93-1-645 -REPORT(41) 5410-7130-645BAE AGING(74)

PSL- 3124 SUPP(23) MERCOID MOD(24) DSM-7223-153R15S SERV(55) FDWTR TO ECON ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) 93-1-645 -REPORT(41) 5410-7130-645BAE AGING(74)

PSL- 3125 SUPP(23) MERCOID MOD(24) DSM-7223-153R15S SERV(55) FDWTR TO ECON ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) 93-1-645 -REPORT(41) 5410-7130-645BAE AGING(74)

BV- 4225 SUPP(23) FRAIT MOD(24) SR II SERV(55) WTR TO DECAY HT REMOV XCH ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) X-93-0-61 -REPORT(41) A12045 AGING(74)

HV- 4257 SUPPL(23) FRAIT MOD(24) 3K II SERV(55) NON-ESS SERV WTR HDR ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PS- 4266 SUPPL(23) MERCOID MOD(24) DA-7033-153-R7 SERV(55) FIRE WTR TO STBY GEN ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

HSV- 4266 SUPPL(23) ASCO MOD(24) H302C260 SERV(55) FIRE WTR TO STBY GEN ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

TE- 4257-3 SUPPL(23) FOXBORO MOD(24) N22075-E100KD SERV(55) PCRV BARREL COOLG OUTLET ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(41) A9 AGING(74)

TE- 4258-3 SUPPL(23) FOXBORO MOD(24) N22075-E100KD SERV(55) PCRV BARREL COOLG OUTLET ACCY(73) 1/2% F.S.
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(41) A9 AGING(74)

C- 4261 SUPPL(23) GARDNER-DENVER MOD(24) 12X9 BLDL SERV(55) INST AIR COMP 1A ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

C- R201-S SUPP(23) GARDNER-DENVER MOD(24) 12X9 RELOC SERV(55) INST AIR COMP 1B ACCY(73) N/A
LOC(35) 1B2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(74)

C- R203 SUPP(23) GARDNER-DENVER MOD(24) 12X9 RELOC SERV(55) INST AIR COMP 1C ACCY(73) N/1
LOC(35) 1B2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(74)

PS- R207 SUPP(23) MERCOID MOD(24) DAW-7033-B04F6 SERV(55) INST AIR RECEIVER 1A ACCY(73) N/A
LOC(35) 1B2 TEST-DIST(10) 120 -SPEC(72) X-93-U-6F -REPORT(41) A12005 AGING(74)

PS- R208 SUPP(23) SQUARE D MOD(24) 9012 SERV(55) INST AIR COMP 1A OIL ACCY(73) N/A
LOC(35) 1B2 TEST-DIST(10) 120 -SPEC(72) 93-1-530 -REPORT(41) 58084-2 MYLE AGING(74)

PS- R208 SUPP(23) SQUARE D MOD(24) 9025 SERV(55) INST AIR COMP 1A OIL ACCY(73) N/A
LOC(35) 1B2 TEST-DIST(10) 120 -SPEC(72) 93-1-530 -REPORT(41) 57504-10MYLE AGING(74)

PS- R210 SUPP(23) SQUARE D MOD(24) 9012 SERV(55) INST AIR COMP 1B OIL ACCY(73) N/A
LOC(35) 1B2 TEST-DIST(10) 120 -SPEC(72) 93-1-530 -REPORT(41) 58084-2 MYLE AGING(74)

IS- 8218 SUPP(23) SQUARE D MOD(24) 9025 SERV(55) INST AIR COMP 1B DIL ACCY(73) N/A
LOC(35) IB2 TEST-DIST(10) 120 -SPEC(72) 93-1-530 -REPORT(41) 57504-10MYLE AGING(74)

IS- 8218 SUPP(23) SQUARE D MOD(24) 9025 SERV(55) INST AIR COMP 1A DISCH ACCY(73) N/A
LOC(35) IB2 TEST-DIST(10) 120 -SPEC(72) 93-1-530 -REPORT(41) 57504-10MYLE AGING(74)

IS- 8219 SUPP(23) SQUARE D MOD(24) 9025 SERV(55) INST AIR COMP 1A DISCH ACCY(73) N/A
LOC(35) IB2 TEST-DIST(10) 120 -SPEC(72) 93-1-530 -REPORT(41) 57504-10MYLE AGING(74)

PS- 8221 SUPP(23) SQUARE D MOD(24) 9612 SERV(55) INST AIR COMP 1A DISCH ACCY(73) N/A
LOC(35) IB2 TEST-DIST(10) 120 -SPEC(72) 93-1-530 -REPORT(41) 58084-2 MYLE AGING(74)

