

SECTION/PAGE REVISIONS

<u>Section</u>	<u>Pages</u>	<u>Instructions</u>
1	1-1	Replace section
2	2-1 to 2-6	Replace section
3	3-1	Replace section
3A	1	Replace first page of Attachment with 3-1
4	4-14 to 4-16	Replace page
	4-21 to 4-22	Replace page
4A	158A, B	Add new pages
4G	-	Replace cover sheet
	2A	Add new page
	15A	Add new page
	16A	Add new page
	17A, B	Add new pages
	18A	Add new page
	24	Replace page
	28	Replace page
	60	Replace page
4J	5A	Add new page
	101A	Add new page
	102A	Add new page
	107	Replace page
	108	Replace page
	113A	Add new page
	124	Replace page
4K	1-45	Replace section
6	6.1-2	Replace page
	6.2-4	Replace page
	6.2-5	Replace page
	Figure 6.2.1	Add new page
6.3-A	All	Replace section
6.3-B	All	Replace section
6.3-E	All	Replace section
6.4-A	All	Replace section
7	7-1 to 7-3	Replace section
8	8-1 to 8-4	Replace section
9	9-1	Replace section
12	12-1	Replace section

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ATTACHMENT

CONSUMERS POWER COMPANY
BIG ROCK POINT PLANT
DOCKET 50-155
DPR-06

Revised pages to the 6/29/90
SIMULATION FACILITY
APPLICATION

164 Pages

SECTION 1

10CFR55.45(b)(4)(i)(A)

On May 26, 1988 Consumers Power Company submitted a Simulation Facility Plan for the Big Rock Point Plant. A revised plan is defined within the content of this application which supersedes the May 26, 1988 plan. Pursuant to 10CFR55.45(b)(4)(i)(A) the Big Rock Point Plant Simulator Facility will meet or exceed the plan submitted by this Application on May 26, 1991.

A request for exemption from the schedule requirements of 10CFR55.45(b)(2)(ii) to delay submittal of parts of the application was submitted by letter dated April 4, 1990. NRR issued the Exemption by letter dated September 10, 1990. /

SECTION 2

Introduction/Summary

SECTION 2

Introduction/Summary

Part 55 - Statement of Consideration November 30, 1988

"It is not the intent of NRC to permit or encourage the initiation of transients on the plant when and if the plant is used as a simulation facility. The use of the plant is envisioned as a possible approach that a facility licensee might propose to use in conjunction with another simulator device or devices in lieu of a plant referenced simulator. This approach might be suitable for example for older plants without access to plant-referenced simulators where manipulations of the plant to the extent consistent with plant conditions might be used to demonstrate familiarity with the plant for which the candidate would be licensed."

The Big Rock Point Plant Simulation Facility incorporates the philosophy expressed by these statements of consideration. The approach considered all "manipulations of the plant" (in the control room) that are to be involved in the operating test. In some cases, actual use of the plant was determined to be an appropriate testing method. In other cases, installation of a simulating device in the BRP Plant specific limited scope simulator (LSS) was determined as the most appropriate method to demonstrate familiarity with the manipulation and its associated tasks. When completed, the simulation facility for the Big Rock Point Plant is intended to have a sufficient level of dynamics to eliminate the further use of the full scope simulator at Dresden. /
/
/

The Limited Scope Simulator (LSS) at Big Rock Point will include part task enhancements with full scale static mock-up of the control room. The part task enhancements include a Real-Time Advanced Core and Thermohydraulic Code (RETACT) workstation developed by Link-Miles. The workstation, coupled with the SAI Taurus 860 Computer System will have the capability to receive as many inputs from various control room devices and send as many output signals to the LSS as defined by the associated analysis specified by this application. The workstation will also serve as an instructor station with the capability to fail various components, as well as provide feedback to several other control room devices not directly tied into the RETACT software such as available/not available, on/off, open/closed, etc. In addition, the LSS will include installation of physical devices for operator identification and manipulation. Some of these devices will initially be installed without feedback to the computer or other dynamic simulation equipment. /
/
/

