

ORNL/RRD/INT-70/R1

HIGH FLUX ISOTOPE REACTOR
SAFETY-RELATED SYSTEMS
AND
EQUIPMENT DEFINITION REPORT
AND
SAFETY-RELATED EQUIPMENT LIST

D. H. Cook
Oak Ridge National Laboratory
Oak Ridge, Tennessee

T. R. Enright
Impell Corporation
Norcross, Georgia

August 1991

Prepared by the
Research Reactors Division
OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37831
managed by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U. S. DEPARTMENT OF ENERGY
under contract DE-AC05-84OR21400

CONTENTS

	Page
ACKNOWLEDGMENT	iii
LIST OF TABLES	vii
1. INTRODUCTION	1
2. SAFETY-RELATED SYSTEMS, BOUNDARIES, AND SAFETY FUNCTIONS	4
2.1 MAJOR STRUCTURES	4
2.1.1 Reactor Building	4
2.1.2 Control and Water Wing	4
2.1.3 Electrical Building	5
2.1.4 Reactor Pool	6
2.1.5 Spent Fuel (Clean) Pool	7
2.1.6 Reactor Bay Bridge Crane 50T/3T	8
2.1.7 Personnel/Pool Bridge	9
2.2 MAJOR SYSTEMS	10
2.2.1 Primary Coolant High-Pressure System	10
2.2.2 Primary Coolant Low-Pressure System	13
2.2.3 Reactor Safety System	13
2.2.4 Pony Motor Battery System	13
2.2.5 Special Building Hot Exhaust System (SBHE)	13
2.2.6 Normal Emergency System	15
2.2.7 Instrument Air System	17
2.3 MAJOR COMPONENTS	17
2.3.1 Control Cylinder/Drive Mechanisms	17
2.3.2 Shim-Safety Plates/Drive Mechanisms	18
2.3.3 Reactor Vessel Internals	18
2.3.4 Experiment Facilities Part of the High-Pressure Boundary	20
2.3.5 Diesel Generators	20
3. SAFETY-RELATED EQUIPMENT LIST	22
3.1 SAFETY-RELATED EQUIPMENT DATA BASE	22
3.1.1 General Safety Function	22
3.1.2 Data Base	22
3.1.3 Environmental Qualification (EQ)	22
4. REFERENCES	23
PART A. HFIR Safety-Related Equipment List	A-1
HFIR Safety-Related Equipment List Sections	A-5

ACKNOWLEDGMENT

Many people in the Research Reactors Division (RRD) and from outside firms have contributed to this report and to the creation of the safety-related equipment list at the HFIR. Mike Farrar worked on this task first and created the earliest version of the systems list. NUS corporation is appreciated for their work on helping RRD review and correct the systems list and for their detailed work on a first cut at defining the boundaries within the systems between safety-related and nonsafety-related. Randy Hobbs is appreciated for his work in drafting the report that defined some of the safety functions of the various systems.

Frank Reaves of Impell Corporation is greatly appreciated for his support (1) in helping put together the logic that went into the final report and (2) in creating the data base from existing RRD data bases plus a lot of hard work editing and adding to the existing information.

Dr. Uri Gat is appreciated for his support in reviewing, editing, and helping with the issuance of the report.

Revision 1

Steve Smith and Rufus Brown, ABB-IMPELL, have reviewed the Revision 0 of this document. They proposed and implemented most of the revisions that now constitute Revision 1. Steve and Rufus, and IMPELL in general, provided rigorous quality assurance for this document. Most of the changes occurred in what was the appendix to the document and is now an integral part, the "Safety-Related Equipment List." The changes include a revised format and the much needed additional information, such as equipment location and related environmental qualification documentation. IMPELL's work further laid the basis for transforming this entire document into a computer-controlled data base. This will be implemented in the future and will ensure immediate update and currency of this living document.

.....

.....

.....

LIST OF TABLES

Table	Page
1. Events considered in defining system safety functions	2
2. List of safety-related structures, systems, and components	5
3. Safety-related equipment in reactor pool systems.	7
4. Spent fuel (clean) pool safety-related equipment	9
5. Primary coolant high-pressure system safety-related equipment	11
6. Primary coolant low-pressure system safety-related equipment	14
7. Pony motor battery system safety-related components	15
8. Special building hot exhaust system safety-related components	16
9. Normal emergency system safety-related equipment	16
10. Control cylinder/drive mechanism safety-related equipment	18
11. Shim-safety plates/drive mechanisms safety-related equipment	19
12. Reactor vessel components safety-related equipment	19
13. Experiment facilities (part of high-pressure boundary safety-related equipment)	20
14. Diesel generator safety-related equipment	21
A1. System safety function codes applicable to the safety-related equipment list	A-4

1. INTRODUCTION

As part of a long-term program to ensure that the safety of the High Flux Isotope Reactor (HFIR) operation continues to improve, the Research Reactors Division (RRD) has assembled a list of safety-related structures, systems, equipment and components. The list of overall systems was documented earlier in a letter report that was submitted for review to the Reactor Operations Review Committee (RORC) (Ref. 1). The RORC approved the list of systems but suggested in the final document that each system's safety function be described. Response to that recommendation is included in Chapter 2 of this report.

The objective of this study is to (1) describe the systems, their safety function, and their boundaries and (2) to present a safety-related equipment list. The safety-related equipment list is intended for use in a variety of programs at the HFIR, including the maintenance program, the quality assurance program, the environmental qualification program, and the effort to write an updated safety analysis report. The safety-related equipment list is a controlled document, and additions to or deletions from that list will be based on approved RRD procedures, which include a safety assessment process to evaluate the safety implications of any change.

The criterion used for deciding which equipment is safety-related is essentially the same criterion used in the regulations that apply to commercial nuclear reactors. The definition comes from 10 CFR 50.49 and states:

"Safety-related" when referring to structures, systems, and components means those structures, systems, and components that are relied upon to remain functional during and following design basis events to ensure:

- (1) The integrity of the reactor coolant pressure boundary;
- (2) The capability to shut down the reactor and maintain it in a safe shutdown condition; and
- (3) The capability to prevent or mitigate the consequences of accidents that could result in potential off-site exposures comparable to the 10 CFR Part 100 guidelines.

The three points in this definition express the defense-in-depth approach to nuclear safety. The first two points ensure that, following a design basis event, no radioactive release will occur. The third point ensures that, given a radioactive release from some event, the capability to mitigate the release will exist so that the guideline of 10 CFR 100 will be met.

The methodology used in forming the safety-related equipment list involved first defining the safety functions that relate to the above criteria for each of the systems. The safety functions were derived from a consideration of the various events analyzed in the probabilistic risk assessment (PRA) (Ref. 2), ongoing analyses being performed as part of the update of the safety analysis report (Ref. 3), and the original accident analysis (Ref. 4).

Table 1 is a list of various events considered.

Table 1. Events considered in defining system safety functions

Description	Source Study
Vessel failure	Pressure Vessel Study (Ref. 5)
Sequences that require a scram to occur	PRA (Ref. 2)
Loss of power scenarios	PRA (Ref. 2)
Pressure transients (over and under)	PRA (Ref. 2)
Flow blockage scenarios	PRA (Ref. 2)
Fuel element failure events (while the fuel is in place)	Accident Analysis (Ref. 4)
Small-break LOCA	PRA (Ref. 2)
Large-break LOCA	SBLOCA studies (Refs. 6,7)
Reactivity insertion event	PRA (Ref. 2)
Degraded secondary cooling events	Risk report (Ref. 3)
Loss of instrument air sequences	PRA (Ref. 2)
Degraded primary cooling events	PRA (Ref. 2)
Seismic events	PRA (Ref. 8)
Internal fire events	PRA (Ref. 8)
Internal flood events	PRA (Ref. 8)
Wind/missiles events	PRA (Ref. 8)
Target accidents	Accident analysis (Ref. 4)
Fuel and target handling/transport	PRA (Ref. 8)
Stored spent fuel events	PRA (Ref. 8)
Heavy loads considerations	PRA (Ref. 8)

Once the safety functions for the various systems were defined, an analysis was performed to determine the boundary within the system between equipment necessary to achieve the safety function and other equipment. The boundary definition also included consideration of equipment that could fail in a manner that would prevent achieving the safety function. With the boundaries defined, a system functional evaluation is conducted, relative to each safety function, to determine the equipment within the boundary that is required to remain functional and therefore is considered safety-related.

The high-pressure system boundary (reactor coolant pressure boundary) was defined using a single-valve isolation philosophy. The HFIR was not designed with a strict double isolation valve philosophy in mind. At some locations, a double-valve approach was used because of first-line components that exceeded the very tight leak rate criterion in the HFIR high-pressure boundary surveillance test, STP-4601 (e.g., the high-pressure boundary for the hot water injection system interface includes a control valve and a check valve). At some locations, the seemingly high degree of importance of the boundary led to the use of two valves (e.g., both of the 2-inch letdown isolation valves are included as part of the boundary). However, several single-valve boundaries are defined as the high-pressure system boundary.

In Chapter 2 of this report, each major system is described, its boundary is defined, and its safety function is discussed. The safety functions and boundaries are the basis for forming an equipment list, which is discussed in Chapter 3. The actual equipment list exists as a data base and is presented in the appendix.

This report was originally written as part of a Key Milestone for environmental qualification (EQ) at the HFIR. A part of the Key Milestone was an Award Fee Milestone that required that qualification analyses be complete for "critical" equipment. The term "critical" equipment was a tentative term, it now has only historic meaning.

2. SAFETY-RELATED SYSTEMS, BOUNDARIES, AND SAFETY FUNCTIONS

The HFIR safety-related systems were identified based on the definition presented in Chapter 1 of this report. The systems were grouped into three major categories of structures, systems, and components, as shown in Table 2. Table 2 differs slightly from the list in Ref. 1 because the boundaries of some of the systems were defined to include other systems.

Specifically, the spent fuel pool now includes the spent fuel storage rack and handling tools. The filter pits are included as part of the special building hot exhaust system. The high-pressure system now includes the mechanical part of the vessel depressurization system, the primary coolant pumps, and the pressure relief system. The HFIR fuel elements are grouped with the reactor vessel internals. The instrument air system was added to the list.

In the remainder of this chapter, each item in Table 2 is described, the boundary is defined, and the safety function of the item is identified. Sections 2.1, 2.2, and 2.3 contain discussions of the major structures, systems, and components, respectively.

2.1 MAJOR STRUCTURES

2.1.1 Reactor Building

The reactor building consists of a reinforced concrete structural frame and walls. This concrete envelope includes the reactor bay, the experiment room, the beam room, the subpile room, the pipe tunnel, the pony motor battery room, pools, and heat exchanger cells. The safety functions of the reactor building are as follows:

- To provide environmental protection for safety-related equipment located within its boundary.
- To maintain structural integrity of safety-related equipment located within its boundary.
- To provide radiation shielding to ensure habitability of key areas.
- To provide radiation shielding to ensure safety-related equipment operability.
- To maintain a confinement boundary to prevent inadvertent release of radiation to the environment.

2.1.2 Control and Water Wing

The control and water wing is located on the north side of the reactor building and consists of a concrete frame with concrete floors and roof. The exterior walls are concrete block with wire reinforcement in the horizontal joints. The boundary of the control and water wing includes the control room, the pool and primary cleanup system, the primary coolant low-pressure system, and

Table 2. List of safety-related structures, systems, and components

Structures	Systems	Major components
Reactor building	Primary coolant high-pressure system	Control cylinder drive/regulating mechanism
Control and water wing	Primary coolant low-pressure system	Shim/safety plates/drive mechanism
Electrical building	Reactor safety system	Reactor vessel internals
Reactor pool	Pony motor battery system	Experiment facilities part of high-pressure boundary
Spent fuel (clean) pool	Special building hot exhaust system	Diesel generator
Reactor bay bridge crane 50T/3T	Normal-emergency system	
Personnel/pool bridge	Instrument air system	

various other support systems. The safety functions for this structure are similar to those of the reactor building and are as follows:

- To provide environmental protection for safety-related equipment located within its boundary.
- To maintain structural integrity of safety-related equipment located within its boundary.
- To maintain a confinement boundary to prevent inadvertent release of radiation to the environment.

For most accidents where key equipment within the control and water wing is needed, the structure will remain intact. However, for seismic and wind-related external events, key equipment located within the control and water wing either is not required or fails safe.

2.1.3 Electrical Building

The electrical building is an auxiliary building located east of the reactor building and houses the switchgear batteries, the diesel generators, and the high-voltage switchgear. The boundary of the electrical building consists of a concrete floor and roof with concrete block walls. The safety functions of the electrical building are:

- To provide environmental protection for safety-related equipment located within its boundary.
- To maintain structural integrity of safety-related equipment located within its boundary.

The primary reason that this structure is considered safety related is that it houses the diesel generators, which are necessary to power the confinement fans.

2.1.4 Reactor Pool

The reactor pressure vessel and a portion of the high-pressure piping are contained in the reactor pool, which contains approximately 80,000 gallons of water. The reactor pool has a cylindrical lower portion that contains the pressure vessel and a rectangular upper portion that connects with the spent fuel (clean) pool. The pool is lined with stainless steel to prevent leakage. On the east end, the pool is bounded by a large gate that separates the reactor pool from the clean pool. The pool cleanup system takes suction at the bottom of the reactor pool, and the pool coolant system receives water that overflows into scuppers that bound the top of the pool. Return flow from both the pool cleanup and coolant system enters the pool at a point just above the top of the reactor vessel. The pool level is monitored via a float-type level detector, LE-422, that actuates level switch LSS-422. This instrumentation trips the pool coolant system pumps on indication of high pool level.

Several penetrations of the reactor pool are considered part of the boundary. These penetrations are listed below:

- penetrations and their seals for the four horizontal beam tubes
- four engineering facility penetrations and their welds
- line [01-1257-4"-71], up to and including FCV-469, plus the seal
- line [01-1202-6"-71], including FCV-464, the seal, out to and including V-1204
- line [01-1236-3"-71] out to and including check valve V-8721, plus V-1244
- line [01-1333-2"-71] out to and including V-2341
- line [01-1253-6"-71] out to and including V-1269, plus V-1271 and FE-425
- four engineering facility plugs and their flanges
- penetration and seals for the main primary coolant inlet and outlet lines
- reactor vessel - pool seals
- 1 1/2-inch depressurization system line seals.

In summary, the boundaries of the reactor pool include the safety-related equipment listed in Table 3.

The safety functions of the reactor pool are

- To provide a readily available source of water for post-accident decay heat removal,
- To confine fission product particulates following accidents that result in core damage within the pool boundary, and
- To provide radiation shielding to allow safe access to the reactor bay to mitigate accidents such as fuel handling mishaps in the pool.

Table 3. Safety-related equipment in reactor pool systems.

Description	Plant ID number
Stainless steel pool liner	N/A
Control valve for cleanup system flow	FCV-469
Control valve for pool water return flow	FCV-464
Level detector	LE-422
Level switch	LSS-422
Supporting power supply, cabling, and electronics for level-detection instrumentation	N/A
Penetrations and seals for four horizontal beam tubes	N/A
Four engineering facility penetrations and welds	N/A
Pool coolant return lines	[01-1253-6"-71] [01-1202-6"-71]
Pool cleanup system lines	[01-1257-4"-71] [01-1236-3"-71] [01-1333-2"-71]
Four engineering facility plugs and their flanges	N/A
Penetrations and seals for the main primary coolant inlet and outlet lines	N/A
Reactor vessel - pool seals	N/A
Depressurization line seals	N/A
Pool boundary valves	V-1275, V-1271, V-1244, V-1204, V-2341, V-8721
Flow element	FE-425

2.1.5 Spent Fuel (Clean) Pool

Spent fuel elements, reactor targets, and radioactive in-vessel components are stored in the clean pool, which is a rectangular pool located adjacent to the reactor pool.

Like the reactor pool, this pool is also lined with stainless steel to prevent leakage. The clean pool is bounded on the west end with a removable aluminum gate. A removable aluminum gate is also located in the center of the pool to divide it into two portions. The pool coolant system receives water that overflows into scuppers that bound the top of the pool. Return flow from both the pool cleanup and coolant system enters the pool at a point just above the top of the stored spent fuel elements. The pool contains spent fuel storage racks that provide for the safe storage of the spent fuel elements. Associated with the pool are various tools that are necessary for the safe handling of

the spent fuel elements and in-vessel components. A listing of these tools is provided in the data base and appendix.

The clean pool level is monitored by two float-type level detectors, LE-458 and LE-463, that actuate level switches LSS-458 and LSS-463, respectively. This instrumentation trips the pool cleanup system pumps on indication of high pool level.

Several penetrations of the clean pool are considered part of the boundary. These penetrations include (1) three 3-inch-diameter sleeves, which are currently blanked-off through the north wall that provide access to the heat exchanger cells; (2) four 6-inch-diameter sleeves, which are also blanked-off through the south wall that provide access to the experiment room; (3) line [01-1206-3"-71] and its flanged liner up to and including FCV-465; (4) line [01-1205-3"-71] and its flanged liner up to and including FCV-466.

In summary, the spent fuel (clean) pool system includes the safety-related equipment listed in Table 4.

The safety functions of the spent fuel (clean) pool are as follows:

- To confine fission product particulates following accidents that result in core damage within the pool boundary.
- To provide decay heat removal from spent fuel elements.
- To provide radiation shielding to ensure access to the reactor bay to mitigate accidents such as fuel handling mishaps in the pool.
- To provide safe storage and movement of spent fuel in the pool.

2.1.6 Reactor Bay Bridge Crane 50T/3T

The reactor bay bridge crane spans the reactor bay and is used to move fresh fuel, spent fuel shipping casks, and a variety of other heavy loads in the reactor bay.

The reactor bay bridge crane is considered safety-related from the point of view that its failure could damage the primary system pressure boundary or damage the confinement. Thus, the safety-related components of this system include

- (1) the structural part of the bridge itself and its supports, and
- (2) the cabling and hooks that support the heavy loads.

The safety function of the reactor bay bridge crane is

- To remain intact and avoid damaging the primary system pressure boundary or confinement.

Table 4. Spent fuel (clean) pool safety-related equipment

Description	Plant ID number
Stainless steel pool liner	N/A
Spent fuel storage racks	N/A
Valves controlling pool water return flow	FCV-465 FCV-466
Level detectors	LE-458 LE-463
Level switches	LSS-458 LSS-463
Supporting power supply, cabling, and electronics for level detection instrumentation	N/A
3-inch diameter sleeves and blank flange penetrating clean pool north wall (3)	N/A
6-inch diameter sleeves and blank flange penetrating south wall (4)	N/A
Coolant return line, its liner and seals	[01-1254-3*-71]
Cleanup return line, its liner and seals	[01-1255-3*-71]
Pool boundary valve	V-1208, V-1273, V-1272
Flow element	FE-468

2.1.7 Personnel/Pool Bridge

The personnel/pool bridge spans the reactor pool and is used to move small loads over the reactor pool, including raising and lowering the fuel elements during refueling. It also provides a work area for operators performing tasks over the reactor and clean pools.

Like the reactor bay bridge crane, the pool bridge crane is considered safety related from the point of view that its failure could cause damage to the primary system pressure boundary. However, the pool bridge has an additional safety-related function in that it provides the operators access over the pool to mitigate a dropped fuel element accident.

The safety-related boundary of the personnel/pool bridge includes

- (1) the structural part of the bridge and its supports and
- (2) cabling and hooks used to support small loads.

The safety function of the personnel/pool bridge is

- To provide handling and transport capability for reactor fuel elements and other loads over the reactor bay pools.

2.2 MAJOR SYSTEMS

2.2.1 Primary Coolant High-Pressure System

The primary coolant high-pressure system consists of the reactor pressure vessel, the heat exchangers, the strainer, the main coolant pump casings and seals, and all the high-pressure piping that connects to these major components. In addition, the system includes all the high-pressure piping that connects to other systems (e.g., the letdown piping that extends from the heat exchangers to the letdown block valves, which is the boundary between the high-pressure system and the primary coolant cleanup system). The system also extends to all instrument connections that penetrate the high-pressure piping and, within those systems, out to and including the first isolation valve. In addition to systems and instruments that connect to high-pressure piping, the primary coolant high-pressure system includes those subsystems designed to protect the integrity of the high-pressure boundary. This includes the vessel depressurization system, the pressure relief system and the pump seal injection system. The primary recirculation pump and drivetrain are also included as part of the high pressure system.

The high-pressure system boundary was defined based upon study of drawings 1546-01-M-5541, "Engineering Flow Diagram — Primary Reactor Coolant High-Pressure System," and 1546 - I-4001, "Instrument Application Diagram — Reactor Primary Coolant Loop," plus associated branch drawings. In addition, the existing RRD definition of the high-pressure boundary (Ref. 9) was reviewed. This definition was performed without regard to line sizes. The existing small-break LOCA analyses (Refs. 6, 7, and 10) show that leaks up to and including a 1/2-inch schedule 40 pipe can be successfully mitigated without reliance on the pressurizer pump. Because no active equipment is needed for these small line sizes, their failure will not affect safe shutdown. This analysis is expected to be used as the basis for removing many sections of small-bore piping and some devices from the safety-related equipment list in the near future.

In summary, the primary coolant high-pressure system includes the safety-related equipment listed in Table 5.