PS- 8222 SUPP(23) SQUARE D MOD(24) 9012 SERV(55) INST AIR COMP 1B DISCH ACCY(73) N/A
LOC(35) 182 TEST-DIST(10) 120 -SPEC(72) 93-1-530 -REPORT(41) 58084-2 KYLE AGING(74)

TS- 8236 SUPP(23) SQUARE D MOD(24) 9025 SERV(55) INST AIR COMP 1A COOL WTR ACCY(73) N/A
LOC(35) 182 TEST-DIST(10) 120 -SPEC(72) 93-1-530 -REPORT(41) 57504-10KYLE AGING(74)

TS- 8237 SUPP(23) SQUARE D MOD(24) 9025 SERV(55) INST AIR COMP 1B COOL WTR ACCY(73) N/A
LOC(35) 182 TEST-DIST(10) 120 -SPEC(72) 93-1-530 -REPORT(41) 57504-10KYLE AGING(74)

PS- 8244 SUPP(23) MERCOID MOD(24) DAW-7033-804R6 SERV(55) INST AIR RECEIVER 1C ACCY(73) N/A
LOC(35) 182 TEST-DIST(10) 120 -SPEC(72) X-93-0-61 -REPORT(41) A12045 AGING(74)

TS- 8245 SUPP(23) SQUARE D MOD(24) 9025 SERV(55) INST AIR COMP 1C COOL WTR ACCY(73) N/A
LOC(35) 182 TEST-DIST(10) 120 -SPEC(72) 93-1-530 -REPORT(41) 57504-10KYLE AGING(74)

TS- 8246 SUPP(23) SQUARE D MOD(24) 9025 SERV(55) INST AIR COMP 1C OIL ACCY(73) N/A
LOC(35) 182 TEST-DIST(10) 120 -SPEC(72) 93-1-530 -REPORT(41) 57504-10KYLE AGING(74)

PS- B247 SUPP(23) SQUARE D MOD(24) 9012 SERV(55) INST AIR COMP IC OIL ACCY(73) N/A
LOC(35) T82 TEST-DIST(10) T20 -SPEC(72) 93-1-530 -REPORT(41) 58084-2 KYLE AGING(74)

PS- B248 SUPP(23) SQUARE D MOD(24) 9012 SERV(55) INST AIR COMP IC DISCH ACCY(73) N/A
LOC(35) T82 TEST-DIST(10) T20 -SPEC(72) 93-1-530 -REPORT(41) 58084-2 KYLE AGING(74)

PS- B249 SUPP(23) SQUARE D MOD(24) 9025 SERV(55) INST AIR COMP IC DISCH ACCY(73) N/A
LOC(35) T82 TEST-DIST(10) T20 -SPEC(72) 93-1-530 -REPORT(41) 57500-10KYLE AGING(74)

MS- 9101-2 SUPP(23) GENERALELECTRIC MOD(24) CR2940 SERV(55) HYDRAULIC OIL PUMP IA ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

P- 9101-X SUPP(23) DENISON MOD(24) PV06-007-51E-04 SERV(55) HYDR PWR SUPPLY PUMP ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

P- 9101-Sx SUPP(23) DENISON MOD(24) PV06-007-51E-04 SERV(55) HYDR PWR SUPPLY PUMP ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

BS- 9102-2 SUPP(23) GENERALELECTRIC MOD(24) CR2940 SERV(55) HYDRAULIC OIL PUMP 1C ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

P- 9102-X SUPP(23) DENISON MOD(24) PV06-007-51L-04 SERV(55) HYDR PWR SUPPLY PUMP ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) I20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

P- 9102-SX SUPP(23) DENISON MOD(24) PV06-007-51L-04 SERV(55) HYDR PWR SUPPLY PUMP ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) I20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

BS- 9103-2 SUPP(23) GENERALELECTRIC MOD(24) CR2940 SERV(55) HYDRAULIC OIL PUMP 1B ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

BS- 9104-2 SUPP(23) GENERALELECTRIC MOD(24) CR2940 SERV(55) HYDRAULIC OIL PUMP 1D ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

BS- 9105 SUPP(23) GENERALELECTRIC MOD(24) CR2940 SERV(55) HYDR PUMP 1E ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

P- 9105-X SUPP(23) DENISON MOD(24) PV06-007-SIL-00 SERV(55) HYDR PWR SUPPLY PUMP ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) X-93-0-6F -REPORT(91) A12045 AGING(74)