The full scale static mock-up refers to those portions of the LSS that do not have physical devices, instruments or controls installed, regardless of any feedback. In all cases, a full size photograph of the actual control room

device will be affixed to the panel if the simulated control room device is not installed. The static mock-up will also provide for overlays to represent various changes to plant conditions that occur during a transient. These overlays may be initially set-up to represent various plant conditions at the start of a control room scenario and may also be changed during the course of the scenario to reflect the appropriate changes in plant conditions based on operator response and/or accident sequences. It is expected that this type of scenario dynamics will be necessary during conduct of operator exams following completion of Phase I of the project but will be reduced to a minimum after Phase II is completed.

The LSS facility will be located outside the plant fenced in area, in a modular building purchased and set up specifically for the project similar to those used for classroom training. The facility approximates the full size dimensions of the Big Rock Point Plant control room and panels (minor deviations are discussed in Section 6).

In addition to the LSS, the operating test will also involve a strengthened plant walkthrough program. The industry plant walkthrough programs are governed by a development schedule established by the NRC. The program directs each utility to develop, over the next several years, 15 additional Job Performance Measures (JPMs) per year such that in the first year, 75 are developed, in the second year, 90 are developed and so forth (reference Section 5 for detailed discussion of the JPM Program). All JPMs at Big Rock Point Plant will be completed and available for use during conduct of the operating exam following the May 1991 implementation date. In addition, the JPM will incorporate actual use of plant information, control manipulation, etc, as noted from resolutions and observations that occurred during the Control Manipulation Analysis.

Earlier LSS design philosophy incorporated a hardware configuration that included two Compaq 0386/33 Mhz machines. That configuration provided for a limited input/output (I/Os) combination. 106 I/Os were available in the form of 48 Digital Ins, 24 Digital Outs, 8 Analog Ins, and 26 Analog Outs. Numerous other dynamics were also included in a Phase I and Phase II construction schedule that took into consideration additional time to design, fabricate, and wire alternative actuation circuits. The SAI Taurus 860 Computer System will eliminate concerns related to limited I/O capacity and provide for direct I/O ties to the RETACT software without the need for designing alternative dynamic simulation methods. This computer system upgrade is intended to accelerate the Phase II dynamics to a level sufficient to eliminate the need for the Dresden full scope simulator.

The use of Dresden was intended to augment three competency factors that were also initially determined via the BRP-LSS. The competency factors that were to be evaluated in an operating test at Dresden were 1) Diagnosis of event/condition based on signals and readings; 2) communication/crew interaction; and 3) Supervisory ability. It is our plan, to complete a sufficient level of Phase II devices by the May 26, 1991 deadline to justify the BRP-LSS as adequate for evaluating these competency factors. Our decision regarding the capabilities of the BRP-LSS vs Dresden will be reflected in the final revision to this Application by May 26, 1991.

The design of an LSS for Big Rock Point first requires the development of a detailed evaluation. The evaluation must look at the tasks the operator must perform in the control room, the specific devices the operator must manipulate, and the procedures that require use of these devices to accomplish the identified tasks. The resolution of which devices need be simulated starts with use of the Systematic Approach to Training process.

The Big Rock Staff identified 986 tasks through the Systematic Approach to Training (SAT) process. The SAT is a systematic and dynamic approach to training that is based upon analyses of a job to identify the tasks the trainee is required to perform. The completed BRP tasks address routine, as well as off-normal and emergency procedures. They include all tasks associated with actions performed by the Senior Reactor Operator (221 tasks), the Reactor Operator (355 tasks) and the Auxiliary Operator (410 tasks). From an initial 355 RO tasks, 167 RO control room tasks were determined as applicable to demonstrate an understanding of, and the ability to perform control room procedures required to accomplish the team interactive competencies, of the 13 criteria of the operating test specified by 10CFR55.45(a).