The safety functions of the primary coolant high-pressure system are as follows:

- To maintain reactor coolant pressure boundary
- To provide reactor vessel depressurization capability in case of overcooling
- To maintain the confinement of fission products following accidents that result in core damage
- To provide decay heat removal capability following reactor shutdown
- To provide coolant inventory control capability for the reactor system

Table 5. Primary coolant high-pressure system safety-related equipment

Description	Plant ID number
Reactor vessel	01-405-RV-1
Heat exchangers	01-430-EX-1A, 01-430-EX-1B 01-430-EX-1C, 01-430-EX-1D
Primary coolant pump casing, AC motor, pump shaft with impeller and associated fastening hardware, pump shaft seals, and upper motor bearing and cooling oil reservoir	01-415-PU-1A, 01-415-PU-1B, 01-415-PU-1C 01-415-PU-1D
Primary coolant strainer	N/A
Primary coolant flow element venturi) and FT-100 instrument lines	FE-100
Primary coolant pump dc pony motors	01-415-PU-1E, 01-415-PU-1F, 01-415-PU-1G, 01-415-PU-1H
16-in. inlet piping and connections to vessel and strainer	01-1007-16"-60 01-1008-16"-60
20-in. inlet piping and connections to strainer, venturi and 10-in. piping	01-1007-20"-60
Reactor vessel vent line up to and including reactor vessel vent valve (HCV-102A)	01-1085-2"-60
Reactor vessel vacuum relief line out to and including valve V-311-E and the check valve V-312	01-1027-2"-60
All instruments, instrument lines, and root valves that penetrate the primary high-pressure boundary and hold full primary system pressure. These components are included in the data base and listing in the appendix and were obtained from a combination of studying drawings 1546-01-M-5541 and 1546-I-4001 and plant walkdowns. The listing is extensive and is not repeated here.	N/A
4-in. pressure relief system piping up to and including the safety relief valves [PSV-150] and [PSV-157] plus their associated rupture disks.	[01-1056-4"-60]
Pressurizer pump return line from primary piping out to and including check valve	01-1054-3"-60 V-1198

Table 5. (continued)

Description	Plant ID number
10-in. piping and connections associated with cells No. 110 through 113 high-pressure systems	01-1009-10"-60
	01-1001-10"-60
	01-1010-10"-60
	01-1003-10"-60
	01-1011-10"-60
	01-1005-10"-60
	01-1020-10"-60
	01-1019-10"-60
14-in. piping and connections associated with cells No. 110 through 113 high-pressure system	01-1002-14"-60
	01-1001-14"-60
	01-1004-14"-60
	01-1003-14"-60
	01-1006-14"-60
	01-1005-14"-60
	01-1019-14"-60
	01-1176-14"-60
Cells No. 110 through 113 inlet and outlet flow control valves and connections	FCV-140, FCV-149, FCV-142, FCV-151, FCV-144, FCV-153, CV-550, FCV-551
2-inch letdown lines and connections associated with cells 110 through 113 out to and including letdown block valves	01-1017-2"-60
	01-1015-2"-60
	01-1013-2"-60
	01-1014-2"-60
18-in. vessel outlet piping and connections to vessel and 10-in. piping	01-1000-18"-60
TE-100 hot-water injection system lines from primary piping out to air-operated isolation valves	N/A
Rabbit tube system piping out to the boundaries of HV-CR-1, HV-CR-2, and HV-CR-6	N/A
Primary coolant pump seal injection lines from No. 1 pump seal out to first check or isolation valve on coolant supply side	N/A
Vessel depressurization system piping from vessel out to and including PCV-128-3 and PCV-128-4, and the 128-pressure system pressure switches and valves	01-147-3"-60
	01-147-1 1/2"-60
	01-147-1"-60
Beam tubes and associated seals and flanges	N/A

2.2.2 Primary Coolant Low-Pressure System

The primary coolant low-pressure system includes the primary coolant cleanup equipment (from the letdown block valves all the way through to the primary coolant head tank) and the pressurizer pump equipment (from the head tank through the pressurizer pumps and to the primary coolant high-pressure system). However, only the portion of this system between the primary coolant head tank and the high-pressure system is considered safety related. Table 6 lists the components that comprise the boundary of the safety-related portion of the primary coolant low-pressure system.

The safety functions of the primary coolant low-pressure system are as follows:

- To provide coolant inventory control capability for the reactor system during a small-break LOCA
- To provide reactor vessel overcooling protection from low temperature-high pressure conditions

2.2.3 Reactor Safety System

The reactor safety system monitors key process and nuclear instrumentation, recognizes impending unsafe conditions that may develop in the reactor, and scrams the shim/safety plates to minimize hazards and prevent core damage. The boundary of the reactor safety system includes all items shown in drawing RC-11-9-51, which is the safety system block diagram for channel No. 1. The identical components are included for channel numbers 2 and 3. In addition to the major components described in drawing RC-11-9-51, all the interconnecting wiring, terminal blocks, instrument wiring, instrument transmitters, instrument power supplies, etc., are included. Several components were included from the slow scram circuitry based on drawing RC-11-1-1C and input from Instrument and Controls Division engineers. A listing of these components is provided in the data base and in the appendix. The list is very extensive and is not repeated here.

The safety function of the safety system is

- To provide the capability to monitor process and nuclear conditions and initiate a rapid nuclear shutdown via shim/safety plate insertion.

2.2.4 Pony Motor Battery System

The pony motor battery system is designed to provide a source of uninterrupted power to drive the primary coolant pony motors, which provide forced circulation decay heat removal from the core. Table 7 is a list of components that comprise the safety-related portion of the pony motor battery system.

The safety function of the pony motor battery system is

- To provide a source of uninterrupted power to primary coolant pump dc pony motors.

2.2.5 Special Building Hot Exhaust System (SBHE)

The SBHE system is a ventilation system that provides confinement to control the release to the atmosphere of airborne activity from either the primary coolant system or from fuel and other components stored in the pool. It also provides protection for the experiment and beam rooms and cleanup equipment cells located in the control and water wing. The system has two main branches, both of which, after passing through a filter system designed to remove both particulate matter and vapors, ultimately discharge into the 76.2-m (250-ft) reactor stack.

Table 6. Primary coolant low-pressure system safety-related equipment

Description	Plant ID number
Primary coolant head tank	01-405-HT-3
4-in. lines providing suction to pressurizer pumps	01-1051-4"-64, 01-1052-4"-64, V-1050, V-1051, V-1052
Valves and lines connecting to pressurizer pump suction	01-1146-3"-64, V-1059, V-1164, 01-1053-4"-64, V-1053, V-134, V-1074
Line and valves that connect to the pressurizer pump suction, which pass through PU-11, including PU-11 pressure boundary	01-1053-4"-64 V-1053, V-1107, PU-11 01-1026-1"-64
PU-4A and PU-4B suction relief lines	01-1061-1"-64 01-1062-1"-64
All instruments, instrument lines, and root valves that penetrate the piping on either the suction or discharge of the pressurizer pump. These components are included in the data base and listing in the appendix and were obtained from studying drawings 1546-01-M-5534, 1546-01-M-5541, and 1546-I-4001, and plant walkdowns. The listing is extensive and is not repeated here.	N/A
Pressurizer pumps 4A and 4B and associated power supply, motor controls, and pump protection systems	01-415-PU 4A 01-415-4U 4B
Discharge piping from pressurizer pum to primary high-pressure system	01-1054-3"-60 V-1057, V-1055, V-1058, V-1056, V-1197, FE-216
Seal cooling water supply lines from PU-11 and line [01-1054-3"-60], connecting to main cooling pump seal No.1	01-1068-2"-60 01-1122-1"-60

Table 7. Pony motor battery system safety-related components

Description	Plant ID number
120-V dc battery banks for pony motor driven primary coolant pumps PU-1E, PU-1F, PU-1G, PU-1H	N/A
Battery chargers	N/A
Pony motor metering cabinets and components	N/A
Unfused disconnect switches	N/A

Table 8 is a description of the system and a delineation of its nuclear safety-related boundaries. The safety function of the SBHE system is

- To maintain the confinement of fission products and provide decontamination capabilities in the event of an abnormal release of radioactivity.

2.2.6 Normal Emergency System

Emergency ac electric power is supplied to the HFIR by two 350-kW, 480-V, 3-phase, 60-cycle, diesel-engine-driven generators located in the electrical building. Power is supplied by the generators to two sets of normal-emergency switchgear that distribute the emergency power to the equipment required for 10% full-power reactor operation. In normal operation both sets of normal-emergency switchgear are energized by the normal power system and the diesel generators are not running.

In the event of a sustained normal power failure or a 30% drop in source voltage for a duration of two seconds, auxiliary contacts in the automatic transfer switches (1) energize the diesel engine start-up circuits to crank the engines, (2) trip all of the circuit breakers in the normal-emergency switchgear, and (3) apply a trip impulse to the diesel test-loading circuit breakers.

Because the diesel generators are described separately under the major components chapter, this section will focus on the boundaries of the normal-emergency system train No. 1 and No. 2 electrical distribution system. Table 9 describes the major equipment within these boundaries.

The safety function of the normal emergency system is

- To provide electrical power to the SBHE system fans and one diesel fuel oil transfer pump during all operating conditions, including loss of off-site power.

Table 8. Special building hot exhaust system safety-related components

Description	Plant ID number
All filters, including prefilters, HEPA filters, silver-coated copper mesh, and charcoal filters	N/A
Ductwork and dampers connecting filter pit, fans, and stack	N/A
SBHE fans, motors, motor controls, and normal-emergency system power supply	FN-1, FN-2
HFIR area stack	N/A
Those instruments that take action to start or stop the SBHE fans. This list of instruments is included in the data base and the listing in the appendix. The list is fairly extensive and is not repeated here.	N/A

Table 9. Normal emergency system safety-related equipment

Description	Plant ID number
125-V dc switchgear battery bank	N/A
Shunts, ammeters, and voltmeters associated with the battery	N/A
120-V distribution panel	P-22
Distribution panel	P-29
Automatic transfer switches and associated auxiliary contacts	No. 1 and No. 2
480-V ac normal-emergency switchgear and associated bus	No. 1 and No. 2
Load sequencing timer	T-1 and T-2
Normal-emergency buses and associated breakers	MCC "F," "G," "H"

2.2.7 Instrument Air System

The instrument air system provides pneumatic power to both safety and non-safety-related, air-activated controllers, motor, and instruments. The current safety-related system boundary only includes the air supply piping to those safety-related components that do not "fail safe" on loss of air. This consists of portions of both the emergency depressurization system valves and the pressurizer pump head tank level monitoring instruments.

Although the air-supply piping to these devices is currently considered to be essential, the air compressors, air receiving tanks pressure regulation, etc., have not been likewise designated as safety related. The bases for this approach can be found in Ref. 11.

The safety function of the instrument air system is

- To provide an air supply sufficient to operate safety-related process valves, controls, and other equipment.

2.3 MAJOR COMPONENTS

2.3.1 Control Cylinder/Drive Mechanisms

This component consists of the control cylinder, a control cylinder drive shaft that is rigidly attached to the control cylinder, a seal assembly that holds back reactor pressure, and a shaft that can be positioned by both the shim and servo drives. The shaft of the control cylinder is driven by a lead screw and a pressure-balance cylinder is provided to balance the force of reactor pressure and limit the rate at which the cylinder could be forced out of the core in the event of a failure of the lead screw-drive motor interface. The safety-related boundary of this component is considered to include all the mechanical components from the control cylinder through to and including the pressure-balance cylinder system. The servo drive components are not considered safety related.

Table 10 summarizes the safety-related parts of the control cylinder/drive mechanism. This table refers to the subassemblies and mechanism defined on drawings E-42082 through E-42088.

The electrical equipment associated with the control system is not considered safety related because sufficient isolation equipment exists to protect the safety system by preventing a fault in the control system from affecting the safety system.

The safety function of this component is

- To maintain in-core position and rate of movement of reactivity control element within design limits to prevent uncontrolled reactivity increases.

Table 10. Control cylinder/drive mechanism safety-related equipment

Description	Plant ID number
Control cylinder	N/A
Inner cylinder drive rod and coupling mechanisms	N/A
Shim drive rod	N/A
Hydraulic cylinder subassembly	N/A
Inner control cylinder seal assembly	N/A

Reference: Drawings E-42082 through E-42088

2.3.2 Shim-Safety Plates/Drive Mechanisms

This component consists of the mechanical equipment necessary to achieve a scram of the reactor. All of the electrical components necessary to achieve the scram are included as part of the safety system.

The outer cylinder quadrant sections attach to individual drive shafts by means of ball latches. The drive shafts extend through seals in the reactor vessel to their lead-screw positioning mechanisms in the subpile room. Push rods to control the safety-release ball latches operate inside the hollow drive shafts, terminating at the magnets, which are attached to the lower ends of the drive shafts. The safety system operates to deenergize the magnets, which then releases a spring that forces the shim-safety plates into the core. The safety-related boundary of this component is considered to include all the mechanical components located between the shim-safety plates and the drive platform, and all structurally supporting equipment necessary to ensure the integrity of the mechanical equipment that achieves the scram.

Table 11 summarizes the safety-related parts of the shim-safety plate/drive mechanisms. This table refers to the subassemblies and mechanisms defined on drawing F-42325.

The safety function of this component is

- To provide nuclear shutdown through rapid negative reactivity insertion

2.3.3 Reactor Vessel Internals

Most components located in the reactor vessel are considered safety related because they are there to prevent or mitigate an accident, or could come loose, block flow to the core, and cause an accident. Table 12 summarizes the safety-related in-vessel components. The safety functions of the reactor vessel internals are

- To maintain structural integrity by providing axial and lateral support of reactor components (including fuel and target assemblies)
- To establish proper cooling-water flow configuration through the core to ensure adequate heat removal

Table 11. Shim-safety plates/drive mechanisms safety-related equipment

Description	Plant ID number
Shim safety plates	N/A
Piston and coupling subassemblies	N/A
Shock absorber assemblies	N/A
Scram spring assemblies	N/A
Engagement mechanism assemblies	N/A
Outer control rod seal housing assemblies	N/A
Magnet actuator assemblies	N/A
Control rod drive platform assembly	N/A

Reference: Drawing F-42325

Table 12. Reactor vessel components safety-related equipment

Description	Plant ID number
Fuel grid	N/A
Fuel and reflector support pedestals	N/A
Fuel elements	N/A
Reflectors: removable, semipermanent, and permanent	N/A
Target holder assembly	N/A
Target tower assembly	N/A
Fission chamber drive tube assemblies	N/A
Ion chamber tube assemblies	N/A
Inner shroud assembly	N/A
Outer shroud assembly	N/A
Shroud flange assembly	N/A
Lower control rod track assembly	N/A
Upper control rod track assembly	N/A

- Fuel and target assemblies:
 - To maintain structural integrity and a coolable geometry for various operating conditions
 - To maintain the confinement of fission products

2.3.4 Experiment Facilities Part of the High-Pressure Boundary

This section defines experiments or portions of experiments that comprise a class of safety-related components and defines their safety function. Any experiment portion that constitutes part of the primary pressure boundary is considered safety related. The boundary of these facilities is provided in Table 13.

The safety function of the experiment facilities is

- To maintain the integrity of the reactor coolant pressure boundary.

2.3.5 Diesel Generators

The normal-emergency diesel generators are designed to supply emergency power to key safety-related equipment following a loss of off-site power event. The boundary of this system is provided in Table 14.

The safety function of the diesel generators is

- To provide a backup source of electrical power to power the SBHE system fans following a loss of off-site power.

Table 13. Experiment facilities (part of high-pressure boundary safety-related equipment)

Description	Plant ID number
Central rabbit facility piping, valves, and loading station	N/A
Horizontal beam tube aluminum tubes flange assembly, four-bolt marman coupling, and Conoseal joints	HB-1, HB-2 HB-3, HB-4
Pneumatic tube facility (Mk-2) main flight tube, air supply and exhaust tubes, top adapter, Conoseal joint, and flanged coupling	EF-3
Pneumatic tube facility (Mk-1) main flight tube, air supply and exhaust tubes top adapter, O-rings, flange assembly	VXF-7
Transient experiments in-vessel pressure retaining tubes, O-rings, seals, top adapters, forked retainers	N/A

Table 14. Diesel generator safety-related equipment

Generator No. 1

Two dc 32-V starter motors

Starter motor batteries

Starter motor battery charger

Diesel engine No. 1

Diesel generator control panel No. 1

Day tank No. 1 and interconnecting fuel piping

Generator No. 2

Air start motor

Air receiver 04-450-AR-1

Diesel engine No. 2

Diesel generator No. 2 control cabinet

All associated diesel air start piping
from air compressor discharge check valve to
air start motor

Day tank No. 2 and interconnecting fuel piping

Underground storage tank and associated piping

No. 2 fuel oil supply pump

3. SAFETY-RELATED EQUIPMENT LIST

3.1 SAFETY-RELATED EQUIPMENT DATA BASE

3.1.1 General Safety Function

The primary safety functions of each system evaluated are listed in the appropriate section in Chapter 2. For simplicity, these functions were grouped and condensed into a list of 16 general safety functions. These general functions are shown in Table A1 of the appendix.

Two additional functions were added to indicate the need to differentiate "passive" from "active" equipment. The safety function entitled "Essential Equipment Protection" is used to indicate that the component is needed to passively maintain mechanical integrity and, thus, ensure flow path integrity.

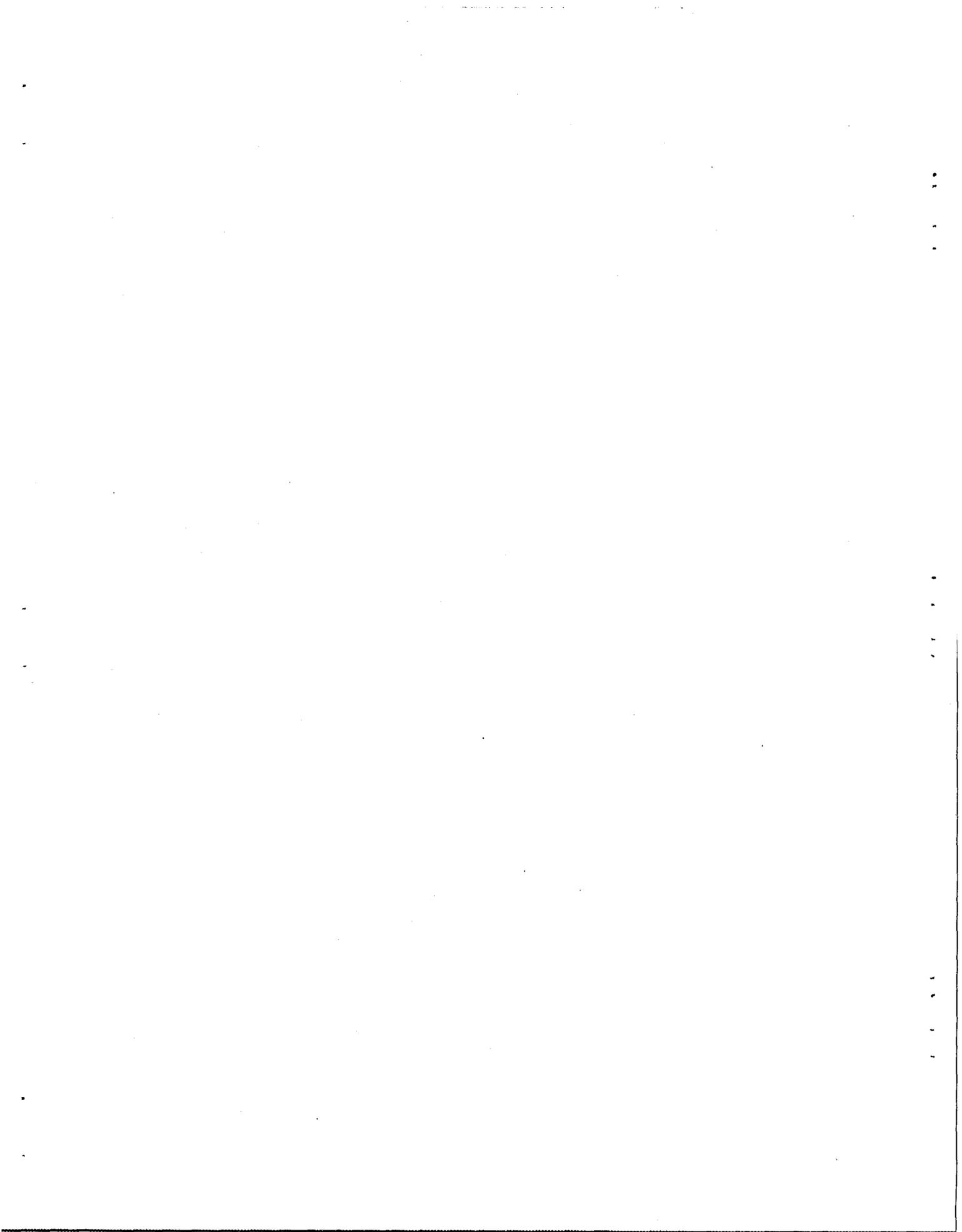
The second added function "Essential Circuit Operability" was used to indicate that a component's circuitry had to maintain integrity either to directly ensure a safety function or to ensure that its failure could not prevent the accomplishment of a safety function.

3.1.2 Data Base

A data base of safety-related equipment was created by reviewing the designated safety systems contained in Table 2. The systems and their components were evaluated to determine the functions each provided during the events contained in Table 1. These functions were correlated to the general safety functions of Table A1. (See Part A 2.1.2 for details.)