MS- 9106 SUPP(23) GENERALELECTRIC MOD(24) CR2940 SERV(55) HYDR PUMP ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) R10 -SPEC(72) X-93-0-6F -REPORT(91) A12045 AGING(74)

P- 9106-X SUPP(23) DENISON MOD(24) PV06-007-SIL-00 SERV(55) HYDR PWR SUPPLY PUMP ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) X-93-0-6F -REPORT(91) A12045 AGING(74)

LSL- 9116? SUPP(23) MAGNETROL MOD(24) 251RR SERV(55) LP1 OIL RESERVOIR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-571 -REPORT(91) 57504-0RYLE AGING(74)

LSL- 9116R SUPP(23) MAGNETROL MOD(24) 251RR SERV(55) LP2 OIL RESERVOIR ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-571 -REPORT(91) 57504-0RYLE AGING(74)

N- 9208 SUPP(23) ITE IMPEL MOD(24) 8560B155 SERV(55) TURB PLANT REL-3 ACCY(73) N/A
LOC(35) TH2 TEST-DIST(10) T20 -SPEC(72) 93-1-500 -REPORT(91) 57501-1RYLE AGING(74)

N= 9219 SUPP(23) ITE IMPERL MOD(24) 85C68155 SERV(55) TURB PLANT MCC-1 ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) 93-1-540 -REPORT(41) 57501-1RYLE AGING(74)

N= 9220 SUPP(23) ITE IMPERL MOD(24) 85C68155 SERV(55) TURB PLANT MCC-2 ACCY(73) N/A
LOC(35) TB2 TEST-DIST(10) T20 -SPEC(72) 93-1-540 -REPORT(41) 57501-1RYLE AGING(74)

N= 9251 SUPP(23) ITE IMPERL MOD(24) 85C68155 SERV(55) REACTOR PLANT MCC-3 ACCY(73) N/A
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-540 -REPORT(41) 57501-1RYLE AGING(74)

PUSH- 93129 SUPP(23) BARTON MOD(24) 288 SERV(55) BLDG PRESS UNDER PCRV L1 ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PUSH- 93130 SUPP(23) BARTON MOD(24) 288 SERV(55) BLDG PRESS UNDER CORE DIV ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PUSH- 93131 SUPP(23) BARTON MOD(24) 288 SERV(55) BLDG PRESS UNDER PCRV L2 ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) R20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PDSH- 93132 SUPP(23) BARTON MOD(24) 288 SERV(55) BLDG PRESS OUT PERV L1 ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) H20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PDSH- 93133 SUPP(23) BARTON MOD(24) 288 SERV(55) BLDG PRESS OUT DIV L1 ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) H20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

PDSH- 93134 SUPP(23) BARTON MOD(24) 288 SERV(55) BLDG PRESS OUT DIV L2 ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) H20 -SPEC(72) X-93-U-6F -REPORT(41) A12045 AGING(74)

TSH- 93448 SUPP(23) UNITED ELECTRIC MOD(24) 1200-SAS SERV(55) TEMP. UNDER PERV ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) H20 -SPEC(72) 93-1-538 -REPORT(41) 58084-A MYLE AGING(74)

TSH- 93449 SUPP(23) UNITED ELECTRIC MOD(24) 1200-SAS SERV(55) TEMP. UNDER PERV ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) H20 -SPEC(72) 93-1-538 -REPORT(41) 58084-A MYLE AGING(74)

TSH- 93450 SUPP(23) UNITED ELECTRIC MOD(24) 1200-SAS SERV(55) TEMP UNDER PERV ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) H20 -SPEC(72) 93-1-538 -REPORT(41) 58084-A MYLE AGING(74)

ISH= 93451 SUPP(23) UNITED ELECTRIC MOD(24) 1200-SAS SERV(55) REACTOR BLDG TEMP ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-538 -REPORT(91) 58084-8 MYLE AGING(74)

ISH= 93452 SUPP(23) UNITED ELECTRIC MOD(24) 1200-SAS SERV(55) REACTOR BLDG TEM . ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-538 -REPORT(91) 58084-8 MYLE AGING(74)

ISH= 93453 SUPP(23) UNITED ELECTRIC MOD(24) 1200-SAS SERV(55) REACTOR BLDG TEMP ACCY(73) +-1% F.S.
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-538 -REPORT(91) 58084-8 MYLE AGING(74)

XE= 93458-A SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUPTURE NO. WALL L2 ACCY(73) SUBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(91) 58084-6 MYLE AGING(74)

XE= 93458-B SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUPTURE NO. WALL L2 ACCY(73) SUBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(91) 58084-6 MYLE AGING(74)