These 167 (control room and reactor operator) tasks were reviewed and resulted in the identification of 385 instrument and control devices (excluding annunciators) in the BRP Control Room in which a control manipulation analysis was performed. A simulation method was determined for every control room device. Some of the devices were typical one of four; ie, only one of the four was resolved, therefore, the actual control room instrument count is somewhat higher than the 380 devices that were reviewed.

A control manipulation analysis was completed for each of the 385 instruments and control devices. The first step of the analysis required that all tasks (from our data base of 167 that required use of the device) be specified and listed. The majority of the devices were called out by several different tasks. The manipulation of the device, such as observe or read level, was recorded as well as the task difficulty. Task difficulty was previously established by the SAT process for each task number. Additional information pertaining to the system, panel location and range/mode of the device was also recorded (reference Attachment 4-A; 1), 2)).

The next step of the control manipulation analysis required identification of the procedural and routine use of the device. Plant routine control manipulation sheets were completed by the Operations Department for each device for purposes of identifying procedure numbers, use, type of manipulation and frequency of manipulation (reference Attachment 4-A; 3)).

The Multi-Disciplinary Review Team (MDRT) completed the remaining steps of the manipulation analysis. Fidelity with one of several resolutions was established for each device. These resolutions provided for various levels of functional and physical fidelity, ie, from exact duplication via installation in the limited scope simulator (LSS) with input/output ties to a RETACT Workstation to photo representation of the device on the appropriate panel.

The determination of which resolution was based on evaluation of five main areas: 1) Task Environment; 2) Task Difficulty; 3) Frequency of Manipulation or Reading; 4) Safety Consequences; and 5) Uniqueness of the Manipulation or Reading. The first two factors address the overall task that is being

accomplished during the manipulation. The manipulation itself may be considered trivial; however, if it is performed in a stressful or complex environment, where multiple decisions are involved while doing the manipulation or reading, that trivial manipulation may be forgotten or misread. These first two criteria were developed to address that concern. The remaining three factors evaluate the specific manipulation rather than the overall task and include consideration of the consequences if the manipulation or reading of it is not performed or is improperly performed. Ranking criteria are provided for each evaluation area. The five areas are summed and averaged.

A final adjustment in the conservative direction only, is included as a sixth evaluation area. If equipment damage could be caused by failure to properly manipulate or read the device, the average is reduced by another 0.5. The ranking criteria is weighted to produce numbers that ranged from 1.0 to 6.4. Approximately 34% of the control room devices fell below 3.0. Devices ranked below this 3.0 value were resolved by means other than a "discussion only plant walkthrough." Some type of additional training was deemed essential to resolve the below 3.0 outliers. In some cases, familiarity with the physical device was deemed appropriate, in others, feedback was deemed necessary. Additional use of the plant will include on-the-job training verification; and, in still others, photo resolution (static mock-up scenario) was considered necessary.

A total of seven (7) resolution methods were developed to identify the devices. The resolution numbers were grouped by the MDRT composite number such that the lowest composite numbers identified the most significant need for operator training and the highest numbers the least need for any additional training focus. The following table correlates the resolution number to the MDRT composite number:

<u>Resolution No</u>	<u>Description</u>	<u>MDRT Composite No</u>
1	Use of actual plant during operation	1-2
2	RETRACT input/output simulation	1-2
3	Other dynamic simulation (actual device with feedback)	1-2
4	Physical mock-up (actual device without feedback)	2-3
5	Use of actual plant during outage	2-3
6	Static mock-up (image of device)	2-3
7	Plant walkthrough	≥ 3

Resolution that required a static mock-up photo was considered to be of more training significance than a resolution that required a plant walkthrough. This is because the photo resolution stipulates that in addition to the routine use of a descriptive/discussion type plant walkthrough that is always available for the operator to perform, either a control room scenario or a control room JPM will also be developed that will specifically include use of the device in the LSS.

The MDRT results were combined with the list of critical system functions (CSF) established during the Control Room Design Review (CRDR) Program. The CRDR defined critical system functions as those determined to be essential to either

prevent core damage or minimize radiation releases to the public. If all essential functions are fulfilled, the safety of the public is preserved. This combined list of MDRT devices with composite numbers below 3.0 and the CSF list represents the Big Rock Point Plant Simulation Facility - Phase I.