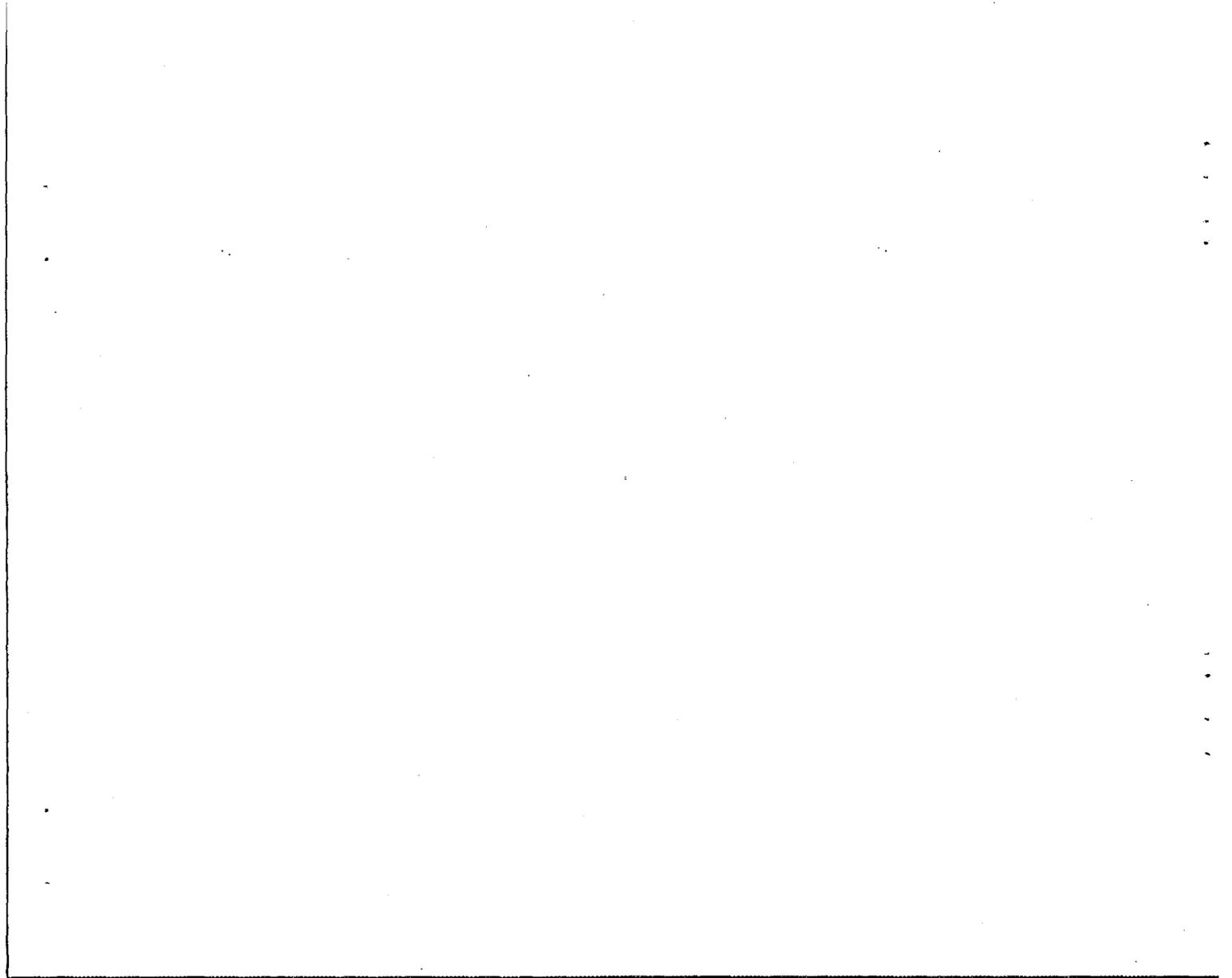
3.1.3 Environmental Qualification (EQ)

The final determination concerning the need to environmentally qualify (EQ) any device or equipment is dependent on the device location, the normal and post-accident environment at that location, and the required equipment response. This determination is made within the EQ Program, which is independent of this document. The results of this determination are reflected in column nine, *EQ File Number*.



4. REFERENCES

1. D. H. Cook, "HFIR Safety-Related Systems Classification," letter report transmittal via internal correspondence to H. B. Piper and K. H. Potect, "Review and Approval of HFIR Safety-Related Systems List," May 26, 1988.
2. D. H. Johnson et al., "The High Flux Isotope Reactor Probabilistic Risk Assessment," Final Report, PLG-0064, January 1988.
3. W. G. Craddick and D. H. Cook, *An Assessment of the Risk of HFIR Operation from Internal Events*, ORNL/RRD/INT-35, May 1988.
4. F. T. Binford et al., *High Flux Isotope Reactor Accident Analysis*, ORNL-3573, April 1967.
5. R. L. Cheverton et al., *Evaluation of HFIR Pressure-Vessel Integrity Considering Radiation Embrittlement*, ORNL/TM-10444, 1988.
6. T. L. Wilson, *HFIR Systems Transient Model*, ORNL/RRD/INT-25, October 1987.
7. D. H. Cook et al., *HFIR Systems Transient Model*, ORNL/RRD/INT-25/A1, June 1988.
8. Pickard, Lowe, and Garrick, Inc., "The High Flux Isotope Reactor Probabilistic Risk Assessment—External Events First Draft Report," March 1989.
9. S. S. Hurt, S. E. Burnette, and W. G. Craddick, "Boundary of the HFIR High-Pressure Primary Coolant System," November 8, 1988.
10. Memo, A. Sozer to D. H. Cook, "Largest Survivable Break During Simultaneous Trip of Reactor and Main Circulation Pumps," November 16, 1988.
11. D. H. Cook, T. D. Radcliff, and T. R. Enright, Impell Corporation, "HFIR Safety-Related Instrument Air system Failure Modes Evaluation", to be published as an RRD internal report. Draft available from D. H. Cook.



PART A

**High Flux Isotope Reactor
Safety-Related Equipment List**

This list and the assessment prepared by:

Tom Enright, Impell, Corp.
Frank Reaves, Impell, Corp.
David Cook, ORNL, RRD

Revision 1

Revisions prepared and assessed by:

Uri Gat
David H. Cook
Steve D. Smith
Rufus A Brown

January 1991

PART A
HIGH FLUX ISOTOPE REACTOR
SAFETY-RELATED SYSTEMS
AND
EQUIPMENT DEFINITION REPORT
AND
SAFETY-RELATED EQUIPMENT LIST

A.1. INTRODUCTION

This report contains the detailed list of the High Flux Isotope Reactor (HFIR) safety-related equipment list.

The list was compiled for two major reasons:

1. To have a comprehensive, controlled list of all HFIR safety-related equipment, and
2. To compile a comprehensive list of equipment that is subject to environmental qualification (EQ).

The list was compiled by reviewing each item on the existing HFIR equipment and instrument list for its safety-related function.

A.2. SAFETY-RELATED EQUIPMENT LIST

A.2.1 Safety-Related Equipment Data Base

A.2.1.1 General Safety Function

The primary safety functions of each system and equipment evaluated were grouped and condensed into a list of 16 general safety functions. These general functions are shown in Table A1.

Two additional functions were added to indicate the need to differentiate "passive" from "active" equipment. The safety function entitled "Essential Equipment Protection" is used to indicate that the component is needed to passively maintain mechanical integrity, and thus, ensure flow path integrity.

The second added function, "Essential Circuit Operability," was used to indicate that a component's circuitry had to maintain integrity either to directly ensure a safety function or to ensure that its failure could not prevent the accomplishment of a safety function.

A.2.1.2 Data Base

The data base of safety-related equipment was created by reviewing the selected designated safety systems (see *HFIR Safety-Related Systems and Equipment Definition Report*, ORNL/RRD/INT-70, first part of this report.) The systems and their components were evaluated to determine the functions each provided during selected events contained in Table 1. These functions were correlated to the general safety functions listed in Table A1.

As a result of these evaluations, components were selected that

- (1) must remain functional to accomplish the safety function, or

- (2) must be fail-safe to ensure their safety function or the safety function of another component.

Existing HFIR data bases were used to create the present computer data base structure. The RRD Operations Section valve and breaker lineup and the Instrumentation and Controls Division Safety System instrument data bases were obtained as initial files. Both of the existing data bases are very broad, covering more equipment than is contained in the system boundaries described in Chapter 2. The existing data bases were reviewed, and components not determined to be safety related were deleted. Additional components were then added to describe equipment not covered in one of the existing data bases.

The equipment is listed beginning on page A-7, sorted in sections, listed on page A-5, major structures, systems, and components. There are nine columns for each entry in the list. The data base maintained on a computer disk has a total of 15 fields, some reserved for future use. The nine displayed columns are

- (1) the plant tag number, where applicable — *Equipment Tag Number*,
- (2) a description of the component — *Description*,
- (3) location — *Building Room*,
- (4) equipment manufacturer or other identifier — *Manufacturer*,
- (5) equipment model or other detail — *Model*,
- (6) a code that specifies the component's safety functions, as tabulated in Table A1 — *Safety Function Code*,
- (7) an event response code — *Event Response Code*,
- (8) identifier, where applicable, if the equipment is in a harsh (H) or mild (M) environment — *Zone*, and
- (9) a column that indicates whether or not this component is subject to environmental qualification, and if so, which EQ file it is in (EQEJ - EQ Exemption Justification; EQDP - EQ Data Package) — *EQ File Number*.

The event response code column was used to designate electrical or electrically powered equipment that is needed to perform a safety function in response to an accident. Mechanical equipment is not considered under this column because it requires no EQ.

Of the events tabulated in Table 1, only four may result in harsh or potentially harsh environments. These accident conditions, and their associated code designator are provided in Table 13. Only these four codes are listed in column (7), *Event Response Code*.

The final data base column, entitled "EQ File Number," is used to identify any electrical or electrically powered device needed to function in response to any one of the four accidents identified in Table 13. As a result of its required operability, a respective EQEJ (Exempt Justification) or EQDP (Data Package) file number was placed in the column to designate that the component requires environmental qualification, and thus also indicating the EQ disposition of that equipment. Equipment that is normally in a harsh environment is also listed in this column.

Table A1. System safety function codes applicable to the safety-related equipment list

The various safety functions are classified by categories. Each category is designated by an identifying letter. The designation are

Safety function

Code	Description
A.	Reactor coolant pressure boundary
B.	Overcooling protection
C.	Nuclear shutdown/reactivity control
D.	Decay heat removal
E.	Inventory control
F.	Confinement
G.	Environmental protection (outside events)
H.	Building structural integrity and radiation shielding
I.	Fuel handling and transport
J.	Heavy load handling
K.	Essential electrical power
L.	Essential pneumatic
M.	Essential HVAC
N.	Essential access or habitability
O.	Essential equipment protection (includes mechanical integrity, flow path integrity, etc.)
P.	Essential circuit

The various accidents that bound the environmental conditions are designated by event response codes. The letter designations are

A.	Large-break loss of coolant
B.	Small-break loss of coolant
C.	Core flow blockage
D.	Fuel handling accident

Environmental qualification data:

ZONE:	H – Harsh environment M – Mild environment (Provided only for items subject to EQ)
EQ File Number:	EQEJ – Environmental Qualification Exempt Justification EQDP – Environmental Qualification Data Package (Provided only for items subject to EQ)

PART A

HFIR Safety-Related Equipment List Sections

	Section name	Page
01.	Reactor building	A-7
02.	Control and water wing	A-8
03.	Electrical building	A-9
04.	Reactor pool system	A-10
05.	Spent fuel (clean) pool system	A-12
06.	Reactor bay bridge crane 30T/ST	A-14
07.	Personnel/pool bridge	A-15
08.	Primary coolant high-pressure system	A-16
09.	Primary coolant low-pressure system	A-32
10.	Reactor safety system	A-40
11.	Pony motor battery system	A-51
12.	Special building hot exhaust system	A-52
13.	Normal-emergency power system	A-56
14.	Instrument air system	A-61
15.	Control cylinder/drive mechanisms	A-62
16.	Shim-safety plates/drive mechanisms	A-63
17.	Reactor vessel internals	A-64
18.	Experiment facilities (part of the high-pressure boundary)	A-65
19.	Emergency diesel generator system	A-68



12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: J.D. Smith DATE: 12-3-90 VERIFIED BY: Russell P. Brown DATE: 12/10/90

01. REACTOR BUILDING
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EO FILE NUMBER
N/A	REACTOR BUILDING				F, G, H			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: A.D. Smith

DATE: 12-3-90

VERIFIED BY: Rufus L. Brown DATE: 12/10/90

02. CONTROL AND WATER WING
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
N/A	CONTROL AND WATER WING				G, H			

12/03/90

ORIGINATED BY: J.D. Smith

DATE: 12-3-90

VERIFIED BY: Refers A. Brown

DATE: 12/10/90

03. ELECTRICAL BUILDING
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
N/A	ELECTRICAL BUILDING				G, H			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S. D. Smith DATE: 12-3-90 VERIFIED BY: Robert A. Brown DATE: 12/10/90

04. REACTOR POOL SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
01-523-DC-1	DRESSER COUPLING					0			
01-523-DC-2	DRESSER COUPLING					0			
01-523-DC-3	DRESSER COUPLING					0			
01-523-DC-4	DRESSER COUPLING					0			
FCV-464	REACTOR POOL FLOW RETURN ISOLATION					0			
FCV-469	REACTOR POOL TO POOL DEARATOR ISOLATION					0			
FE-425	REACTOR POOL COOLANT RETURN FLOW ELEMENT					0			
FT-425	REACTOR POOL COOLANT RETURN FLOW					0			
LE-422	REACTOR POOL (FLOAT) LEVEL DETECTOR	7900	210	ROBERT SHAW-FULTON	SL-102-83	F, P	A, B	H	ECEJ-010
LSS-422	REACTOR POOL HIGH LEVEL SWITCH	7900	210	ROBERT SHAW-FULTON	SL-102-83	F, P	A, B	H	ECEJ-020
N/A	REACTOR POOL AND STAINLESS STEEL LINER					0			
N/A	REACTOR POOL PENETRATIONS AND SEALS					0			
TW-431	REACTOR POOL OUTLET THERMOWELL					0			
V-1204	REACTOR POOL COOLANT RETURN LINE VALVE					0			
V-1244	REACTOR POOL CLEANUP RETURN LINE VALVE					0			
V-1269	POOL COOLANT RETURN LINE CHECK VALVE					0			
V-1271	REACTOR POOL COOLANT RETURN LINE VALVE					0			
V-1275	REACTOR POOL OUTLET VALVE					0			
V-2341	POOL CLEANUP SUPPLY TO EF AND H8 FACILITIES					0			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: A. D. Smith

DATE: 12-3-90

VERIFIED BY: Rufus A. Brown

DATE: 12/14/90

04. REACTOR POOL SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
V-313	FT-425 ISOLATION VALVE				0			
V-314	FT-425 ISOLATION VALVE				0			
V-8717	REACTOR POOL COOLANT RETURN LINE VENT				0			
V-8721	POOL CLEANUP RETURN LINE CHECK VALVE				0			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: J.A. Smith DATE: 12-3-90 VERIFIED BY: Rufus A. Brown DATE: 12/10/90

05. SPENT FUEL (CLEAN) POOL SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
39	INNER AND OUTER SPENT FUEL (OUT OF CORE) HANDLING TOOL					I			
5	TARGET TOWER HANDLING TOOL					I			
6L	TARGET TOWER HANDLING TOOL (LONG)					I			
6S	TARGET TOWER HANDLING TOOL (SHORT)					I			
7	INNER FUEL ELEMENT HANDLING TOOL					I			
9	OUTER FUEL ELEMENT HANDLING TOOL					I			
FCV-465	CLEAN POOL FLOW RETURN ISOLATION					O			
FCV-466	CLEAN POOL FLOW RETURN ISOLATION					O			
FE-468	CLEAN POOL COOLANT RETURN FLOW ELEMENT					O			
FT-468	CLEAN POOL COOLANT RETURN FLOW					O			
LE-458	CLEAN POOL (FLOAT) LEVEL DETECTOR	7900	210	ROBERT SHAW-FULTON	SL-102-83	F	A, B, D	H	EQEJ-010
LE-463	CLEAN POOL (FLOAT) LEVEL DETECTOR	7900	210	ROBERT SHAW-FULTON	SL-102-83	F	A, B, D	H	EQEJ-010
LSS-458	CLEAN POOL HIGH LEVEL SWITCH	7900	210	ROBERT SHAW-FULTON	SL-102-83	F	A, B, D	H	EQEJ-020
LSS-463	CLEAN POOL HIGH LEVEL SWITCH	7900	210	ROBERT SHAW-FULTON	SL-102-83	F	A, B, D	H	EQEJ-020
N/A	CLEAN POOL AND STAINLESS STEEL LINER					O			
N/A	CLEAN POOL PENETRATIONS AND SEALS					O			
N/A	SPENT FUEL STORAGE RACKS					O			
V-1208	CLEAN POOL COOLANT RETURN LINE VALVE					O			
V-1272	CLEAN POOL COOLANT RETURN LINE VALVE					O			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: J. D. Smith

DATE: 12-3-90

VERIFIED BY: Robert B. Brown

DATE: 12/10/90

05. SPENT FUEL (CLEAN) POOL SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O M E	EQ FILE NUMBER
V-1273	CLEAN POOL CLEANUP RETURN LINE VALVE				0			
V-339	FT-468 ISOLATION VALVE				0			
V-340	FT-468 ISOLATION VALVE				0			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: A. D. Smith DATE: 12-3-90 VERIFIED BY: Roger A. Brown DATE: 12/10/90

06. REACTOR BAY BRIDGE CRANE 50T/3T
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
N/A	REACTOR BAY BRIDGE CRANE 50T/3T				H, J			
N/A	REACTOR BAY BRIDGE CRANE 50T/3T CABLING AND HOOKS				H, J			

12/03/90

ORIGINATED BY: J. D. Smith DATE: 12-3-90 VERIFIED BY: Russell Brown DATE: 12/10/90

07. PERSONNEL/POOL BRIDGE
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
N/A	PERSONNEL/POOL BRIDGE					H, I		
N/A	PERSONNEL/POOL BRIDGE CABLING AND HOOKS					H, I		

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: A. D. Smith DATE: 12-3-90 VERIFIED BY: Roger A. Brown DATE: 12/10/90

08. PRIMARY COOLANT HIGH PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
01-405-RV-1	REACTOR VESSEL					A, D, F			
01-415-PU-1A	PRIMARY COOLANT PUMP 'A'					A, D, F			
01-415-PU-1A	PRIMARY COOLANT PUMP 'A' AC MOTOR AND LOW PRESSURE TRIP CIRCUIT AND CONTROLS	7900	113			O, P	B, C	H	EQJ-018
01-415-PU-1B	PRIMARY COOLANT PUMP 'B'					A, D, F			
01-415-PU-1B	PRIMARY COOLANT PUMP 'B' AC MOTOR AND LOW PRESSURE TRIP CIRCUIT AND CONTROLS	7900	112			O, P	B, C	H	EQJ-018
01-415-PU-1C	PRIMARY COOLANT PUMP 'C'					A, D, F			
01-415-PU-1C	PRIMARY COOLANT PUMP 'C' AC MOTOR AND LOW PRESSURE TRIP CIRCUIT AND CONTROLS	7900	111			O, P	B, C	H	EQJ-018
01-415-PU-1D	PRIMARY COOLANT PUMP 'D'					A, D, F			
01-415-PU-1D	PRIMARY COOLANT PUMP 'D' AC MOTOR AND LOW PRESSURE TRIP CIRCUIT AND CONTROLS	7900	110			O, P	B, C	H	EQJ-018
01-415-PU-1E	PRIMARY COOLANT PUMP 'A' DC PONY MOTOR	7900	113	IDEAL	FRAME D364	O, D, P	B, C	H	EQDP-001
01-415-PU-1E-CBL	PRIMARY COOLANT PUMP 'A' DC PONY MOTOR POWER CABLES	7900	113			O, D, P	B, C	H	EQDP-002
01-415-PU-1F	PRIMARY COOLANT PUMP 'B' DC PONY MOTOR	7900	112	IDEAL	FRAME D364	O, D, P	B, C	H	EQDP-001
01-415-PU-1F-CBL	PRIMARY COOLANT PUMP 'B' DC PONY MOTOR POWER CABLES	7900	112			O, D, P	B, C	H	EQDP-002
01-415-PU-1G	PRIMARY COOLANT PUMP 'C' DC PONY MOTOR	7900	111	IDEAL	FRAME D364	O, D, P	B, C	H	EQDP-001
01-415-PU-1G-CBL	PRIMARY COOLANT PUMP 'C' DC PONY MOTOR POWER CABLES	7900	111			O, D, P	B, C	H	EQDP-002
01-415-PU-1H	PRIMARY COOLANT PUMP 'D' DC PONY MOTOR	7900	110	IDEAL	FRAME D364	O, D, P	B, C	H	EQDP-001

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: A.D. Smith DATE: 12-3-90 VERIFIED BY: Roger A. Brown DATE: 12/10/90