XE= 93458-C SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUP NORTH WALL L2 ACCY(73) SUBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(91) 58084-6 MYLE AGING(74)

XE- 93455-A SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUPTURE NO. WALL L1 ACCY(73) SDBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(41) 58084-6 MYLE AGING(74)

XE- 93455-B SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUPTURE NO. WALL L1 ACCY(73) SDBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(41) 58084-6 MYLE AGING(74)

XE- 93455-C SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUP NORTH WALL L1 ACCY(73) SDBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(41) 58084-6 MYLE AGING(74)

XE- 93456-A SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUPTURE S. WALL L2 ACCY(73) SDBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(41) 58084-6 MYLE AGING(74)

XE- 93456-B SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUPTURE S. WALL L2 ACCY(73) SDBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(41) 58084-6 MYLE AGING(74)

XE- 93456-C SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUP SOUTH WALL L2 ACCY(73) SDBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(41) 58084-6 MYLE AGING(74)

XE- 93457-A SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUPTURE SO. WALL L1 ACCY(73) SDBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(41) 58084-6 KYLE AGING(74)

XE- 93457-B SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUPTURE SO. WALL L1 ACCY(73) SDBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(41) 58084-6 KYLE AGING(74)

XE- 93457-C SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUP SOUTH WALL L1 ACCY(73) SDBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(41) 58084-6 KYLE AGING(74)

XE- 93470-A SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUPTURE UNDER PLRVL2 ACCY(73) SDBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(41) 58084-6 KYLE AGING(74)

XE- 93470-B SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUPTURE UNDER PLRVL2 ACCY(73) SDBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(41) 58084-6 KYLE AGING(74)

XE- 93470-C SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUPTURE UNDER PLRVL2 ACCY(73) SDBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(41) 58084-6 KYLE AGING(74)

XE- 93071-A SUPP(25) GA ELECTRONICS MOD(29) 18020A SERV(55) PIPE RUPTURE UNDER PLNVLT ACCY(73) SOHS/N
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-539 -REPORT(91) 58084-6 MYLE AGING(74)

XE- 93071-B SUPP(25) GA ELECTRONICS MOD(29) 18020A SERV(55) PIPE RUPTURE UNDER PLNVLT ACCY(73) SOHS/N
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-539 -REPORT(91) 58084-6 MYLE AGING(74)

XE- 93071-C SUPP(25) GA ELECTRONICS MOD(29) 18020A SERV(55) PIPE RUPTURE UNDER PLNVLT ACCY(73) SOHS/N
LOC(35) RX2 TEST-DIST(10) T20 -SPEC(72) 93-1-539 -REPORT(91) 58084-6 MYLE AGING(74)

TE- 93072 SUPP(25) CONAX MOD(29) FSSIMGT8MK187A12 SERV(55) HI REACTOR BLDG TEMP CH.A ACCY(73) +-5DEG F
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(91) A12 AGING(74)

TE- 93073 SUPP(25) CONAX MOD(29) FSSIMGT8MK187A12 SERV(55) HI REACTOR BLDG TEMP CH.B ACCY(73) +-5DEG F
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(91) A12 AGING(74)

TE- 93074 SUPP(25) CONAX MOD(29) FSSIMGT8MK187A12 SERV(55) HI REACTOR BLDG TEMP CH.C ACCY(73) +-5DEG F
LOC(35) RX2 TEST-DIST(10) -SPEC(72) NONE -REPORT(91) A12 AGING(74)

XE- 93479-A SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUPTURE UNDER PLRVL1 ACCY(73) SDBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(41) 58084-6 MYLE AGING(74)

XE- 93479-H SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUPTURE UNDER PLRVL1 ACCY(73) SDBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(41) 58084-6 MYLE AGING(74)

XE- 93479-L SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUPTURE UNDER PLRVL1 ACCY(73) SDBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(41) 58084-6 MYLE AGING(74)

XE- 93480-A SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUPTURE UNDER PLRVL2 ACCY(73) SDBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(41) 58084-6 MYLE AGING(74)

XE- 93480-H SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUPTURE UNDER PLRVL2 ACCY(73) SDBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(41) 58084-6 MYLE AGING(74)

XE- 93480-L SUPP(23) GA ELECTRONICS MOD(24) 18020A SERV(55) PIPE RUPTURE UNDER PLRVL2 ACCY(73) SDBS/N
LOC(35) RX2 TEST-DIST(10) 120 -SPEC(72) 93-1-539 -REPORT(41) 58084-6 MYLE AGING(74)