The Phase I LSS will dynamically simulate 76 separate devices using 28 inputs/outputs (I/Os) from the RETACT Workstation. An additional three (3) parameters will be dynamically simulated via alternative methods that provide for instructor workstation actuations of various malfunctions.

Originally, in order to conserve I/Os, the parameter signals were to be split to accommodate multiple instruments (eg, reactor water level -4 level transmitters, core spray flow indicator and recorder -2, etc.) The 860 computer system will provide enough I/O capacity so that conversion of I/Os will no longer be necessary and multiple parameter signal I/Os may be directly tied to the RETACT software. This eliminates any need to differentiate between resolution numbers designated as 2 and 3. Some of the circuits will accommodate individual instrument failure capability at the instructor console. In addition, the Phase I LSS will include 46 other physical devices that will duplicate the actual control room installation but will not, have feedback until Phase II is completed.

During Phase II, all of the remaining I/Os to the RETACT software will be installed. This will include all devices with a resolution number designation of 2 or 3. A total of 582 devices will include dynamic simulation with feedback. An additional 10 physical devices, identified as resolution number designation 4 (physical mock-up), will also be installed. Phase II installation will begin concurrent with Phase I, therefore the May 26, 1991 simulation facility to be described by our performance tests at the time will include all of the Phase I devices and as many Phase II devices that time and budget will permit. Phase II, however, is intended to extend beyond the May 26, 1991 date.

The purpose of differentiating between Phase I and Phase II is to provide a means that will assure the minimum requirements of the simulation facility are accomplished by May 26, 1991 as well as provide a means to define the total project scope. Beyond the May 1991 date, the LSS will be expanded via incorporation in the Integrated Assessment Living Schedule.

Phase II instruments and controls were identified via a procedure performance review process (PPR). The PPR was developed with the purpose that the LSS must be built with enough devices with feedback to assure that the operator can demonstrate performance in certain procedures. The resultant procedures must be from those required to demonstrate competence in the thirteen (13) items specified by 10CFR55.45 and in particular, item (6) which requires the operator to

"perform control manipulation required to obtain desired operating results during normal, abnormal, and emergency situations."

The first step of the PPR process involved reviewing each of the Phase I devices that required a dynamic resolution (resolution number 2 or 3) and listing the emergency, off-normal and routine operating procedures that require the use of the specific device. For example, a Phase I RETACT I/O (digital-in for flow) was specified for HS-7008/HS-7007 which is used to inject liquid poison to the reactor. The operating procedures that involve the use of these

hand switches are EOP-1, RC/P and SOP-4. These procedures were identified for each Phase I device (reference Attachment 4-H, PPJ sheets for example).

The next step required the completion of a procedure performance review sheet for the procedures listed via the above step. The form requires the identification of each instrument and control that is necessary to successfully perform the procedures. The form provides for identification of the device number and Phase I resolution as well as a column for recording a Phase II determination (reference Attachment 4-H, PPR sheets for example).

The procedure performance sheets were then reviewed as a package to identify those procedures which through Phase I efforts were almost fully dynamic. The remaining devices listed under Phase I with any resolution other than two or three were converted to a resolution two or three (which signifies that the device will have feedback) for Phase II in order to provide for full simulation of the procedure. If the parameter could be generated with RETACT software, a resolution two was assigned. If the parameter involved an unrelated secondary system, not part of the RETACT software, then a resolution three was assigned. Some switching between resolution numbers two and three occurred during final negotiation with Link-Miles. However, following completion of the procedure performance review process, it became evident that more RETACT I/Os were needed than originally negotiated. A revised total of One Hundred (100) I/Os, as a result were provided to Link-Miles for incorporation in the RETACT software. A / subsequent contract change order incorporated an alternative computer system / that essentially eliminated any concerns regarding I/O capacity. The final LSS / will have the capability to expand I/Os via the Integrated Assessment and / Configuration Control programs through the remaining life of the plant. /

The PPR process involved the review of 51 procedures (reference procedure list, Attachment 4-H, index). The BRP Training Department has concluded that LSS scenarios can be developed from each of these procedures in order to demonstrate operator performance and meet the operator testing requirements specified by the 13 items of 10CFR55.45.