OB. PRIMARY COOLANT HIGH PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
01-415-PU-1H-CBL	PRIMARY COOLANT PUMP 'D' DC PONY MOTOR POWER CABLES	7900	110			O, D, P	B, C	H	EQDP-002
01-430-EX-1A	PRIMARY HX 'A'					A, D			
01-430-EX-1B	PRIMARY HX 'B'					A, D			
01-430-EX-1C	PRIMARY HX 'C'					A, D			
01-430-EX-1D	PRIMARY HX 'D'					A, D			
FCV-140	EX-1A INLET VALVE					A, D			
FCV-142	EX-1B INLET VALVE					A, D			
FCV-144	EX-1C INLET VALVE					A, D			
FCV-149	PU-1A DISCHARGE VALVE					A, D			
FCV-151	PU-1B DISCHARGE VALVE					A, D			
FCV-153	PU-1C DISCHARGE VALVE					A, D			
FCV-200-1	FSV-200 BLOCK VALVE SOLENOID ACTUATOR	7900	G-10	SKINNER	V5H3065D	F, P	A, B, C	H	EQDP-004.1
FCV-200-1-CBL	FSV-200 BLOCK VALVE SOLENOID ACTUATOR CONTROL CABLE	7900	G-5/G-10			F, P	A, B, C	H	EQEJ-018
FCV-212	FSV-212 BLOCK VALVE SOLENOID ACTUATOR	7900	G-4A	SKINNER	V53ADA1100	F, P	A, B, C	H	EQEJ-007
FCV-212-CBL	FSV-212 BLOCK VALVE SOLENOID ACTUATOR CONTROL CABLE	7900	G-4A/G-5			F, P	A, B, C	H	EQEJ-007
FCV-550	EX-1D INLET VALVE					A, D			
FCV-551	PU-1D DISCHARGE VALVE					A, D			
FE-100	REACTOR INLET FLOW ELEMENT					A, D, C			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S. D. SmithDATE: 12-3-90VERIFIED BY: Robert A. BrownDATE: 12/10/9008. PRIMARY COOLANT HIGH PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
FSV-200	BLOCK VALVE 200 SYSTEM				A, F			
FSV-212	BLOCK VALVE FOR O2 ANALYZER				A, F			
FT-100-4	REGULATING CHANNEL A FLOW TRANSMITTER				A			
FT-100-5	REGULATING CHANNEL B FLOW TRANSMITTER				A			
FT-100-6	REGULATING CHANNEL C FLOW TRANSMITTER				A			
FT-EF-1	PRESSURE VESSEL FLOW MONITORING DIFFERENTIAL PRESSURE TRANSMITTER				A			
FT-EF-2	PRESSURE VESSEL FLOW MONITORING DIFFERENTIAL PRESSURE TRANSMITTER				A			
FT-EF-3	PRESSURE VESSEL FLOW MONITORING DIFFERENTIAL PRESSURE TRANSMITTER				A			
FT-EF-4	PRESSURE VESSEL FLOW MONITORING DIFFERENTIAL PRESSURE TRANSMITTER				A			
FT-HB-1	PRESSURE VESSEL FLOW MONITORING DIFFERENTIAL PRESSURE TRANSMITTER				A			
FT-HB-2	PRESSURE VESSEL FLOW MONITORING DIFFERENTIAL PRESSURE TRANSMITTER				A			
FT-HB-3	PRESSURE VESSEL FLOW MONITORING DIFFERENTIAL PRESSURE TRANSMITTER				A			
FT-HB-4	PRESSURE VESSEL FLOW MONITORING DIFFERENTIAL PRESSURE TRANSMITTER				A			
FT-RP-1/RP-3	PRESSURE VESSEL FLOW MONITORING DIFFERENTIAL PRESSURE TRANSMITTER				A			
FT-RP-2/RP-4	PRESSURE VESSEL FLOW MONITORING DIFFERENTIAL PRESSURE TRANSMITTER				A			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S. D. Smith DATE: 12-3-90 VERIFIED BY: Robert B. Green DATE: 12/10/90

08. PRIMARY COOLANT HIGH PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
FT-RP-4/W16	PRESSURE VESSEL FLOW MONITORING DIFFERENTIAL PRESSURE TRANSMITTER				A			
FT-RP-4/RP-3	PRESSURE VESSEL FLOW MONITORING DIFFERENTIAL PRESSURE TRANSMITTER				A			
HCV-100-1A	FLUX-TO-FLOW SAFETY TEST VALVE				A			
HCV-100-1A-1	PNEUMATICALLY CONTROLLED VALVES FOR HOT WATER INJECTION TO INLET SAFETY TEST				A, F			
HCV-100-1B-1	PNEUMATICALLY CONTROLLED VALVES FOR HOT WATER INJECTION TO OUTLET SAFETY TEST				A, F			
HCV-100-1C	FLUX-TO-FLOW SAFETY TEST VALVE				A			
HCV-100-2A	FLUX-TO-FLOW SAFETY TEST VALVE				A			
HCV-100-2A-1	PNEUMATICALLY CONTROLLED VALVES FOR HOT WATER INJECTION TO INLET SAFETY TEST				A, F			
HCV-100-2B-1	PNEUMATICALLY CONTROLLED VALVES FOR HOT WATER INJECTION TO OUTLET SAFETY TEST				A, F			
HCV-100-2C	FLUX-TO-FLOW SAFETY TEST VALVE				A			
HCV-100-3A	FLUX-TO-FLOW SAFETY TEST VALVE				A			
HCV-100-3A-1	PNEUMATICALLY CONTROLLED VALVES FOR HOT WATER INJECTION TO INLET SAFETY TEST				A, F			
HCV-100-3B-1	PNEUMATICALLY CONTROLLED VALVES FOR HOT WATER INJECTION TO OUTLET SAFETY TEST				A, F			
HCV-100-3C	FLUX-TO-FLOW SAFETY TEST VALVE				A			
HCV-1003-1	DEAERATOR BYPASS VALVE				A, F			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S. D. Smith DATE: 12-3-90 VERIFIED BY: Richard B. Carson DATE: 12/10/90

08. PRIMARY COOLANT HIGH PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
HCV-102-A	REACTOR VENT VALVE				A, F			
HCV-128-2	DEPRESSURIZATION SYSTEM KEY OPERATED ISOLATION VALVE				A, B			
HCV-128-A1	LOW PRESSURE ALARM TEST VALVE 'A'				A, F			
HCV-128-B1	LOW PRESSURE ALARM TEST VALVE 'B'				A, F			
HCV-128-C1	LOW PRESSURE ALARM TEST VALVE 'C'				A, F			
HCV-180-A	FCV-140 BYPASS				A			
HCV-181-A	FCV-142 BYPASS				A			
HCV-182-A	FCV-144 BYPASS				A			
HCV-583A	FCV-550 BYPASS				A			
HV-128-1	DEPRESSURIZATION SYSTEM MANUAL ISOLATION VALVE				A, B			
HV-128A	LOW PRESSURE ALARM ISOLATION VALVE 'A'				A			
HV-128B	LOW PRESSURE ALARM ISOLATION VALVE 'B'				A			
HV-128C	LOW PRESSURE ALARM ISOLATION VALVE 'C'				A			
HV-141-A2	BLOCK VALVES				A, F			
HV-141-B2	BLOCK VALVES				A, F			
HV-141-C2	BLOCK VALVES				A, F			
HV-141-D2	BLOCK VALVES				A, F			
HV-169	OXYGEN ANALYZER SUPPLY				A			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Ryland B. Conn DATE: 12/10/90

08. PRIMARY COOLANT HIGH PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
HV-1A	HOT WATER INJECTION SYSTEM SHUTOFF				A			
HV-1B	HOT WATER INJECTION SYSTEM SHUTOFF				A			
HV-1C	HOT WATER INJECTION SYSTEM SHUTOFF				A			
HV-1D	HOT WATER INJECTION SYSTEM SHUTOFF				A			
HV-232	SUPPLY TO SAMPLE BOMB				A, F			
HV-272	OXYGEN ANALYZER SUPPLY				A			
HV-2A	HOT WATER INJECTION SYSTEM SHUTOFF				A			
HV-2B	HOT WATER INJECTION SYSTEM SHUTOFF				A			
HV-2C	HOT WATER INJECTION SYSTEM SHUTOFF				A			
HV-2D	HOT WATER INJECTION SYSTEM SHUTOFF				A			
HV-304	BLOCK VALVE FROM PRESSURE PUMP TO CONTROL ROD #5				A			
HV-305	BLOCK VALVE FROM PRESSURE PUMP TO CONTROL ROD #3				A			
HV-306	BLOCK VALVE FROM PRESSURE PUMP TO CONTROL ROD #2				A			
HV-307	BLOCK VALVE FROM PRESSURE PUMP TO CONTROL ROD #4				A			
HV-308	BLOCK VALVE FROM PRESSURE PUMP TO CONTROL ROD #1				A			
HV-309	DRAIN FROM PRESSURE PUMP TO CONTROL RODS				A			
HV-310	REACTOR H2O SYSTEM MAIN BLOCK VALVE				A			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: J. D. Smith DATE: 12-3-90 VERIFIED BY: Raymond A. Brown DATE: 12/19/90

QB. PRIMARY COOLANT HIGH PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
HV-3A	HOT WATER INJECTION SYSTEM SHUTOFF				A			
HV-3B	HOT WATER INJECTION SYSTEM SHUTOFF				A			
HV-3C	HOT WATER INJECTION SYSTEM SHUTOFF				A			
HV-3D	HOT WATER INJECTION SYSTEM SHUTOFF				A			
L-428	DEPRESSURIZATION SYSTEM CONTROL VALVE PCV-128-3 SOLENOID ACTUATOR	7900 G-10	ASCO	8300A81F	B, P	C	H	EQEJ-015
L-428-CBL	DEPRESSURIZATION SYSTEM CONTROL VALVE PCV-128-3 SOLENOID ACTUATOR CONTROL CABLE	7900 G-10			B, P	C	H	EQEJ-015
L-429	DEPRESSURIZATION SYSTEM CONTROL VALVE PCV-128-4 SOLENOID ACTUATOR	7900 G-10	ASCO	8300A81F	B, P	C	H	EQEJ-015
L-429-CBL	DEPRESSURIZATION SYSTEM CONTROL VALVE PCV-128-4 SOLENOID ACTUATOR CONTROL CABLE	7900 G-10			B, P	C	H	EQEJ-015
L-430A	HCV-128-2 DEPRESSURIZATION SYSTEM ISOLATION VALVE SOLENOID ACTUATOR	7900 G-10	ASCO	8300A81F	B, P	C	H	EQEJ-016
L-430A-CBL	HCV-128-2 DEPRESSURIZATION SYSTEM ISOLATION VALVE SOLENOID ACTUATOR CONTROL CABLE	7900 G-10			B, P	C	H	EQEJ-016
L-430B	HCV-128-2 DEPRESSURIZATION SYSTEM ISOLATION VALVE SOLENOID ACTUATOR	7900 G-10	ASCO	8300A81F	B, P	C	H	EQEJ-016
L-430B-CBL	HCV-128-2 DEPRESSURIZATION SYSTEM ISOLATION VALVE SOLENOID ACTUATOR CONTROL CABLE	7900 G-10			B, P	C	H	EQEJ-016
N/A	INNER CONTROL ROD BALANCE SYSTEM ACCUMULATOR #1				A			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: J. A. Smith DATE: 12-3-90 VERIFIED BY: Rufus A. Brown DATE: 12/14/90

08. PRIMARY COOLANT HIGH PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
N/A	LENTICULAR STRAINER REACTOR INLET				A, D			
N/A	RUPTURE DISC #1 - PRIMARY SYSTEM				A			
N/A	RUPTURE DISC #2 - PRIMARY SYSTEM				A			
PCV-127-10A	LETDOWN BLOCK VALVE (HX 'C')				A, F, E			
PCV-127-10B	LETDOWN BLOCK VALVE PCV-127-10A SOLENOID 7900 ACTUATOR	111	SKINNER	LP3LB3150	F, E, P	A, B, C	H	EQDP-004.2
PCV-127-10B-CBL	LETDOWN BLOCK VALVE PCV-127-10A SOLENOID 7900 ACTUATOR CONTROL CABLE	111			F, E, P	A, B, C	H	EQEJ-018
PCV-127-11A	LETDOWN BLOCK VALVE (HX 'D')				A, E, F			
PCV-127-11B	LETDOWN BLOCK VALVE PCV-127-11A SOLENOID 7900 ACTUATOR	110	ASCO	8300D9RU	F, E, P	A, B, C	H	EQDP-003
PCV-127-11B-CBL	LETDOWN BLOCK VALVE PCV-127-11A SOLENOID 7900 ACTUATOR CONTROL CABLE	110			F, E, P	A, B, C	H	EQEJ-018
PCV-127-1A	LETDOWN BLOCK VALVE (HX 'A')				A, F, E			
PCV-127-1B	LETDOWN BLOCK VALVE PCV-127-1A SOLENOID 7900 ACTUATOR	113	ASCO	8300C61F	F, E, P	A, B, C	H	EQDP-003
PCV-127-1B-CBL	LETDOWN BLOCK VALVE PCV-127-1A SOLENOID 7900 ACTUATOR CONTROL CABLE	113			F, E, P	A, B, C	H	EQEJ-018
PCV-127-2A	LETDOWN BLOCK VALVE (HX 'B')				A, F, E			
PCV-127-2B	LETDOWN BLOCK VALVE PCV-127-2A SOLENOID 7900 ACTUATOR	112	ASCO	8300D61F	F, E, P	A, B, C	H	EQDP-003
PCV-127-2B-CBL	LETDOWN BLOCK VALVE PCV-127-2A SOLENOID 7900 ACTUATOR CONTROL CABLE	112			F, E, P	A, B, C	H	EQEJ-018

12/13/90

ORNL/RRD/INT-70, REV. 1

 ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Rufus A. Brown DATE: 12/10/90

 08. PRIMARY COOLANT HIGH PRESSURE SYSTEM
 HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
PCV-127-3A	LETDOWN BLOCK VALVE (HX 'C')				A, F, E			
PCV-127-3B	LETDOWN BLOCK VALVE PCV-127-3A SOLENOID ACTUATOR	7900 111	ASCO	8300C61F	F, E, P	A, B, C	H	EQDP-003
PCV-127-3B-CBL	LETDOWN BLOCK VALVE PCV-127-3A SOLENOID ACTUATOR CONTROL CABLE	7900 111			F, E, P	A, B, C	H	EQEJ-018
PCV-127-4	LETDOWN CONTROL VALVE (HX 'A')				A			
PCV-127-4A	LETDOWN BLOCK VALVE (HX'D')				A, E, F			
PCV-127-4B	LETDOWN BLOCK VALVE PCV-127-4A SOLENOID ACTUATOR	7900 110	ASCO	8300C61RF	F, E, P	A, B, C	H	EQDP-003
PCV-127-4B-CBL	LETDOWN BLOCK VALVE PCV-127-4A SOLENOID ACTUATOR CONTROL CABLE	7900 110			F, E, P	A, B, C	H	EQEJ-018
PCV-127-5	LETDOWN CONTROL VALVE (HX 'B')				A			
PCV-127-6	LETDOWN CONTROL VALVE (HX 'C')				A			
PCV-127-7	LETDOWN CONTROL VALVE (HX'D')				A			
PCV-127-8A	LETDOWN BLOCK VALVE (HX 'A')				A, F, E			
PCV-127-8B	LETDOWN BLOCK VALVE PCV-127-8A SOLENOID ACTUATOR	7900 113	SKINNER	V5H30650	F, E, P	A, B, C	H	EQDP-004.1
PCV-127-8B-CBL	LETDOWN BLOCK VALVE PCV-127-8A SOLENOID ACTUATOR CONTROL CABLE	7900 113			F, E, P	A, B, C	H	EQEJ-018
PCV-127-9A	LETDOWN BLOCK VALVE (HX 'B')				A, F, E			
PCV-127-9B	LETDOWN BLOCK VALVE PCV-127-9A SOLENOID ACTUATOR	7900 112	ASCO	8300D9RU	F, E, P	A, B, C	H	EQDP-003

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: A.D. Smith DATE: 12-3-90 VERIFIED BY: Richard B. Coon DATE: 12/14/90

08. PRIMARY COOLANT HIGH PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
PCV-127-98-CBL	LETDOWN BLOCK VALVE PCV-127-9A SOLENOID ACTUATOR CONTROL CABLE	7900	112			F, E, P	A, B, C	H	EQEJ-018
PCV-128-3	DEPRESSURIZATION SYSTEM CONTROL VALVE					A, B, F			
PCV-128-4	DEPRESSURIZATION SYSTEM CONTROL VALVE					A, B, F			
PDI-270	PRIMARY SYSTEM TO DEMIN WATER DIFFERENTIAL PRESSURE					A			
PDS-260	PRIMARY SYSTEM TO HYDRAULIC FLUID DIFFERENTIAL PRESSURE					A			
PDT-103	REACTOR INLET STRAINER DP TRANSMITTER					A			
PDT-106	REACTOR VESSEL DP TRANSMITTER					A			
PDT-110	RCS Hx A					A			
PDT-114	RCS Hx B					A			
PDT-118	RCS HX C					A			
PDT-554	RCS Hx D					A			
PI-112	RCS PMP A Disch					A			
PI-116	RCS PMP B Disch					A			
PI-120	RCS PMP C Disch					A			
PI-127	REACTOR INLET PRESSURE GAUGE					A			
PI-150	RUPTURE DISC LEAKAGE PRESSURE GAUGE					A			
PI-157	RUPTURE DISC LEAKAGE PRESSURE GAUGE					A			
PI-186	RCS PMP A Seal LTDN					A			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: J.D. Smith DATE: 12-3-90 VERIFIED BY: Refers A. Brown DATE: 12/10/90

DB. PRIMARY COOLANT HIGH PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
PI-187	RCS PMP B Seal LTDN					A			
PI-188	RCS PMP C Seal LTDN					A			
PI-267	PRIMARY SYSTEM PRESSURE					A			
PI-555	RCS PMP D Disch					A			
PI-559	RCS PMP D Seal LTDN					A			
PSS-127-B-1	RX PRESS SWITCH	7900	G-11	BARKSDALE	B2T-A12SS	A, B, D, P	B, C	H	EQDP-006
PSS-127-B-2	RX PRESS SWITCH	7900	G-11	BARKSDALE	B2T-A12SS	A, B, D, P	B, C	H	EQDP-006
PSV-150	PRIMARY SYSTEM RELIEF VALVE					A, O			
PSV-157	PRIMARY SYSTEM RELIEF VALVE					A, O			
PT-104	RCS Vent Line					A			
PT-127	REACTOR INLET PRESSURE					A			
TE-100-4A	REGULATING CHANNEL A RCS INLET TEMP					A			
TE-100-4B	REGULATING CHANNEL A RCS OUTLET TEMP					A			
TE-100-5A	REGULATING CHANNEL B RCS INLET TEMP					A			
TE-100-5B	REGULATING CHANNEL B RCS OUTLET TEMP					A			
TE-100-6A	REGULATING CHANNEL C RCS INLET TEMP					A			
TE-100-6B	REGULATING CHANNEL C RCS OUTLET TEMP					A			
TS-130A	PU-1A HIGH BEARING TEMP SWITCH	7900	302	RIS	ET-1208-H3-0	O, D, P	B, C	M	EQEJ-002
TS-131A	PU-1B HIGH BEARING TEMP SWITCH	7900	302	RIS	ET-1208-H3-0	O, D, P	B, C	M	EQEJ-002
TS-132A	PU-1C HIGH BEARING TEMP SWITCH	7900	302	RIS	ET-1208-H3-0	O, D, P	B, C	M	EQEJ-002

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Refus A. Brown DATE: 12/10/90

08. PRIMARY COOLANT HIGH PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
TS-133A	PU-1D HIGH BEARING TEMP SWITCH	7900	302	RIS	ET-1208-N3-0	O, D, P	B, C	M	EQEJ-002
TW-107	RCS THERMOWELL					A			
TW-136	RCS THERMOWELL					A			
TW-137	RCS THERMOWELL					A			
TW-138	RCS THERMOWELL					A			
TW-139	RCS THERMOWELL					A			
V-1000	PU-1A CHECK VALVE					A, D			
V-1001	PU-1B CHECK VALVE					A, D			
V-1002	PU-1C CHECK VALVE					A, D			
V-1011	PU-1C VENT					A, F			
V-1071	EX-1A HEAD DRAIN					A, F			
V-1072	EX-1B HEAD DRAIN					A, F			
V-1073	EX-1C HEAD DRAIN					A, F			
V-110-1	EX-1A D/P GAUGE ISOLATION VALVE					A			
V-110-2	EX-1A D/P GAUGE ISOLATION VALVE					A			
V-1123	FE-100 ISOLATION VALVE					A			
V-1124	FE-100 ISOLATION VALVE					A			
V-1129	EX-1C D/P GAUGE ISOLATION VALVE					A			
V-1130	EX-1B D/P GAUGE ISOLATION VALVE					A			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Refers A. B. Coon DATE: 12/19/90

08. PRIMARY COOLANT HIGH PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
V-1131	EX-1A D/P GAUGE ISOLATION VALVE				A			
V-1132	PU-1A DISCHARGE PRESSURE ISOLATION				A			
V-1134	PU-1B DISCHARGE PRESSURE ISOLATION				A			
V-1135	PU-1B VENT				A, F			
V-1136	PU-1C DISCHARGE PRESSURE ISOLATION				A			
V-1137	PU-1A VENT				A, F			
V-114-1	EX-1B D/P GAUGE ISOLATION VALVE				A			
V-114-2	EX-1B D/P GAUGE ISOLATION VALVE				A			
V-118-1	EX-1C D/P GAUGE ISOLATION				A			
V-118-2	EX-1C D/P GAUGE ISOLATION				A			
V-1191	SEAL WATER INLET CHECK				A, F			
V-1192	SEAL WATER INLET CHECK				A, F			
V-1193	SEAL WATER INLET CHECK				A, F			
V-1194	EX-1A VENT				A, F			
V-1195	EX-1B VENT				A, F			
V-1196	EX-1C VENT				A, F			
V-1198	CHECK VALVE (PZR PUMP)				A, E, F			
V-127-2	PT-127 ISOLATION				A			
V-142	CHAMBER A PRESSURE GAUGE ISOLATION (1C)				A			

12/03/90

ORNL/RRD/INT-70, REV. 1

 ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Richard A. Brown DATE: 12/19/90

 08. PRIMARY COOLANT HIGH PRESSURE SYSTEM
 HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
V-144	CHAMBER A PRESSURE GAUGE ISOLATION (1B)				A			
V-146	CHAMBER A PRESSURE GAUGE ISOLATION (1A)				A			
V-162	PU-1D CHECK VALVE				A, D			
V-182	RUPTURE DISC LINE DRAIN				A			
V-183	RUPTURE DISC LINE DRAIN				A			
V-184	FE-100 ISOLATION VALVE				A			
V-185	FE-100 ISOLATION VALVE				A			
V-186	FE-100 ISOLATION VALVE				A			
V-187	FE-100 ISOLATION VALVE				A			
V-189	EX-1D VENT				A, F			
V-190	EX-1D D/P GAUGE ISOLATION VALVE				A			
V-191	PU-1D DISCHARGE PRESSURE ISOLATION				A			
V-192A	PRESSURE CONTROL VALVE CHAMBER A-B (1C)				A, F			
V-193A	PU-1B SEAL WATER CHAMBER A TO B PRESS. CONTROL				A, F			
V-194A	PRESSURE CONTROL VALVE CHAMBER A-B (1A)				A, F			
V-203	PU-1D VENT				A, F			
V-204	EX-1D HEAD DRAIN				A, F			
V-205	SEAL WATER INLET CHECK				A, F			
V-206	CHAMBER A PRESSURE GAUGE ISOLATION (1D)				A			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S. D. Smith DATE: 12-3-90 VERIFIED BY: Ref. S. O. Brown DATE: 12/10/90

08. PRIMARY COOLANT HIGH PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
V-251	ACCUMULATOR #1 TOP BLOCK VALVE				A			
V-252	REACTOR H2O SYSTEM PRESSURE INDICATOR BLOCK VALVE				A			
V-254	DIFFERENTIAL PRESSURE INDICATOR VENT				A			
V-258	PRESSURE INDICATOR BLOCK VALVE				A			
V-259	REACTOR H2O SYSTEM VENT				A			
V-260	DIFFERENTIAL PRESSURE SWITCH BLOCK VALVE				A			
V-261	DIFFERENTIAL PRESSURE SWITCH VENT				A			
V-311-E	REACTOR EQUALIZING VALVE				A			
V-312	REACTOR VACUUM BREAK CHECK VALVE				A, D			
V-554-1	EX-10 D/P GAUGE ISOLATION VALVE				A			
V-554-2	EX-10 D/P GAUGE ISOLATION VALVE				A			
V-561A	PRESSURE CONTROL VALVE CHAMBER A-B (1D)				A, F			
V?	TE-105 SYSTEM ISOLATION VALVE				A, F			
XV-21	HOT WATER INJECTION CHECK VLV				A			
XV-22	HOT WATER INJECTION CHECK VLV				A			
XV-23	HOT WATER INJECTION CHECK VLV				A			
XV-24	HOT WATER INJECTION CHECK VALVE				A			
XV-25	HOT WATER INJECTION CHECK VALVE				A			
XV-26	HOT WATER INJECTION CHECK VLV				A			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Robert A. Brown DATE: 12/10/90

08. PRIMARY COOLANT HIGH PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
XV-303	CHECK VALVE FROM PRESSURE PUMP TO CONTROL RODS				A, F			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: J.D. Smith DATE: 12-3-90VERIFIED BY: Ref. A. Brown DATE: 12/10/9009. PRIMARY COOLANT LOW PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
01-405-HT-3	REACTOR PRIMARY WATER HEAD TANK				O, E			
01-415-PU-11	AUXILIARY PRESSURIZER PUMP				O			
01-415-PU-4A	PRIMARY PRESSURIZER PUMP 'A'				O, E			
01-415-PU-4A	PRIMARY PRESSURIZER PUMP 'A' MOTOR AND CONTROLS	7900 G-1	ALLIS CHALMERS	FRAME 507US	O, E, P	B	M	EQEJ-004
01-415-PU-4A	PRIMARY PRESSURIZER PUMP 'A' VARIABLE SPEED DRIVE UNIT & CONTROLS	7900 G-1	LOUIS ALLIS	FRAME AB4410S	O, E, P	B	M	EQEJ-004
01-415-PU-4B	PRIMARY PRESSURIZER PUMP 'B'				O, E			
01-415-PU-4B	PRIMARY PRESSURIZER PUMP 'B' MOTOR AND CONTROLS	7900 G-1	ALLIS CHALMERS	FRAME 507US	O, E, P	B	M	EQEJ-004
01-415-PU-4B	PRIMARY PRESSURIZER PUMP 'B' VARIABLE SPEED DRIVE UNIT & CONTROLS	7900 G-1	LOUIS ALLIS	FRAME BA5020LS	O, E, P	B	M	EQEJ-004
01-430-EX-7A	PU-1A SEAL WTR SUPPLY COOLER				O			
01-430-EX-7B	PU-1B SEAL WTR SUPPLY COOLER				O			
01-430-EX-7C	PU-1C SEAL WTR SUPPLY COOLER				O			
01-430-EX-7D	PU-1D SEAL WTR SUPPLY COOLER				O			
FE-216	TOTAL PRESSURIZER PUMP FLOW				O			
FI-158	RCS PUMP A Seal WTR				O			
FI-159	RCS PUMP B Seal WTR				O			
FI-160	RCS PUMP C Seal WTR				O			
FI-302	CONTROL ROD SEAL SUPPLY FLOW				O			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S. D. Smith DATE: 12-3-90 VERIFIED BY: Ronald B. Brown DATE: 12/10/90

09. PRIMARY COOLANT LOW PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
F1-55B	RCS PUMP D Seal WTR				0			
FS-15B	RCS PUMP A SEAL WATER LOW FLOW				0			
FS-159	RCS PUMP B SEAL WATER LOW FLOW				0			
FS-160	RCS PUMP C SEAL WATER LOW FLOW				0			
FS-55B	RCS PUMP D SEAL WATER LOW FLOW				0			
FT-216	PRESS PUMP FLOW TO RCS				0			
HCV-1126-A	PRESSURIZER PUMP HOT WATER INJECTION SUPPLY VALVE				0			
HCV-248	PZR PUMP DISCHARGE FLOW CONTROL				0, E			
HV-164A	1A SEAL WATER THROTTLE VALVE				0			
HV-164B	1A SEAL WATER THROTTLE VALVE				0			
HV-165A	1B SEAL WATER THROTTLE VALVES				0			
HV-165B	1B SEAL WATER THROTTLE VALVES				0			
HV-166A	1C SEAL WATER THROTTLE VALVES				0			
HV-166B	1C SEAL WATER THROTTLE VALVES				0			
HV-301	PRESSURIZER PUMP CONTROL ROD SEAL SUPPLY				0			
HV-302	PI-302 ISOLATION VALVE				0			
HV-557A	1D SEAL WATER THROTTLE VALVE				0			
HV-557B	1D SEAL WATER THROTTLE VALVE				0			
HV-6	PRESSURIZER PUMP HOT WATER INJECTION SUPPLY VALVE				0			

12/03/90

ORIGINATED BY: J. D. Smith DATE: 12-3-90 VERIFIED BY: Richard Brown DATE: 12/10/9009. PRIMARY COOLANT LOW PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
LC-214	Head Tank Level Controller					O			
LI-214	Head Tank Level Ind					O			
LM-214	Head Tank Level Sig. Mod					O			
LS-214A	Head Tank Level Switch					O			
LS-214A-1	HEAD TANK LEVEL SWITCH					O			
LS-214A-2	HEAD TANK LEVEL SWITCH	7900	202	BARKSDALE	D2H-H18	O, P, E	B	M	EQEJ-005
LS-214B	HEAD TANK LEVEL SWITCH	7900	202	BARKSDALE	D2H-H18	O, P, E	B	M	EQEJ-005
LT-214	HEAD TANK LEVEL					O, E			
LT-214A	HEAD TANK LEVEL					O, E			
N/A	PRESSURIZER PUMP CONTROL ROD SEAL SUPPLY FILTER					O			
N/A	PU-1A SEAL WTR SUPPLY FILTER					O			
N/A	PU-1B SEAL WTR SUPPLY FILTER					O			
N/A	PU-1C SEAL WTR SUPPLY FILTER					O			
N/A	PU-1D SEAL WTR SUPPLY FILTER					O			
N/A	PU-4A RESTRICTING ORIFICE					O			
N/A	PU-4B RESTRICTING ORIFICE					O			
PDT-214A	HEAD TANK LEVEL TRANSMITTER					O, E			
PHPS-4A1	SWITCH PRESSURE	7900	G-1	SQUARE D	GFW-1	O, P, E	B	M	EQEJ-004
PHPS-4A2	SWITCH PRESSURE	7900	G-1	SQUARE D	GFW-1	O, P, E	B	M	EQEJ-004

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.D. SmithDATE: 12-3-90VERIFIED BY: Robert B. BrownDATE: 12/10/90

09. PRIMARY COOLANT LOW PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
PHPS-481	SWITCH PRESSURE	7900	G-1	SQUARE D	GFW-1	O, P, E	B	M	EQEJ-004
PHPS-482	SWITCH PRESSURE	7900	G-1	SQUARE D	GFW-1	O, P, E	B	M	EQEJ-004
PI-134	AUX PRESSURIZER PUMP DISCHARGE PRESSURE					O			
PI-135	AUX PRESSURIZER PUMP SUCTION PRESSURE					O			
PI-161	RC PMP A Seal Inlet					O			
PI-162	RC PMP B Seal Inlet					O			
PI-163	RC PUMP C SEAL INLET					O			
PI-170	PRESS PUMP A DISCH					O			
PI-172	PRESS PUMP A SUCT LINE					O			
PI-173	PRESS PUMP B DISCH PRESS					O			
PI-175	PRESS PUMP B SUCTION LINE					O			
PI-249	PRESS TO RCS DOWNSTREAM HCV 248					O			
PI-302	CONTROL ROD SEAL SUPPLY WATER PRESSURE					O			
PI-556	RC PUMP D SEAL INLET					O			
PS	PU-4A VARIABLE SPEED DRIVE UNIT LOW PRESSURE					O, P			
PS	PU-4B VARIABLE SPEED DRIVE UNIT LOW PRESSURE					O, P			
PSPS-4A	PRESS PUMP A SUCTION	7900	G-1	ALLEN BRADLEY	836	O, P, E	B	M	EQEJ-004
PSPS-4B	PRESS PUMP B SUCTION	7900	G-1	ALLEN BRADLEY	836	O, P, E	B	M	EQEJ-004
PSV-125	PU-4A SUCTION RELIEF					O			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S. D. Smith DATE: 12-3-90 VERIFIED BY: Rufus B. Brown DATE: 12/19/9009. PRIMARY COOLANT LOW PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
PSV-126	PU-4B SUCTION RELIEF				O			
PSV-155	PU-11 DISCHARGE RELIEF				O			
PSV-327	PU-11 SUCTION RELIEF VALVE				O			
PT-226	PRESS PUMP FLOW TO RCS				O			
PTS-4A	PRESS PUMP A DISCH	7900 G-1	ALLEN BRADLEY	837	O, P, E	B	M	EOEJ-004
PTS-4B	PRESS PUMP B DISCH	7900 G-1	ALLEN BRADLEY	837	O, P, E	B	M	EOEJ-004
TS	PU-4A VARIABLE SPEED DRIVE UNIT HIGH TEMPERATURE				O, P			
TS	PU-4B VARIABLE SPEED DRIVE UNIT HIGH TEMPERATURE				O, P			
TW-122	PRESSURIZER PUMP DISCHARGE LINE THERMOWELL				O			
V-1006	1A SEAL PRESSURE GAUGE ISOLATION VALVE				O			
V-1006A	1A SEAL PRESSURE GAUGE ISOLATION VALVE				O			
V-1038	PRIMARY AFTER-FILTER DISCHARGE CHECK				O			
V-1039	PRIMARY AFTER-FILTER DISCHARGE				O			
V-1050	HEAD TK EXIT				O, E			
V-1051	PU-4A SUCTION				O, E			
V-1052	PU-4B SUCTION				O, E			
V-1053	PU-11 SUCTION VALVE				O			
V-1054	PU-11 DISCHARGE VALVE				O			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Ref. A. Brown DATE: 12/10/90

09. PRIMARY COOLANT LOW PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
V-1055	PU-4A CHECK VALVE				O, E			
V-1056	PU-4A DISCHARGE				O, E			
V-1057	PU-4B CHECK VALVE				O, E			
V-1058	PU-4B DISCHARGE				O, E			
V-1059	HEAD TK DRAIN TO LLW				O			
V-1062	1C ROTOMETER ISOLATION VALVE (INLET)				O			
V-1063	1C ROTOMETER ISOLATION VALVE (OUTLET)				O			
V-1064	1B ROTOMETER ISOLATION VALVE (INLET)				O			
V-1065	1B ROTOMETER ISOLATION VALVE (OUTLET)				O			
V-1066	1A ROTOMETER ISOLATION VALVE (INLET)				O			
V-1067	1A ROTOMETER ISOLATION VALVE (OUTLET)				O			
V-1074	PU-4A DRAIN				O			
V-1088	PU-11 SUCTION LINE DRAIN				O			
V-1107	PU-11 DISCHARGE CHECK VALVE				O			
V-1120	1C ROTOMETER BYPASS VALVE				O			
V-1121	1B ROTOMETER BYPASS VALVE				O			
V-1122	1A ROTOMETER BYPASS VALVE				O			
V-1125	PU-4A VENT				O			
V-1126	PU-4B VENT				O			
V-1133	HEAD TK VACUUM BREAK VENT				O			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Richard B. Brown DATE: 12/10/90

09. PRIMARY COOLANT LOW PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
V-1153	PZR PUMP SUCTION HDR DRAIN				0			
V-1154	PI-134 GAUGE ISOLATION VALVE				0			
V-1155	PI-135 GAUGE ISOLATION VALVE				0			
V-1156	PI-172 ISOLATION				0			
V-1157	PI-170 ISOLATION				0			
V-1158	PI-175 ISOLATION				0			
V-1159	PI-173 ISOLATION				0			
V-1160	PU-4B DRAIN				0			
V-1161	PU-4A DRAIN				0			
V-1164	HEAD TK DRAIN TO PC STORAGE TK				0			
V-1173	FE-216 ISOLATION VALVE				0			
V-1174	FE-216 ISOLATION VALVE				0			
V-1177	1C SEAL PRESSURE GAUGE ISOLATION VALVE				0			
V-1178	1B SEAL PRESSURE GAUGE ISOLATION VALVE				0			
V-1197	MAIN PC PUMP SEALS SUPPLY				0			
V-132	PU-4A DRAIN				0			
V-134	PU-4B DRAIN				0			
V-154	1C SEAL FLOW CHECK VALVE (PU-11)				0			
V-155	1C SEAL FLOW CHECK VALVE PRESSURIZER PUMP				0			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Robert L. Brown DATE: 12/10/90

09. PRIMARY COOLANT LOW PRESSURE SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
V-156	1B SEAL FLOW CHECK VALVE (PU-11)				0			
V-157	1B SEAL FLOW CHECK VALVE PRESSURIZER PUMP				0			
V-158	1A SEAL FLOW CHECK VALVE (PU-11)				0			
V-159	1A SEAL FLOW CHECK VALVE PRESSURIZER PUMP				0			
V-160	PU-4B DRAIN				0			
V-168	PI-249 ISOLATION VALVE				0			
V-188	PI-249 ISOLATION				0			
V-193	1D SEAL FLOW CHECK VALVE (PU-11)				0			
V-194	1D SEAL FLOW CHECK VALVE (PU-11)				0			
V-195	GAUGE ISOLATION VALVE				0			
V-196	1D ROTOMETER ISOLATION VALVE (INLET)				0			
V-197	1D ROTOMETER ISOLATION VALVE (OUTLET)				0			
V-198	1D ROTOMETER BYPASS VALVE				0			
V-280	PDT-214A ISOLATION VALVE				0			
V-281	PDT-214A VENT VALVE				0			
V-282	PDT-214A ISOLATION VALVE				0			
V-287	POISON INJECTION TO PRESSURIZER PUMP				0			
V-289	POISON INJECTION TO PRESSURIZER PUMP				0			

12/13/90

ORNL/RRD/INT-70, REV. 1

 ORIGINATED BY: A. D. Smith DATE: 12-3-90 VERIFIED BY: R. J. A. Brown DATE: 12/10/90

 10. REACTOR SAFETY SYSTEM
 HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O K E	EQ FILE NUMBER
1SAF+1SER	SAFETY/SERVO CHANNEL 1 IONIZATION CHAMBER	7900	210			C, P	A, B, C	H	EQEJ-011
2SAF+2SER	SAFETY/SERVO CHANNEL 2 IONIZATION CHAMBER	7900	210			C, P	A, B, C	H	EQEJ-011
3SAF+3SER	SAFETY/SERVO CHANNEL 3 IONIZATION CHAMBER	7900	210			C, P	A, B, C	H	EQEJ-011
EM-100-1	SAFETY CHANNEL NO. 1 MAIN FLOW TRANSMITTER POWER SUPPLY	7900	202	FOXBORO	A-77751	C, P	A, B, C	M	EQEJ-005
EM-100-1B	SAFETY CHANNEL NO. 1 LOW-LOW FLOW TRANSMITTER POWER SUPPLY	7900	202	FOXBORO	610	C, P	A, B, C	M	EQEJ-005
EM-100-2	SAFETY CHANNEL NO. 2 MAIN FLOW TRANSMITTER POWER SUPPLY	7900	202	FOXBORO	A-77751	C, P	A, B, C	M	EQEJ-005
EM-100-2B	SAFETY CHANNEL NO. 2 LOW-LOW FLOW TRANSMITTER POWER SUPPLY	7900	202	FOXBORO	610	C, P	A, B, C	M	EQEJ-005
EM-100-3	SAFETY CHANNEL NO. 3 MAIN FLOW TRANSMITTER POWER SUPPLY	7900	202	FOXBORO	A-77751	C, P	A, B, C	M	EQEJ-005
EM-100-3B	SAFETY CHANNEL NO. 3 LOW-LOW FLOW TRANSMITTER POWER SUPPLY	7900	202	FOXBORO	610	C, P	A, B, C	M	EQEJ-005
FI-100-1B	SAFETY CHANNEL NO. 1 LOW-LOW FLOW INDICATOR	7900	G-11	FOXBORO	50-152111HYHY2APA	P	A, B, C	H	EQEJ-014
FI-100-2B	SAFETY CHANNEL NO. 2 LOW-LOW FLOW INDICATOR	7900	G-11	FOXBORO	50-152111HYHY2APA	P	A, B, C	H	EQEJ-014
FI-100-3B	SAFETY CHANNEL NO. 3 LOW-LOW FLOW INDICATOR	7900	G-11	FOXBORO	50-152111HYHY2APA	P	A, B, C	H	EQEJ-014
FM-100-1A	SAFETY CHANNEL NO. 1 MAIN FLOW SQUARE ROOT EXTRACTOR (LINEARIZER)	7900	202	FOXBORO	66A	C, P	A, B, C	M	EQEJ-005

12/03/90

ORNL/RRD/INT-70, REV. 1

 ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Reginald A. Brown DATE: 12/10/90

 10. REACTOR SAFETY SYSTEM
 HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
FM-100-2A	SAFETY CHANNEL NO. 2 MAIN FLOW SQUARE ROOT EXTRACTOR (LINEARIZER)	7900	202	FOXBORO	66A	C, P	A, B, C	M	EQJ-005
FM-100-3A	SAFETY CHANNEL NO. 3 MAIN FLOW SQUARE ROOT EXTRACTOR (LINEARIZER)	7900	202	FOXBORO	66A	C, P	A, B, C	M	EQJ-005
FR-100-1.X0	SAFETY CHANNEL NO. 1 MAIN FLOW RECORDER	7900	302	FOXBORO		P	A, B, C	M	EQJ-002
FR-100-2.X0	SAFETY CHANNEL NO. 2 MAIN FLOW RECORDER	7900	302	FOXBORO		P	A, B, C	M	EQJ-002
FR-100-3.X0	SAFETY CHANNEL NO. 3 MAIN FLOW RECORDER	7900	302	FOXBORO		P	A, B, C	M	EQJ-002
FT-100-1	SAFETY CHANNEL NO. 1 MAIN FLOW TRANSMITTER	7900	G-11	FOXBORO	613XM	A, C, P	A, B, C	H	EQJ-013
FT-100-1B	SAFETY CHANNEL NO. 1 LOW-LOW FLOW TRANSMITTER	7900	G-11	FOXBORO	613DM	A, D, E, P	A, B, C	H	EQJ-014
FT-100-2	SAFETY CHANNEL NO. 2 MAIN FLOW TRANSMITTER	7900	G-11	FOXBORO	613XM	A, C, P	A, B, C	H	EQJ-013
FT-100-2B	SAFETY CHANNEL NO. 2 LOW-LOW FLOW TRANSMITTER	7900	G-11	FOXBORO	613DM	A, P, D, E	A, B, C	H	EQJ-014
FT-100-3	SAFETY CHANNEL NO. 3 MAIN FLOW TRANSMITTER	7900	G-11	FOXBORO	613XM	A, C, P	A, B, C	H	EQJ-013
FT-100-3B	SAFETY CHANNEL NO. 3 LOW-LOW FLOW TRANSMITTER	7900	G-11	FOXBORO	613DM	A, D, E, P	A, B, C	H	EQJ-014
FX-100-1	SAFETY CHANNEL NO. 1 MAIN FLOW REPEATER	7900	202	FOXBORO		C, P	A, B, C	M	EQJ-005
FX-100-2	SAFETY CHANNEL NO. 2 MAIN FLOW REPEATER	7900	202	FOXBORO		C, P	A, B, C	M	EQJ-005
FX-100-3	SAFETY CHANNEL NO. 3 MAIN FLOW REPEATER	7900	202	FOXBORO		C, P	A, B, C	M	EQJ-005
PSS-12BA	SAFETY CHANNEL NO. 1 LOW PRESSURE TRIP SWITCH	7900	G-11	BARKSDALE	B2TA12SS	A, D, P	A, B, C	H	EQDP-006