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SECTION 3

10 CFR 55.45 (a) 1 through 13 Criteria
Operating Test Performance

The purpose of this section is to identify how the Big Rock Point Plant (BRP) will meet the 10 CFR 55.45 (b) (4) (i) (B) requirement for conduct of the operating test. Paragraph (B) requires:

"A description of the components of the simulation facility which are intended to be used for each part of the operating test".

The BRP Operator Testing Program incorporates the use of the BRP Plant and the BRP Limited Scope Simulator. By May 26, 1991, it is intended that the BRP-LSS will have a sufficient level of dynamics to no longer require the use of the full scope simulator at Dresden. The final revision to this Application will reflect our decision regarding the capabilities of the BRP-LSS vs Dresden. During the interim period, specified use of the Dresden Simulator remains within this Application. /

The approach uses a Control Manipulation Analysis of identify the controls required on BRPs Limited Scope Simulator and the required plant use to demonstrate operator competency of the procedures required to meet the 13 criteria of 10 CFR 55.45(a). It incorporates the use of Dresden to augment any of the 13 criteria with either the BRP Plant or the Limited Scope Simulator. /

The control Manipulation Analysis consisted of first identifying the core set of procedures that would be required to be incorporated into the Simulator portion of the operating test. The core set was defined by those procedures presently used to meet the requirements of 10 CFR 55.59.3.1. This set of procedures (see Attachment 3-A) was then cross referenced to the ANS 3.5 1985 3.1.1 and 3.1.2 criteria. /

A Task Analysis from that set of tasks associated with the appropriate section of the core procedures was performed. From the task steps of the task analysis the instruments and controls were identified to perform the task steps. These instruments and controls were then reviewed for applicability. (See section 4). This process was utilized to identify the use of the BRP plant or the Limited Scope Simulator in Phase I. /

The next step involved identification of procedures required to demonstrate use of the instruments and controls on the Limited Scope Simulator. Those identified procedures were reviewed (see procedure performance review sheets Attachment 4-H) to identify all instruments and controls required to perform that set of procedures on the Limited Scope Simulator. The procedure performance reviews were then utilized to identify the instruments and controls that will be incorporated for use on the Limited Scope Simulator Phase II of the Simulation Facility development. /

The above process identified those procedures that will be required to be performed on the Limited Scope Simulator. Those procedure tasks that cannot be performed on the Limited Scope Simulator will be demonstrated in the plant walk through portion of the Operating test. (See section 5. of this application.) /

The procedures that will be utilized on each Simulation device as part of the Simulation Facility to demonstrate each of the 13 criteria of 10 CFR 55.45(a) are specified in Attachment 3-B. These procedures are also itemized for both Phase I and Phase II completion stages of the simulation facility. /

Section 3

Procedure Cross Reference

10 CFR 55.59 (a) (3) (1) Requirements	Core Set BRP Plant Procedure	ANS 3.5 1985 Requirements
(A) Plant Start Ups	(GOP-1) (GOP-2)	3.1.1 (1) (2) (3) (5)
(B) Shutdown	(GOP-6) (GOP-7)	3.1.1 (7) (8)
(C) Manual Control of Feedwater (SU) (SD)	SOP-16	3.1.1(1)(2)(8)
(E) Significant Power Changes	GOP-5	3.1.1 (6)(5)
(G) Loss of Coolant	EOP-1/EOP-2/EOP-3	3.1.2 (1)
(H) Loss of Inst. Air	ONP 2.2	3.1.2 (2)
(I) Loss of Electrical Power	ONP 2.36	3.1.2 (3)
(J) Loss of Recirc Flow	ONP 2.27	3.1.2 (4)
(K) Loss of Feedwater	EOP-1/ONP 2.20	3.1.2 (9) (10)
(L) Loss of Service Water	ONP 2.26	3.1.2 (6)
(M) Loss of Shutdown Cooling	ONP 2.34	3.1.2 (7)
(N) Loss of Reactor Cooling Water	ONP 2.30	3.1.2 (8)
(O) Loss of Normal Feedwater	EOP-1/ONP 2.20	3.1.2 (9)
(P) Loss of Condenser Vacuum	ONP 2.24	3.1.2 (5) Ex
(Q) Loss of Rx Protection System	ONP 2.35	3.1.2 (11)
(R) Mispositioned Control Rod	ONP 2.7	3.1.2 (12)