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: A.D. Smith DATE: 12-3-90 VERIFIED BY: Ronald Brown DATE: 12/10/90

10. REACTOR SAFETY SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
PSS-128B	SAFETY CHANNEL NO. 2 LOW PRESSURE TRIP SWITCH	7900 G-11	BARKSDALE	B2TA12SS	A, D, P	A, B, C	H	EQDP-006
PSS-128C	SAFETY CHANNEL NO. 3 LOW PRESSURE TRIP SWITCH	7900 G-11	BARKSDALE	B2TA12SS	A, D, P	A, B, C	H	EQDP-006
PSS-128D	SYSTEM NO. 1 DEPRESSURIZATION LIMIT SWITCH	7900 G-11	BARKSDALE	B2TA12SS	A, B, E, P	A, B, C	H	EQDP-006
PSS-128E	SYSTEM NO. 2 DEPRESSURIZATION LIMIT SWITCH	7900 G-11	BARKSDALE	B2TA12SS	A, B, E, P	A, B, C	H	EQDP-006
QSS-101-A	Channel 1/ Seismic Trigger Unit	7900 G-11	KINEMATRICS	EST-2	G, P, C	A, B, C	H	EQEJ-012
QSS-101-B	Channel 2/Seismic Trigger Unit	7900 G-11	KINEMATRICS	EST-2	G, P, C	A, B, C	H	EQEJ-012
QSS-101-C	Channel 3/Seismic Trigger Unit	7900 G-11	KINEMATRICS	EST-2	G, P, C	A, B, C	H	EQEJ-012
RE-255-1	FFED Ion Chamber	7900 G-10	REUTER-STOKES	RSG-49A	C, P, F	A, B, C	H	EQEJ-021
RE-255-1-CBL	FFED ION CHAMBER CONTROL CABLES AND CONNECTORS	7900 G-10			C, P, F	A, B, C	H	EQDP-005
RE-255-2	FFED Ion Chamber	7900 G-10	REUTER-STOKES	RSG-49A	C, P, F	A, B, C	H	EQEJ-021
RE-255-2-CBL	FFED ION CHAMBER CONTROL CABLES AND CONNECTORS	7900 G-10			C, P, F	A, B, C	H	EQDP-005
RE-255-3	FFED Ion Chamber	7900 G-10	REUTER-STOKES	RSG-49A	C, P, F	A, B, C	H	EQEJ-021
RE-255-3-CBL	FFED ION CHAMBER CONTROL CABLES AND CONNECTORS	7900 G-10			C, P, F	A, B, C	H	EQDP-005
SAF1S1A	SAFETY CHANNEL NO. 1 MAGNET CONTROL AMPLIFIER	7900 302	ORNL	Q-2613-1	C, P	A, B, C	M	EQEJ-002
SAF1S1B	SAFETY CHANNEL NO. 1 MAGNET CONTROL AMPLIFIER	7900 302	ORNL	Q-2613-1	C, P	A, B, C	M	EQEJ-002

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Reynold Brown DATE: 12/10/90

10. REACTOR SAFETY SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
SAF1S1C	SAFETY CHANNEL NO. 1 MAGNET CONTROL AMPLIFIER	7900	302	ORNL	Q-2613-1	C, P	A, B, C	M	EQEJ-002
SAF1S1D	SAFETY CHANNEL NO. 1 MAGNET CONTROL AMPLIFIER	7900	302	ORNL	Q-2613-1	C, P	A, B, C	M	EQEJ-002
SAF1S2A	SAFETY CHANNEL NO. 1 -15 VOLT & -25 VOLT VOLTAGE REGULATOR	7900	302	ORNL	Q-2620-1	C, P	A, B, C	M	EQEJ-002
SAF1S2B	SAFETY CHANNEL NO. 1 +15 VOLT & +25 VOLT VOLTAGE REGULATOR	7900	302	ORNL	Q-2619-1	C, P	A, B, C	M	EQEJ-002
SAF1S2C	SAFETY CHANNEL NO. 1 +10 VOLT & -10 VOLT VOLTAGE REGULATOR	7900	302	ORNL	Q-2621-1	C, P	A, B, C	M	EQEJ-002
SAF1S3A	METER MODULE HT PWR	7900	302	ORNL	Q-2632-1	P	A, B, C	M	EQEJ-002
SAF1S3B	SAFETY CHANNEL NO. 1 CHAMBER HIGH VOLTAGE SUPPLY	7900	302	ORNL	Q-2602-1	C, P	A, B, C	M	EQEJ-002
SAF1S3C	SAFETY CHANNEL NO. 1 FLUX SIGNAL CONDITIONER	7900	302	ORNL	RC11-19-1	C, P	A, B, C	M	EQEJ-002
SAF1S4A	SAFETY CHANNEL NO. 1 HFIR TEST MODULE	7900	302	ORNL	Q-2630-1	P	A, B, C	M	EQEJ-002
SAF1S4B	SAFETY CHANNEL NO. 1 RATE TRIP COMPARATOR	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF1S4C	SAFETY CHANNEL NO. 1 LOW-LOW FLOW TRIP COMPARATOR	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF1S4D	COMPARATOR TRIP	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF1S4E	SAFETY CHANNEL 1 INLET TEMPERATURE TRIP COMPARATOR	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF1S4F	COMPARATOR TRIP	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S. D. Smith DATE: 12-3-90 VERIFIED BY: Richard A. Brown DATE: 12/10/90

10. REACTOR SAFETY SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
SAF1S4G	SAFETY CHANNEL NO. 1 LOW PRESSURE TRIP COMPARATOR	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF1S4H	SAFETY CHANNEL NO. 1 FFED TRIP COMPARATOR (RSS-255-1)	7900	302	ORNL	Q-2609-1	C, P, F	A, B, C	M	EQEJ-002
SAF1S4I	SAFETY CHANNEL 1 DEPRESSURIZATION TRIP COMPARATOR	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF1S4J	SAFETY CHANNEL NO. 1 OR GATE	7900	302	ORNL	Q-2612-1	C, P	A, B, C	M	EQEJ-002
SAF1S5A	SAFETY CHANNEL NO. 1 FFED AMPLIFIER (RM-255-1)	7900	302	ORNL	Q-2637-1	C, P, F	A, B, C	M	EQEJ-002
SAF1S5B	COMPARATOR TRIP	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF1S5C	COMPARATOR TRIP	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF1S5D	SAFETY CHANNEL NO. 1 LEVEL REVERSE TRIP COMPARATOR	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF1S5E	SAFETY CHANNEL NO. 1 LEVEL FAST REVERSE TRIP COMPARATOR	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF1S5F	SAFETY CHANNEL NO. 1 FLUX & FLUX/FLOW DUAL SIGNAL CONVERTER	7900	302	ORNL	Q-2606-1	C, P	A, B, C	M	EQEJ-002
SAF2S1A	SAFETY CHANNEL NO. 2 MAGNET CONTROL AMPLIFIER	7900	302	ORNL	Q-2613-1	C, P	A, B, C	M	EQEJ-002
SAF2S1B	SAFETY CHANNEL NO. 2 MAGNET CONTROL AMPLIFIER	7900	302	ORNL	Q-2613-1	C, P	A, B, C	M	EQEJ-002
SAF2S1C	SAFETY CHANNEL NO. 2 MAGNET CONTROL AMPLIFIER	7900	302	ORNL	Q-2613-1	C, P	A, B, C	M	EQEJ-002
SAF2S1D	SAFETY CHANNEL NO. 2 MAGNET CONTROL AMPLIFIER	7900	302	ORNL	Q-2613-1	C, P	A, B, C	M	EQEJ-002

12/03/90

ORNL/RRD/INT-70, REV. 1

 ORIGINATED BY: A. D. Smith DATE: 12-3-90 VERIFIED BY: Raymond B. Brown DATE: 12/10/90

 10. REACTOR SAFETY SYSTEM
 HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
SAF2S2A	SAFETY CHANNEL NO. 2 -15 VOLT & -25 VOLT 7900 VOLTAGE REGULATOR	302	ORNL	Q-2620-1	C, P	A, B, C	M	EQEJ-002
SAF2S2B	SAFETY CHANNEL NO. 2 +15 VOLT & +25 VOLT 7900 VOLTAGE REGULATOR	302	ORNL	Q-2619-1	C, P	A, B, C	M	EQEJ-002
SAF2S2C	SAFETY CHANNEL NO. 2 +10 VOLT & -10 VOLT 7900 VOLTAGE REGULATOR	302	ORNL	Q-2621-1	C, P	A, B, C	M	EQEJ-002
SAF2S3A	METER HT PWR MODULE	7900 302	ORNL	Q-2632-1	P	A, B, C	M	EQEJ-002
SAF2S3B	SAFETY CHANNEL NO. 2 CHAMBER HIGH VOLTAGE SUPPLY	7900 302	ORNL	Q-2602-1	C, P	A, B, C	M	EQEJ-002
SAF2S3C	SAFETY CHANNEL NO. 2 FLUX SIGNAL CONDITIONER	7900 302	ORNL	RC11-19-1	C, P	A, B, C	M	EQEJ-002
SAF2S4A	SAFETY CHANNEL NO. 2 HFIR TEST MODULE	7900 302	ORNL	Q-2630-1	P	A, B, C	M	EQEJ-002
SAF2S4B	SAFETY CHANNEL NO. 2 RATE TRIP COMPARATOR	7900 302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF2S4C	SAFETY CHANNEL NO. 2 LOW-LOW FLOW TRIP COMPARATOR	7900 302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF2S4D	COMPARATOR TRIP	7900 302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF2S4E	SAFETY CHANNEL NO. 2 INLET TEMPERATURE TRIP COMPARATOR	7900 302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF2S4F	COMPARATOR TRIP	7900 302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF2S4G	COMPARATOR TRIP	7900 302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF2S4H	SAFETY CHANNEL NO. 2 FFED TRIP COMPARATOR (RSS-255-2)	7900 302	ORNL	Q-2609-1	C, P, F	A, B, C	M	EQEJ-002
SAF2S4I	SAFETY CHANNEL NO. 2 DEPRESSURIZATION TRIP COMPARATOR	7900 302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: A.D. SmithDATE: 12-3-90VERIFIED BY: Raymond BrownDATE: 12/10/90

10. REACTOR SAFETY SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
SAF2S4J	SAFETY CHANNEL NO. 2 OR GATE	7900 302	ORNL	Q-2612-1	C, P	A, B, C	M	EQEJ-002
SAF2S5A	SAFETY CHANNEL NO. 2 FEED AMPLIFIER (RM-255-2)	7900 302	ORNL	Q-2637-1	C, F, P	A, B, C	M	EQEJ-002
SAF2S5B	COMPARATOR TRIP	7900 302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF2S5C	COMPARATOR TRIP	7900 302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF2S5D	SAFETY CHANNEL NO. 2 LEVEL REVERSE TRIP COMPARATOR	7900 302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF2S5E	SAFETY CHANNEL NO. 2 LEVEL FAST REVERSE TRIP COMPARATOR	7900 302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF2S5F	SAFETY CHANNEL NO. 2 FLUX & FLOW DUAL SIGNAL CONVERTER	7900 302	ORNL	Q-2606-1	C, P	A, B, C	M	EQEJ-002
SAF3S1A	SAFETY CHANNEL NO. 3 MAGNET CONTROL AMPLIFIER	7900 302	ORNL	Q-2613-1	C, P	A, B, C	M	EQEJ-002
SAF3S1B	SAFETY CHANNEL NO. 3 MAGNET CONTROL AMPLIFIER	7900 302	ORNL	Q-2613-1	C, P	A, B, C	M	EQEJ-002
SAF3S1C	SAFETY CHANNEL NO. 3 MAGNET CONTROL AMPLIFIER	7900 302	ORNL	Q-2613-1	C, P	A, B, C	M	EQEJ-002
SAF3S1D	SAFETY CHANNEL NO. 3 MAGNET CONTROL AMPLIFIER	7900 302	ORNL	Q-2613-1	C, P	A, B, C	M	EQEJ-002
SAF3S2A	SAFETY CHANNEL NO. 3 -15 VOLT & -25 VOLT VOLTAGE REGULATOR	7900 302	ORNL	Q-2620-1	C, P	A, B, C	M	EQEJ-002
SAF3S2B	SAFETY CHANNEL NO. 3 +15 VOLT & +25 VOLT VOLTAGE REGULATOR	7900 302	ORNL	Q-2619-1	C, P	A, B, C	M	EQEJ-002
SAF3S2C	SAFETY CHANNEL NO. 3 +10 VOLT & -10 VOLT VOLTAGE REGULATOR	7900 302	ORNL	Q-2621-1	C, P	A, B, C	M	EQEJ-002

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S. D. SmithDATE: 12-3-90VERIFIED BY: Raymond L. Brown DATE: 12/14/90

10. REACTOR SAFETY SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
SAF3S3A	METER HT PWR MODULE	7900	302	ORNL	Q-2632-1	P	A, B, C	M	EQEJ-002
SAF3S3B	SAFETY CHANNEL NO. 3 CHAMBER HIGH VOLTAGE SUPPLY	7900	302	ORNL	Q-2602-1	C, P	A, B, C	M	EQEJ-002
SAF3S3C	SAFETY CHANNEL NO. 3 FLUX SIGNAL CONDITIONER	7900	302	ORNL	RC11-19-1	C, P	A, B, C	M	EQEJ-002
SAF3S4A	SAFETY CHANNEL NO. 3 HFIR TEST MODULE	7900	302	ORNL	Q-2630-1	P	A, B, C	M	EQEJ-002
SAF3S4B	SAFETY CHANNEL NO. 3 RATE TRIP COMPARATOR	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF3S4C	SAFETY CHANNEL NO. 3 LOW-LOW TRIP COMPARATOR	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF3S4D	COMPARATOR TRIP	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF3S4E	SAFETY CHANNEL NO. 3 INLET TEMPERATURE TRIP COMPARATOR	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF3S4F	COMPARATOR TRIP	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF3S4G	COMPARATOR TRIP	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF3S4H	SAFETY CHANNEL NO. 3 FFED TRIP COMPARATOR (RSS-255-3)	7900	302	ORNL	Q-2609-1	C, P, F	A, B, C	M	EQEJ-002
SAF3S4I	SAFETY CHANNEL NO. 3 DEPRESSURIZATION TRIP COMPARATOR	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF3S4J	SAFETY CHANNEL NO. 3 OR GATE	7900	302	ORNL	Q-2612-1	C, P	A, B, C	M	EQEJ-002
SAF3S5A	SAFETY CHANNEL NO. 3 FFED AMPLIFIER (RK-255-3)	7900	302	ORNL	Q-2637-1	C, F, P	A, B, C	M	EQEJ-002
SAF3S5B	COMPARATOR TRIP	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF3S5C	COMPARATOR TRIP	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.P. Smith DATE: 12-3-90 VERIFIED BY: Royce A. Brown DATE: 12/10/90

10. REACTOR SAFETY SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O M E	EQ FILE NUMBER
SAF3S5D	SAFETY CHANNEL NO. 3 LEVEL REVERSE TRIP COMPARATOR	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF3S5E	SAFETY CHANNEL NO. 3 LEVEL FAST REVERSE TRIP COMPARATOR	7900	302	ORNL	Q-2609-1	C, P	A, B, C	M	EQEJ-002
SAF3S5F	SAFETY CHANNEL NO. 3 FLUX & FLUX/FLOW DUAL SIGNAL CONVERTER	7900	302	ORNL	Q-2606-1	C, P	A, B, C	M	EQEJ-002
TDM-100-1A	TEMPERATURE SIGNAL MODIFIER I TO I	7900	202	FOXBORO	660	C, P	A, B, C	M	EQEJ-005
TDM-100-2A	TEMPERATURE SIGNAL MODIFIER I TO I	7900	202	FOXBORO	66-0	C, P	A, B, C	M	EQEJ-005
TDM-100-3A	TEMPERATURE SIGNAL MODIFIER I TO I	7900	202	FOXBORO	660	C, P	A, B, C	M	EQEJ-005
TE-100-1A	REACTOR INLET TEMPERATURE ELEMENT	7900	G-10			C, P, A	A, B, C	H	EQEJ-017
TE-100-1B	REACTOR OUTLET TEMPERATURE ELEMENT	7900	G-10			C, P, A	A, B, C	H	EQEJ-017
TE-100-2A	REACTOR INLET TEMPERATURE ELEMENT	7900	G-10			C, P, A	A, B, C	H	EQEJ-017
TE-100-2B	REACTOR OUTLET TEMPERATURE ELEMENT	7900	G-10			C, P, A	A, B, C	H	EQEJ-017
TE-100-3A	REACTOR INLET TEMPERATURE ELEMENT	7900	G-10			C, P, A	A, B, C	H	EQEJ-017
TE-100-3B	REACTOR OUTLET TEMPERATURE ELEMENT	7900	G-10			C, P, A	A, B, C	H	EQEJ-017
TR-100-1A	SAFETY CHANNEL 1 INLET TEMPERATURE RECORDER	7900	302	FOXBORO		P	A, B, C	M	EQEJ-002
TR-100-1B	SAFETY CHANNEL 1 OUTLET TEMPERATURE RECORDER	7900	302	FOXBORO		P	A, B, C	M	EQEJ-002
TR-100-2A	SAFETY CHANNEL NO. 2 INLET TEMPERATURE RECORDER	7900	302	FOXBORO		P	A, B, C	M	EQEJ-002
TR-100-2B	SAFETY CHANNEL NO. 2 OUTLET TEMPERATURE RECORDER	7900	302	FOXBORO		P	A, B, C	M	EQEJ-002

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Robert Brown DATE: 12/19/90

10. REACTOR SAFETY SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
TR-100-3A	SAFETY CHANNEL NO. 3 INLET TEMPERATURE RECORDER	7900	302	FOXBORO		P	A, B, C	M	EQEJ-002
TR-100-3B	SAFETY CHANNEL NO. 3 OUTLET TEMPERATURE RECORDER	7900	302	FOXBORO		P	A, B, C	M	EQEJ-002
TT-100-1A	SAFETY CHANNEL NO. 1 INLET TEMPERATURE TRANSMITTER	7900	114	FOXBORO	694	C, P	A, B, C	M	EQEJ-006
TT-100-1B	SAFETY CHANNEL NO. 1 OUTLET TEMPERATURE TRANSMITTER	7900	114	FOXBORO	694	C, P	A, B, C	M	EQEJ-006
TT-100-2A	SAFETY CHANNEL NO. 2 INLET TEMPERATURE TRANSMITTER	7900	114	FOXBORO	694	C, P	A, B, C	M	EQEJ-006
TT-100-2B	SAFETY CHANNEL NO. 2 OUTLET TEMPERATURE TRANSMITTER	7900	114	FOXBORO	694	C, P	A, B, C	M	EQEJ-006
TT-100-3A	SAFETY CHANNEL NO. 3 INLET TEMPERATURE TRANSMITTER	7900	114	FOXBORO	694	C, P	A, B, C	M	EQEJ-006
TT-100-3B	SAFETY CHANNEL NO. 3 OUTLET TEMPERATURE TRANSMITTER	7900	114	FOXBORO	694	C, P	A, B, C	M	EQEJ-006
TX-100-1	SAFETY CHANNEL NO. 1 OUTLET TEMPERATURE REPEATER	7900	202	FOXBORO		C, P	A, B, C	M	EQEJ-005
TX-100-2	SAFETY CHANNEL NO. 2 OUTLET TEMPERATURE REPEATER	7900	202	FOXBORO		C, P	A, B, C	M	EQEJ-005
TX-100-3	SAFETY CHANNEL NO. 3 OUTLET TEMPERATURE REPEATER	7900	202	FOXBORO		C, P	A, B, C	M	EQEJ-005
XOR, XWR100-1	SAFETY CHANNEL NO. 1 FLUX RECORDER	7900	302	FOXBORO		P	A, B, C	M	EQEJ-002
XOR, XWR100-2	SAFETY CHANNEL NO. 2 FLUX RECORDER	7900	302	FOXBORO		P	A, B, C	M	EQEJ-002
XOR, XWR100-3	SAFETY CHANNEL NO. 3 FLUX RECORDER	7900	302	FOXBORO		P	A, B, C	M	EQEJ-002

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.D. Smith

DATE: 12-3-90

VERIFIED BY: Raymond B. Crum DATE: 12/14/90

10. REACTOR SAFETY SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
XWM-100-1A	SAFETY CHANNEL NO. 1 FLUX MULTIPLIER/DIVIDER	7900	202	FOXBORO	T/66	C, P	A, B, C	M	EQEJ-005
XWM-100-2A	SAFETY CHANNEL NO. 2 FLUX MULTIPLIER/DIVIDER	7900	202	FOXBORO	T/66	C, P	A, B, C	M	EQEJ-005
XWM-100-3A	SAFETY CHANNEL NO. 3 FLUX MULTIPLIER/DIVIDER	7900	202	FOXBORO	T/66	C, P	A, B, C	M	EQEJ-005

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S. D. SmithDATE: 12-3-90VERIFIED BY: Rufus A. BrownDATE: 12/14/90

11. PONY MOTOR BATTERY SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
N/A	100 AMP DISCONNECT SWITCH, PONY MOTOR BATTERIES TO PONY MOTOR PU-1E	7900	G-13	WESTINGHOUSE	CAU-223	K, P	B, C	M	EQEJ-019
N/A	100 AMP DISCONNECT SWITCH, PONY MOTOR BATTERIES TO PONY MOTOR PU-1F	7900	G-13	WESTINGHOUSE	CAU-223	K, P	B, C	M	EQEJ-019
N/A	100 AMP DISCONNECT SWITCH, PONY MOTOR BATTERIES TO PONY MOTOR PU-1G	7900	G-13	WESTINGHOUSE	CAU-223	K, P	B, C	M	EQEJ-019
N/A	100 AMP DISCONNECT SWITCH, PONY MOTOR BATTERIES TO PONY MOTOR PU-1H	7900	G-13	WESTINGHOUSE	CAU-223	K, P	B, C	M	EQEJ-019
PONY BAT CHG	PONY MOTOR PU-1E BATTERY CHARGER & ASSOC. INSTR. & CONTROLS	7900	G-13	ESB INC., EXIDE	US 130-3-50	P	B, C	H	EQEJ-019
PONY BAT CHG	PONY MOTOR PU-1F BATTERY CHARGER & ASSOC. INSTR. & CONTROLS	7900	G-13	NIFE INC.	65018-30	P	B, C	H	EQEJ-019
PONY BAT CHG	PONY MOTOR PU-1G BATTERY CHARGER & ASSOC. INSTR. & CONTROLS	7900	G-13	NIFE INC.	65018-30	P	B, C	H	EQEJ-019
PONY BAT CHG	PONY MOTOR PU-1H BATTERY CHARGER & ASSOC. INSTR. & CONTROLS	7900	G-13	NIFE INC.	65018-30	P	B, C	H	EQEJ-019
PONY MOT BAT	120V PONY MOTOR PU-1E BATTERY AND ASSOC. INSTR. AND CONTROLS	7900	G-13	NIFE INC.	TYPE L308-2	K, P	B, C	M	EQEJ-019
PONY MOT BAT	120V PONY MOTOR PU-1F BATTERY AND ASSOC. INSTR. AND CONTROLS	7900	G-13	NIFE INC.	TYPE L308-2	K, P	B, C	M	EQEJ-019
PONY MOT BAT	120V PONY MOTOR PU-1G BATTERY AND ASSOC. INSTR. AND CONTROLS	7900	G-13	NIFE INC.	TYPE L308-2	K, P	B, C	M	EQEJ-019
PONY MOT BAT	120V PONY MOTOR PU-1H BATTERY AND ASSOC. INSTR. AND CONTROLS	7900	G-13	NIFE INC.	TYPE L308-2	K, P	B, C	M	EQEJ-019

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S. D. Smith DATE: 12-3-90 VERIFIED BY: Raymond A. Brown DATE: 12/19/90

12. SPECIAL BUILDING HOT EXHAUST SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
05-391-ES-1	EXHAUST STACK				F			
05-391-FI-1	FIBERGLASS PRE-FILTER				F			
05-391-FI-10	HIGH EFFICIENCY ABSOLUTE FILTER				F			
05-391-FI-11	HIGH EFFICIENCY ABSOLUTE FILTER				F			
05-391-FI-12	HIGH EFFICIENCY ABSOLUTE FILTER				F			
05-391-FI-2	FIBERGLASS PRE-FILTER				F			
05-391-FI-3	FIBERGLASS PRE-FILTER				F			
05-391-FI-4	HIGH EFFICIENCY ABSOLUTE FILTER				F			
05-391-FI-5	HIGH EFFICIENCY ABSOLUTE FILTER				F			
05-391-FI-6	HIGH EFFICIENCY ABSOLUTE FILTER				F			
05-391-FI-7	CHARCOAL ABSORPTION FILTER WITH SILVER-COATED COPPER MESH SCREEN				F			
05-391-FI-8	CHARCOAL ABSORPTION FILTER WITH SILVER-COATED COPPER MESH SCREEN				F			
05-391-FI-9	CHARCOAL ABSORPTION FILTER WITH SILVER-COATED COPPER MESH SCREEN				F			
05-391-FN-1	SBHE FAN #1				F			
05-391-FN-1	SBHE FAN #1 MOTOR AND CONTROLS	7912	7912	WESTINGHOUSE	ABLG	F, P	A, B, C, D	M EQEJ-001
05-391-FN-2	SBHE FAN #2				F			
05-391-FN-2	SBHE FAN #2 MOTOR AND CONTROLS	7912	7912	WESTINGHOUSE	ABLG	F, P	A, B, C, D	M EQEJ-001
05-391-MD-1	INLET TO W. SBHE FILTER				O			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S. D. Smith DATE: 12-3-90 VERIFIED BY: Reginald Brown DATE: 12/10/90

12. SPECIAL BUILDING HOT EXHAUST SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
05-391-MD-2	INLET TO CENTER SBHE FILTER FROM WEST				O			
05-391-MD-22	SBHE FN-1 INLET DAMPER				O			
05-391-MD-23	SBHE FN-2 INLET DAMPER				O			
05-391-MD-3	INLET TO CENTER SBHE FILTER FROM EAST				O			
05-391-MD-4	INLET TO EAST SBHE FILTER				O			
05-391-MD-5	OUTLET FROM W. SBHE FILTER				O			
05-391-MD-6	OUTLET FROM CENTER SBHE FILTER				O			
05-391-MD-7	OUTLET FROM EAST SBHE FILTER				O			
05-PT-1	SBHE West Header Flow Annubar				O, F			
05-PT-2	SBHE East Header Flow Annubar				O, F			
05-PT-3	SBHE West Header Flow Annubar				O, F			
05-PT-4	SBHE East Header Flow Annubar				O, F			
FS-903A-1	SBHE West Header Flow Switch	7912	7912	BARKSDALE	D2H-H18	F, P	A, B, C, D	M EQEJ-001
FS-903A-2	SBHE West Header Flow Switch	7912	7912	BARKSDALE	D2H-H18	F, P	A, B, C, D	M EQEJ-001
FS-904A-1	SBHE East Header Flow Switch	7912	7912	BARKSDALE	D2H-H18	F, P	A, B, C, D	M EQEJ-001
FS-904A-2	SBHE East Header Flow Switch	7912	7912	BARKSDALE	D2H-H18	F, P	A, B, C, D	M EQEJ-001
FS-913A-1	SBHE West Header Flow Switch	7912	7912	BARKSDALE	D2H-H18	F, P	A, B, C, D	M EQEJ-001
FS-913A-2	SBHE West Header Flow Switch	7912	7912	BARKSDALE	D2H-H18	F, P	A, B, C, D	M EQEJ-001
FS-914A-1	SBHE East Header Flow Switch	7912	7912	BARKSDALE	D2H-H18	F, P	A, B, C, D	M EQEJ-001
FS-914A-2	SBHE East Header Flow Switch	7912	7912	BARKSDALE	D2H-H18	F, P	A, B, C, D	M EQEJ-001

12/03/90

ORNL/RRD/INT-70, REV. 1

 ORIGINATED BY: S. D. Smith DATE: 12-3-90 VERIFIED BY: Raymond A. Brown DATE: 12/10/90

 12. SPECIAL BUILDING HOT EXHAUST SYSTEM
 HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
FT-903	SBHE West Header Flow Xmitter				F			
FT-904	SBHE East Header Flow Xmitter				F			
FT-913	SBHE West Header Flow Xmitter				F			
FT-914	SBHE East Header Flow Xmitter				F			
N/A	FAN #3 OUTLET BACK DRAFT DAMPER				F			
N/A	HX CELL 110 INLET DAMPER				F			
N/A	HX CELL 111 INLET DAMPER				F			
N/A	HX CELL 112 INLET DAMPER				F			
N/A	HX CELL 113 INLET DAMPER				F			
PD-4	PRIMARY HX CELL MOTORIZED OUTLET DAMPER (CELL 110)				F			
PD-4	PRIMARY HX CELL MOTORIZED OUTLET DAMPER MOTOR AND CONTROLS (CELL 110)	7900		110	F, P		A, B, C, D	H EQEJ-009
SBHE #3	SBHE FAN #3				O			
V-4949	FT-904 TEST CONNECTION				O			
V-4950	FT-904 TEST CONNECTION				O			
V-4951	FT-914 TEST CONNECTION				O			
V-4952	FT-914 TEST CONNECTION				O			
V-4953	FT-913 TEST CONNECTION				O			
V-4954	FT-913 TEST CONNECTION				O			
V-4955	FT-903 TEST CONNECTION				O			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S. A. Smith DATE: 12-3-90 VERIFIED BY: Raymond Brown DATE: 12/19/90

12. SPECIAL BUILDING HOT EXHAUST SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
V-4956	FT-903 TEST CONNECTION				O			
V-9007	SBHE FN-1 OUTLET DAMPER				F			
V-9008	SBHE FN-2 OUTLET DAMPER				F			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S. P. Smith DATE: 12-3-90 VERIFIED BY: R. A. Brown DATE: 12/10/90

13. NORMAL EMERGENCY POWER SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
BKR-04-391-FN-1	5A BREAKER, MCC "F" TO EX. FAN FN-1	7901	MCC "F"	GE	TF136M1005	P	A, B, C, D	M EQEJ-003
BKR-04-415-PU-1	5A BREAKER, FROM MCC "J" TO PU-1 FUEL OIL PUMP	7901	7901			K, P	A, B, C, D	M EQEJ-003
BKR-04-415-PU-2	5A BREAKER, MCC "F" TO PU-2 FUEL OIL	7901	MCC "F"	GE	TF136M1005	K, P	A, B, C, D	M EQEJ-003
BKR-13.8KV SWGR	40A BREAKER, FROM 120VDC DISTR PANEL P-22 TO 13.8KV SW. GR. (120VDC)	7901	SG BATT RM SQUARE D		A1-E	P	A, B, C, D	M EQEJ-003
BKR-13.8KV TEST CAB	40A BREAKER, FROM 120VDC DISTR PANEL P-22 TO 13.8KV BREAKER TEST CAB (120VDC)	7901	SG BATT RM SQUARE D		A1-E	P	A, B, C, D	M EQEJ-003
BKR-225A SPARE	225A BREAKER, SPARE N/E 1	7901	N/E SW 1	GE	AK-2-15-1	P	A, B, C, D	M EQEJ-003
BKR-2400V SWGR	40A BREAKER, FROM 120VDC DISTR PANEL P-22 TO 2400V SW. GR. (120VDC)	7901	SG BATT RM SQUARE D		A1-E	P	A, B, C, D	M EQEJ-003
BKR-480V N/E SWGR #1	40A BREAKER, FROM 120VDC DISTR PANEL P-22 TO 480V N/E SW. GR. #1 (120 VDC)	7901	SG BATT RM SQUARE D		A1-E	K, P	A, B, C, D	M EQEJ-003
BKR-480V N/E SWGR #2	40A BREAKER, FROM 120VDC POWER DISTR PANEL P-22 TO 480V N/E SW. GR. #2 (120 VDC)	7901	SG BATT RM SQUARE D		A1-E	K, P	A, B, C, D	M EQEJ-003
BKR-BUS DUCT EXP	225A BREAKER, N/E SW. GR. #1 TO 480V, 225A BUS DUCT EXP. AREA	7901	N/E SW 1	GE	AK-2-15-1	P	A, B, C, D	M EQEJ-003
BKR-BUS DUCT EXP-CKT	225A BREAKER, N/E SW. GR. #1 TO 480V, 225A BUS DUCT EXP. AREA CONTROL CIRCUIT	7901	N/E SW 1			P	A, B, C, D	M EQEJ-003
BKR-CHOG FN-3	30A BREAKER, MCC "H" TO CHOG FAN FN-3	7912	7912	GE	TEC36030	P	A, B, C, D	M EQEJ-001
BKR-CHOG FN-4	30A BREAKER, MCC "G" TO CHOG FAN FN-4	7912	7912	GE	TEC36030	P	A, B, C, D	M EQEJ-001
BKR-OHOG FN-5	30A BREAKER, MCC "H" TO OHOG FAN FN-5	7912	7912	GE	TEC36030	P	A, B, C, D	M EQEJ-001
BKR-OHOG FN-6	30A BREAKER, MCC "G" TO OHOG FAN FN-6	7912	7912	GE	TEC36030	P	A, B, C, D	M EQEJ-001

12/03/90

ORNL/RRD/INT-70, REV. 1

 ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Raymond B. Cross DATE: 12/10/90

 13. NORMAL EMERGENCY POWER SYSTEM
 HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
BKR-DG#1 BAT CHRGR	20A BREAKER, FROM MCC "J" TO #1 DIESEL BATTERY CHARGER	7901	7901			P	A, B, C, D	M	EQEJ-003
BKR-DG#1 CNTRL PNL	20A BREAKER, FROM 120VDC DISTR. PANEL P-22 TO DG#1 CONTROL PANEL (120VDC)	7901	SG BATT RM SQUARE D		A1-E	K, P	A, B, C, D	M	EQEJ-003
BKR-DG#1 TEST LOAD	300A BREAKER, EMER DIESEL #1 TO AUTO TRANSFER SWITCH DIESEL TEST LOAD	7901	DG #1	GE	TJK436F000	P	A, B, C, D	M	EQEJ-003
BKR-DG#1 TO 600A SW	600A BREAKER, EMER DIESEL #1 TO NE #1 AUTO TRANSFER SWITCH	7901	DG #1	GE	AK-2-25-1	K, P	A, B, C, D	M	EQEJ-003
BKR-DG#2 AC-2	25A BREAKER, MCC "F" TO AIR COMP, #2 DIESEL	7901	MCC "F"	GE	TF136M1025	P	A, B, C, D	M	EQEJ-003
BKR-DG#2 CNTRL PNL	20A BREAKER, FROM 120VDC DISTR. PANEL P-22 TO DG#2 CONTROL PANEL (120VDC)	7901	SG BATT RM SQUARE D		A1-E	K, P	A, B, C, D	M	EQEJ-003
BKR-DG#2 TEST LOAD	300A BREAKER, EMER DIESEL #2 TO AUTO TRANSFER SWITCH DIESEL TEST LOAD	7901	DG #2	GE	TJK436F000	P	A, B, C, D	M	EQEJ-003
BKR-DG#2 TO 600A SW	600A BREAKER, EMER DIESEL #2 TO NE #2 AUTO TRANSFER SWITCH	7901	DG #2	GE	AK-2-25-1	K, P	A, B, C, D	M	EQEJ-003
BKR-FCV 700 & 701	20A BREAKER, FROM MCC "J" TO ILW PROCESS WASTE FCV 700 AND FCV 701	7901	7901			P	A, B, C, D	M	EQEJ-003
BKR-FCV 702A & 702B	20A BREAKER, FROM MCC "J" TO ILW PROCESS WASTE FCV 702A AND FCV 702B	7901	7901			P	A, B, C, D	M	EQEJ-003
BKR-FCV 703A & 703B	20A BREAKER, FROM MCC "J" TO ILW PROCESS WASTE FCV 703A AND FCV 703B	7901	7901			P	A, B, C, D	M	EQEJ-003
BKR-FDR#1 TO TRU	225A BREAKER, N/E SW. GR. #1 TO TRU	7901	N/E SW 1	GE	AK-2-15-2	P	A, B, C, D	M	EQEJ-003
BKR-FDR#1 TO TRU-CKT	225A BREAKER, N/E SW. GR. #1 TO TRU, CONTROL CIRCUIT	7901	N/E SW 1			P	A, B, C, D	M	EQEJ-003
BKR-FDR#2 TO TRU	225A BREAKER, N/E SW. GR. #2 TO TRU	7901	N/E SW 2	GE	AK-2-15-2	P	A, B, C, D	M	EQEJ-003

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: J. D. Smith DATE: 12-3-90 VERIFIED BY: Reynolds G. Brown DATE: 12/10/90

13. NORMAL EMERGENCY POWER SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER	
BKR-FDR#2 TO TRU-CKT	225A BREAKER, N/E SW. GR. #2 TO TRU, CONTROL CIRCUIT	7901	N/E SW 2		P	A, B, C, D	M	EQEJ-003	
BKR-ILW RACK	70A BREAKER, MCC "F" TO ILW RACK	7901	MCC "F"	GE	THEF136070	P	A, B, C, D	M	EQEJ-003
BKR-LTG PNL "J"	20A BREAKER, MCC "F" TO LTG. PNL "J" 5KVA TRANS.	7901	MCC "F"	GE	THEF126020	P	A, B, C, D	M	EQEJ-003
BKR-LTG PNL "H"	30A BREAKER, TO LTG. PNL "H" TRANSFORMER FROM MCC "H"	7912	7912	GE	THEF126030	P	A, B, C, D	M	EQEJ-001
BKR-MCC D	100A BREAKER, N/E SW. GR. #1 TO MCC "D"	7901	N/E SW 1	GE	AK-2-15-1	P	A, B, C, D	M	EQEJ-003
BKR-MCC D-CKT	100A BREAKER, N/E SW. GR. #1 TO MCC "D", CONTROL CIRCUIT	7901	7901			P	A, B, C, D	M	EQEJ-003
BKR-MCC E 200ASW	225A BREAKER, FROM N/E SW. GR. #1 TO 200A SWITCH (MCC "E")	7901	N/E SW 1	GE	AK-2-15-1	P	A, B, C, D	M	EQEJ-003
BKR-MCC E 200ASW-CKT	225A BREAKER, FROM N/E SW. GR. #1 TO 200A SWITCH (MCC "E"), CONTROL CIRCUIT	7901	7901			P	A, B, C, D	M	EQEJ-003
BKR-MCC F	125A BREAKER, N/E SW. GR. #2 TO MCC "F"	7901	N/E SW 2	GE	AK-2-15-1	K, P	A, B, C, D	M	EQEJ-003
BKR-MCC F-CKT	125A BREAKER, N/E SW. GR. #2 TO MCC "F", CONTROL CIRCUIT	7901	7901			K, P	A, B, C, D	M	EQEJ-003
BKR-MCC G	225A BREAKER, N/E SW. GR. #1 TO MCC "G"	7901	N/E SW 1	GE	AK-2-15-1	K, P	A, B, C, D	M	EQEJ-003
BKR-MCC G-CKT	225A BREAKER, N/E SW. GR. #1 TO MCC "G", CONTROL CIRCUIT	7901	7901			K, P	A, B, C, D	M	EQEJ-003
BKR-MCC H	225A BREAKER, N/E SW. GR. #2 TO MCC "H"	7901	N/E SW 2	GE	AK-2-15-1	K, P	A, B, C, D	M	EQEJ-003
BKR-MCC H-CKT	225A BREAKER, N/E SW. GR. #2 TO MCC "H", CONTROL CIRCUIT	7901	7901			K, P	A, B, C, D	M	EQEJ-003
BKR-MCC J	225A BREAKER, FROM N/E SW. GR. #1 TO MCC "J"	7901	N/E SW 1	GE	AK-6-25-E	K, P	A, B, C, D	M	EQEJ-003

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: A.D. Smith DATE: 12-3-90 VERIFIED BY: Rufus D. Brown DATE: 12/14/9013. NORMAL EMERGENCY POWER SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
BKR-MCC J-CKT	225A BREAKER, FROM N/E SW. GR. #1 TO MCC 7901 "J", CONTROL CIRCUIT	7901	7901			K, P	A, B, C, D	M	EQEJ-003
BKR-PANEL P-29	40A BREAKER, FROM 120VDC DISTR PANEL P-22 TO CONT ROOM PNL P-29 (120VDC)	7901	SG BATT RM SQUARE D		A1-E	P	A, B, C, D	M	EQEJ-003
BKR-PU-14 EMERG DRIV	100A BREAKER, FROM MCC "J" TO EMERGENCY DRIVE FOR PU-14 COOLING TOWER PUMP	7901	7901			P	A, B, C, D	M	EQEJ-003
BKR-RECPT PM BAT CHG	20A BREAKER, FROM MCC "J" TO RECPT. FOR PM BAT. CHARGER TO SERVE SW. GR. BAT.	7901	7901			P	A, B, C, D	M	EQEJ-003
BKR-RECPT SWGR BAT	20A BREAKER, FROM MCC "J" TO RECPT. FOR SW. GR BATTERY CHARGER	7901	7901			P	A, B, C, D	M	EQEJ-003
BKR-SBHE FN-1	225A BREAKER, MCC "H" TO SBHE FAN FN-1	7912	7912	GE	TFJ236M1225	K, P	A, B, C, D	M	EQEJ-001
BKR-SBHE FN-2	225A BREAKER, MCC "G" TO SBHE FAN FN-2	7912	7912	GE	TFJ236M1225	K, P	A, B, C	M	EQEJ-001
BKR-SEWAGE TREAT RCK	40A BREAKER, FROM MCC "J" TO SEWAGE TREATMENT RACK	7901	7901			P	A, B, C, D	M	EQEJ-003
BKR-SWGR BAT CHGR	20A BREAKER, MCC "F" TO SW. GR. BATT. RECPT. FROM N/E #2 SOURCE	7901	MCC "F"	GE	TF136020	P	A, B, C, D	M	EQEJ-003
BKR-TRANSFORMER #6A	150A BREAKER, FROM MCC "J" TO 120/240V TRANSFORMER (TRANSFORMER STATION 6A)	7901	7901			P	A, B, C, D	M	EQEJ-003
BKR-TRANSFORMER #7A	150A BREAKER, FROM MCC "J" TO 120/240V TRANSFORMER (TRANSFORMER STATION 7A)	7901	7901			P	A, B, C, D	M	EQEJ-003
BKR-W. EXP AREA	225A BREAKER, N/E SW. GR. #2 TO 225A BUS DUCT, W. EXPERIMENT AREA	7901	N/E SW 2	GE	AK-2-15-1	P	B, C	M	EQEJ-003
BKR-W. EXP AREA-CKT	225A BREAKER, N/E SW. GR. #2 TO 225A BUS DUCT, W. EXPERIMENT AREA, CONTROL CIRCUIT	7901	N/E SW 2			P	A, B, C, D	M	EQEJ-003
MCC F	ELECTRICAL BLDG 480V SWITCHGEAR AND BUS	7901	MCC "F"	CONTINENTAL	13380	K, P	A, B, C, D	M	EQEJ-003

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: J.D. Smith DATE: 12-3-90 VERIFIED BY: Raymond B. Brown DATE: 12/19/90

13. NORMAL EMERGENCY POWER SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
MCC G	FAN HOUSE 480V SWITCHGEAR & BUS	7912	7912	CONTINENTAL	13380	K, P	A, B, C, D	M	EQEJ-001
MCC G-200A SW	200A SWITCH, N/E SW. GR. #1 TO MCC "G"	7912	7912			K, P	A, B, C, D	M	EQEJ-001
MCC H	FANHOUSE 480V SWITCHGEAR AND BUS	7912	7912	CONTINENTAL	13380	K, P	A, B, C, D	M	EQEJ-001
MCC H-200A SW	200A SWITCH, N/E SW. GR. #2 TO MCC "H"	7912	7912			K, P	A, B, C, D	M	EQEJ-001
MCC H-60A SW	60A SWITCH FROM MCC "H" TO 480/240/120V 15KVA TRANSFORMER, FAN HOUSE POWER PANEL	7912	7912	SQUARE D	H-362	K, P	A, B, C, D	M	EQEJ-001
MCC J	ELECTRICAL BUILDING 480V SWITCHGEAR AND BUS	7901	7901			K, P	A, B, C, D	M	EQEJ-003
N/E SWGR #1-600A SW	600A SWITCH, AUTO TRANSFER N/E #1	7901	N/E SW 1	ASCO	105S233	K, P	A, B, C, D	M	EQEJ-003
N/E SWGR #2-600A SW	600A SWITCH, AUTO TRANSFER N/E #2	7901	N/E SW 2	ASCO	105S233	K, P	A, B, C, D	M	EQEJ-003
N/E SWGR 1	N/E SWGR # 1 480V SWGR & BUS	7901	N/E SW 1	GE	AKD	K, P	A, B, C, D	M	EQEJ-003
N/E SWGR 2	N/E SWGR # 2 480V SWGR & BUS	7901	N/E SW 2	GE	AKD	K, P	A, B, C, D	M	EQEJ-003
P-22	120VDC SWITCHGEAR CONTROL POWER PANEL	7901	SG BATT RM	SQUARE D	NA1P-1-2172-13EE	K	A, B, C, D	M	EQEJ-003
SWGR BATT	DC BRK. SWITCHGEAR BATTERY AND ASSOCIATED INSTRUMENTATION & CONTROLS	7901	SG BATT RM	NIFE	H306-6	K, P	A, B, C, D	M	EQEJ-003
SWGR BATT CH	DC BRK. SWITCHGEAR BATTERY CHARGER AND ASSOCIATED INSTRUMENTATION & CONTROLS	7901	SG BATT RM	SAB NIFE	825070	P	A, B, C, D	M	EQEJ-003
T-1	N/E SWGR # 1 LOAD SEQUENCING TIMER	7901	N/E SW 1	EAGLE SIGNAL	49367-11	K, P	A, B, C, D	M	EQEJ-003
T-2	N/E SWGR # 2 LOAD SEQUENCING TIMER	7901	N/E SW 2	EAGLE SIGNAL	49367-11	K, P	A, B, C, D	M	EQEJ-003

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Raymond A. Brown DATE: 12/10/90

14. INSTRUMENT AIR SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O M E	EQ FILE NUMBER
N/A	AIR SUPPLY PIPING TO EMERGENCY DEPRESSURIZATION SYSTEM VALVES HCV-128-3 AND HCV-128-4				L			
N/A	AIR SUPPLY PIPING TO PRESSURIZER PUMP HEAD TANK LEVEL TRANSMITTERS (LT-214 AND LT-214A) AND SWITCHES (LS-214-A2 AND LS-214B)				L			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: A.D. Smith DATE: 12-3-90

VERIFIED BY: Ronald Brown DATE: 12/10/90

15. CONTROL CYLINDER/DRIVE MECHANISMS
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
N/A	CONTROL CYLINDER				C, O			
N/A	HYDRAULIC CYLINDER SUBASSEMBLY				C, O			
N/A	INNER CONTROL CYLINDER SEAL ASSEMBLY				A			
N/A	INNER CYLINDER DRIVE ROD AND COUPLING MECHANISMS				C, O			
N/A	SHIM DRIVE ROD				C, O			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: J.D. Smith DATE: 12-3-90 VERIFIED BY: Reynolds A. Brown DATE: 12/10/90

16. SHIM SAFETY PLATES/DRIVE MECHANISMS
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
N/A	CONTROL ROD DRIVE PLATFORM ASSEMBLY				O			
N/A	ENGAGEMENT MECHANISM ASSEMBLIES				C, O			
N/A	MAGNETIC ACTUATOR ASSEMBLIES	7900	B-1		C, O	A, B, C	H	EQEJ-008
N/A	OUTTER CONTROL ROD SEAL HOUSING ASSEMBLIES				A			
N/A	PISTON AND COUPLING SUBASSEMBLIES				C, O			
N/A	SCRAM SPRING ASSEMBLY				C, O			
N/A	SHIM SAFETY PLATES				C, O			
N/A	SHOCK ABSORBER ASSEMBLY				C, O			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Rufus A Brown DATE: 12/16/90

17. REACTOR VESSEL INTERNALS
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
N/A	FISSION CHAMBER DRIVE TUBE ASSEMBLIES				A			
N/A	FUEL AND REFLECTOR SUPPORT PEDESTALS				O			
N/A	FUEL ELEMENTS				C, O, O			
N/A	FUEL GRID				O			
N/A	INNER SHROUD ASSEMBLY				D, O			
N/A	ION CHAMBER TUBE ASSEMBLIES				A			
N/A	LOWER CONTROL ROD TRACK ASSEMBLY				O			
N/A	OUTER SHROUD ASSEMBLY				D, O			
N/A	PERMANENT REFLECTOR				O			
N/A	REMOVABLE REFLECTOR				O			
N/A	SEMI-PERMANENT REFLECTOR				O			
N/A	SHROUD FLANGE ASSEMBLY				O			
N/A	TARGET HOLDER ASSEMBLY				O			
N/A	TARGET TOWER ASSEMBLY				O			
N/A	UPPER CONTROL ROD TRACK ASSEMBLY				O			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Rufus A. Brown DATE: 12/19/90

18. EXPERIMENTAL FACILITIES (PART OF HIGH PRESSURE BOUNDARY)
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
EF-3	PNEUMATIC TUBE FACILITY (MK-2) AIR EXHAUST TUBES				A			
EF-3	PNEUMATIC TUBE FACILITY (MK-2) AIR SUPPLY TUBES				A			
EF-3	PNEUMATIC TUBE FACILITY (MK-2) CONOSEAL JOINT				A			
EF-3	PNEUMATIC TUBE FACILITY (MK-2) FLANGED COUPLING				A			
EF-3	PNEUMATIC TUBE FACILITY (MK-2) MAIN FLIGHT TUBE				A			
EF-3	PNEUMATIC TUBE FACILITY (MK-2) TOP ADAPTER				A			
FSV-CR-7A	RABBIT FACILITY INJECTION				A			
FSV-CR-7B	RABBIT FACILITY INJECTION				A			
FT-3	RABBIT FACILITY LOW PRESSURE LEG BYPASS FLOW TRANSMITTER				A			
FT-5	RABBIT FACILITY LOW PRESSURE LEG FLOW TRANSMITTER				A			
HB-1	HORIZONTAL BEAM TUBE - ALUMINUM BEAM TUBE				A			
HB-1	HORIZONTAL BEAM TUBE - CONOSEAL JOINT				A			
HB-1	HORIZONTAL BEAM TUBE - FLANGE ASSEMBLY				A			
HB-1	HORIZONTAL BEAM TUBE - FOUR BOLT MARMAN COUPLING ASSEMBLY				A			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Reford Brown DATE: 12/10/9018. EXPERIMENTAL FACILITIES (PART OF HIGH PRESSURE BOUNDARY)
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
HB-2	HORIZONTAL BEAM TUBE - ALUMINUM BEAM TUBE				A			
HB-2	HORIZONTAL BEAM TUBE - CONOSEAL JOINT				A			
HB-2	HORIZONTAL BEAM TUBE - FLANGE ASSEMBLY				A			
HB-2	HORIZONTAL BEAM TUBE - FOUR BOLT MARMAN COUPLING ASSEMBLY				A			
HB-3	HORIZONTAL BEAM TUBE - ALUMINUM BEAM TUBE				A			
HB-3	HORIZONTAL BEAM TUBE - CONOSEAL JOINT				A			
HB-3	HORIZONTAL BEAM TUBE - FLANGE ASSEMBLY				A			
HB-3	HORIZONTAL BEAM TUBE - FOUR BOLT MARMAN COUPLING ASSEMBLY				A			
HB-4	HORIZONTAL BEAM TUBE - ALUMINUM BEAM TUBE				A			
HB-4	HORIZONTAL BEAM TUBE - CONOSEAL JOINT				A			
HB-4	HORIZONTAL BEAM TUBE - FLANGE ASSEMBLY				A			
HB-4	HORIZONTAL BEAM TUBE - FOUR BOLT MARMAN COUPLING ASSEMBLY				A			
HV-299	RABBIT FACILITY ISOLATION				A			
HV-300	RABBIT FACILITY ISOLATION				A			
HV-CR-1	HIGH PRESS SUPPLY TO LOADING STATION				A, F			
HV-CR-2	EQUALIZING VALVE				A, F			
HV-CR-3	RABBIT INSERTION VALVE				A			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Ronald B. Brown DATE: 12/19/901B. EXPERIMENTAL FACILITIES (PART OF HIGH PRESSURE BOUNDARY)
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
HV-CR-6	LOADING STATION ISOLATION				A, F			
N/A	CENTRAL RABBIT FACILITY - LOADING STATION				A			
N/A	CENTRAL RABBIT FACILITY - MAIN FLIGHT TUBE				A			
N/A	TRANSIENT EXPERIMENTS, FORKED RETAINERS				A			
N/A	TRANSIENT EXPERIMENTS, IN-VESSEL PRESSURE RETAINING TUBES				A			
N/A	TRANSIENT EXPERIMENTS, O-RINGS				A			
N/A	TRANSIENT EXPERIMENTS, SEALS				A			
N/A	TRANSIENT EXPERIMENTS, TOP ADAPTERS				A			
VXF-7	PNEUMATIC TUBE FACILITY (MK-1) AIR EXHAUST TUBES				A			
VXF-7	PNEUMATIC TUBE FACILITY (MK-1) AIR SUPPLY TUBES				A			
VXF-7	PNEUMATIC TUBE FACILITY (MK-1) FLANGE				A			
VXF-7	PNEUMATIC TUBE FACILITY (MK-1) MAIN FLIGHT TUBE				A			
VXF-7	PNEUMATIC TUBE FACILITY (MK-1) O-RINGS				A			
VXF-7	PNEUMATIC TUBE FACILITY (MK-1) TOP ADAPTER				A			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.D. Smith DATE: 12-3-90 VERIFIED BY: Rufus A. Brown DATE: 12/10/9019. EMERGENCY DIESEL GENERATOR SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
04-405-AR-1	AIR RECEIVER TANK				O			
04-405-FOT-2	DAY TANK #1				O			
04-405-FOT-3	DAY TANK #2				O			
04-415-PU-1	DIESEL FUEL OIL PUMP #1				K			
04-415-PU-1	DIESEL FUEL OIL PUMP #1 MOTOR AND CONTROLS	7901	7901		K, P	A, B, C, D	M	EQJ-003
04-415-PU-2	DIESEL FUEL OIL PUMP 2				K			
04-415-PU-2	DIESEL FUEL OIL PUMP 2 MOTOR AND CONTROLS	7901	DG#2	DELCO	14168	K, P	A, B, C, D	M EQJ-003
05-405-FOT-1	MAIN UNDERGROUND FUEL OIL STORAGE TANK				O			
D/G BATT	DIESEL GENERATOR # 1 BATTERY AND ASSOCIATED INSTRUMENTATION & CONTROLS	7901	DG#1	GOULD		K, P	A, B, C, D	M EQJ-003
D/G BATT CHG	DIESEL GENERATOR # 1 BATTERY CHARGER AND ASSOCIATED INSTRUMENTATION & CONTROLS	7901	DG#1	EXIDE	UR15-1-12-ZAGR1	P	A, B, C, D	M EQJ-003
LS-633	DAY TANK #1 LOW LEVEL SWITCH	7901	7901		K, P	A, B, C, D	M	EQJ-003
LS-635	Day Tank #2 Low Level Switch	7901	DG#2	MASON NEILAN	12000-40	K, P	A, B, C, D	M EQJ-003
N/A	DIESEL GENERATOR 1 (ENGINE AND GENERATOR)	7901	DG#1	CATERPILLAR/GE	D379A/SSJ1415AS	K	A, B, C, D	M EQJ-003
N/A	DIESEL GENERATOR 1 (ENGINE AND GENERATOR) INSTRUMENTATION AND CONTROLS	7901	DG#1			K, P	A, B, C, D	M EQJ-003
N/A	DIESEL GENERATOR 1 - 32VDC STARTER MOTOR CONTROLS (2 EACH)	7901	DG#1	ASCO		K, P	A, B, C, D	M EQJ-003
N/A	DIESEL GENERATOR 1 - 32VDC STARTER MOTORS (2 EACH)	7901	DG#1	DELCO-REMY	1109963	K, P	A, B, C, D	M EQJ-003

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S. L. Smith DATE: 12-3-90 VERIFIED BY: Ref. A. Brown DATE: 12/19/90

19. EMERGENCY DIESEL GENERATOR SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING	ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
N/A	DIESEL GENERATOR 2 (ENGINE AND GENERATOR)	7901	DG#2	CATERPILLAR/GE	D379A/5S1415A5	K	A, B, C, D	M	EQEJ-003
N/A	DIESEL GENERATOR 2 (ENGINE AND GENERATOR) INSTRUMENTATION AND CONTROLS	7901	DG #2			K, P	A, B, C, D	M	EQEJ-003
N/A	DIESEL GENERATOR 2 - AIR START MOTOR					K			
N/A	FIRE CONTROL CUTOFF VALVE V-4806 FUSIBLE LINKS					O			
N/A	FIRE CONTROL CUTOFF VALVE V-4813 FUSIBLE LINKS					O			
N/A	FUEL OIL PUMP PU-1 INLET STRAINER					O			
N/A	FUEL OIL PUMP PU-2 INLET STRAINER					O			
PI-638	Air Receiver Tank AR-1 Pressure					O			
PS-639	Air Receiver Tank AR-1 Compressor Control Switch					O			
PS-645	Air Receiver Tank AR-1 Pressure Alarm					O			
PSV-632	FUEL PUMP 2 PRESSURE RELIEF					O			
PSV-637	AIR RECEIVER TANK RELIEF VALVE					O			
PSV-644	AIR COMPRESSOR RELIEF VALVE					O			
SV-640	DIESEL GENERATOR 2 AIR STARTER SOLENOID	7901	DG #2	ASCO	B210A12	K, P	A, B, C, D	M	EQEJ-003
SV-640	DIESEL GENERATOR 2 AIR STARTER SOLENOID CONTROLS	7901	DG #2			K, P	A, B, C, D	M	EQEJ-003
SV-641	DIESEL GENERATOR 2 AIR STARTER SOLENOID	7901	DG #2	ASCO	B210A12	K, P	A, B, C, D	M	EQEJ-003

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: A. D. Smith DATE: 12-3-90 VERIFIED BY: Refers R. B. Brown DATE: 12/19/90

19. EMERGENCY DIESEL GENERATOR SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
SV-641	DIESEL GENERATOR 2 AIR STARTER SOLENOID CONTROLS	7901	DG #2		K, P	A, B, C, D	H	EGEJ-003
V-4710	RECEIVER INLET				O			
V-4710-1	COMPRESSOR RELIEF				O			
V-4710-2	RECEIVER RELIEF ISOLATIONS				O			
V-4710-3	RECEIVER RELIEF ISOLATIONS				O			
V-4710-4	RECEIVER RELIEF				O			
V-4710-5	RECEIVER RELIEF				O			
V-4710-6	BLEED VALVE (AIR TO DG #2)				O			
V-4710-7	BLEED VALVE (AIR TO DG #2)				O			
V-4711	RECEIVER OUTLET				O			
V-4712	AIR RECEIVER DRAIN VALVE				O			
V-4713	ISOLATION VALVE FOR PI-638				O			
V-4731	PRESS SWITCH ISO.				O			
V-4731-1	GAGE ISOLATION				O			
V-4732	PRESS SWITCH ISO.				O			
V-4801	INLET TO #2 FUEL PUMP				O			
V-4801-1	STRAINER DRAIN				O			
V-4801-2	DISCHARGE RELIEF				O			
V-4802	INLET TO #1 FUEL OIL PUMP				O			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: J. L. Smith DATE: 12-3-90 VERIFIED BY: Reynolds A. Brown DATE: 12/10/90

19. EMERGENCY DIESEL GENERATOR SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
V-4802-2	DISCHARGE RELIEF				0			
V-4803	#2 FUEL OIL PUMP DISCHG.				0			
V-4804	FULL PUMP DISCHARGE CHECK VALVE				0			
V-4805	#1 FUEL OIL DAY TANK K-CONN				0			
V-4806	FIRE CONTROL CUTOFF				0			
V-4807	CHECK VALVE				0			
V-4808	#2 FUEL OIL DAY TANK K-CONN				0			
V-4809	CHECK VALVE				0			
V-4810	CHECK VALVE				0			
V-4811	#1 DAY TANK INLET				0			
V-4811-1	#1 DAY TANK VENT				0			
V-4813	FIRE CONTROL CUTOFF				0			
V-4814	CHECK VALVE				0			
V-4816	#1 FUEL OIL PUMP DISCHG.				0			
V-4817	FUEL PUMP DISCHARGE CHECK VALVE				0			
V-4818	MAIN FUEL STORAGE TANK OUTLET				0			
V-4819	MAIN FUEL STORAGE TANK OUTLET				0			
V-4820	#2 DAY TANK INLET				0			
V-4820-1	#2 DAY TANK VENT				0			
V-4821	FUEL OIL PUMP #1 INLET CHECK				0			

12/03/90

ORNL/RRD/INT-70, REV. 1

ORIGINATED BY: S.D. Smith DATE: 12-3-90

VERIFIED BY: Raymond Brown DATE: 12/10/90

19. EMERGENCY DIESEL GENERATOR SYSTEM
HIGH FLUX ISOTOPE REACTOR SAFETY-RELATED EQUIPMENT LIST

EQUIPMENT TAG NO.	DESCRIPTION	BUILDING ROOM	MANUFACTURER	MODEL	SAFETY FUNCTION CODE	EVENT RESPONSE CODE	Z O N E	EQ FILE NUMBER
V-4822	FUEL SUPPLY LINE TO AEP DIESELS				0			
V-4823	FUEL RETURN LINE TO AEP DIESELS				0			
V-4824	STRAINER DRAIN				0			
V7	AIR COMPRESSOR DISCHARGE CHECK VALVE				0			

INTERNAL DISTRIBUTION

- | | | | |
|--------|------------------|--------|--------------------|
| 1. | W. K. Brown | 64. | R. W. Kennemore |
| 2-4. | S. E. Burnette | 65. | M. W. Kohring |
| 5. | M. H. Carpenter | 66. | J. E. Lee |
| 6-25. | D. H. Cook | 67-68. | D. M. McGinty |
| 26. | B. L. Corbett | 69. | L. D. Merryman |
| 27-32. | M. B. Farrar | 70. | L. D. Proctor |
| 33. | G. F. Flanagan | 71. | J. B. Richard |
| 34-50. | U. Gat | 72. | R. L. Stover |
| 51. | H. A. Glovier | 73. | D. B. Trauger |
| 52-58. | R. M. Harrington | 74. | C. D. West |
| 59. | R. W. Hobbs | 75. | K. P. Zimmerman |
| 60. | K. R. Houbre | 76-77 | Laboratory Records |
| 61. | P. H. Hughes | 78. | ORNL Patent Office |
| 62. | S. S. Hurt | 79-92. | RRD-DCC |
| 63. | J. E. Jones | | |

EXTERNAL DISTRIBUTION

93. P. T. Daly, U.S. Department of Energy, Oak Ridge Operations Office, P.O. Box 2001, Federal Building, Oak Ridge, TN 37831.
94. G. T. MacDonald, Impell Corporation, Norcross, GA 30091