The second group includes three resolution methods which are static and are selected based on composite numbers that fall in the range of two to three. These resolution methods are:

4. Physical Mock-Up (Actual Device without Feedback) -

This simulation method requires installing a device that is exactly the same as the device in the control room but without feedback. For those devices which are no longer available, a similar device will be installed that closely resembles the actual device.

5. Use of Actual Plant During an Outage -

This simulation method involves manipulation of the actual device in the plant which could not be otherwise manipulated during plant operation. This method does not require dynamic feedback.

6. Static Mock-Up (Image of Device) -

This simulation method involves installing a full size image of the device on the LSS panel in the proper location. These devices will either be included in a simulation scenario with overlays, where required, to simulate changes due to transients and changing plant conditions or a control room Job Performance Measure (JPM).

The third group includes only one resolution method which is selected for composite numbers that are greater than three. This resolution method is:

7. Plant Walkthrough -

This simulation method involves use of the actual plant. The operator would demonstrate without actual manipulation and discuss the use of the device. Devices which only require a plant walkthrough will also have a full size photograph installed on the LSS panels so that the LSS will resemble the actual plant. However, since these devices were resolved with a composite number higher than 3.0, a simulator scenario or control room JPM need not specifically focus on the particular device.

4.1.4.2 Overriding Factors

The MDRT considered other factors in addition to those provided in the guideline and if necessary overrode the ranking system but only in a conservative manner. For example, the MDRT composite number for the 138KV sync scope and associated lights was 2.5 which gave a non-dynamic resolution for these devices. It was noted from training input to the team discussion that it would be desirable to make these dynamic in the future due to chronic training problems associated with the station power system. Based on this input, the Phase II resolution for these devices is dynamic simulation.

Another overriding consideration are the devices which represent the CFS parameters. These devices regardless of team ranking were given a Phase I dynamic resolution. Most of the CFS devices, due to frequent use such as drum level or reactor power, would only warrant a plant walkthrough without CFS consideration. This is further discussed in the next Section 4.1.5.

4.1.5 CMFA Results

As a result of the TA review, 385 instrument and control devices were identified. The MDRT reviewed and determined a resolution for all of the devices. The MDRT composite numbers ranged from 1.06 to 6.42. The following is the distribution: /

Less than 2 - 17

2 or Greater but Less Than 3 - 114

3 or Greater - 249

Attachment 4-G contains a listing of all devices in order of their Phase I resolution numbers. The following is the quantities of devices for each resolution method:

1. Use of Actual Plant - 3
2. RETACT Input/Output - 56 /
3. Dynamic Simulation - 19 /
4. Physical Mock-Up - 46 /

5. Use of Actual Plant During an Outage - 0

6. Static Mock-Up - 64

7. Plant Walkthrough - 197

As indicated, there were no devices which required Resolution 5 - Use of Actual Plant During an Outage. The three devices which are Resolution 1 all could have been Resolution 5 because their composite number were all greater than two. The devices are HS-7084-1, HS-7085-1 and HS-7086-1. The first device is the containment evacuation siren and the other two are the electric and diesel fire pumps controls. It was determined that the plant siren was tested once a week regardless of plant status and that the fire pumps were automatically started for regular testing regardless of plant status and could also be manually started for training purposes.

Many of the devices such as indicators and recorders which had a composite number greater than three and have a Resolution 7 -Plant Walkthrough, could also use the actual plant to strengthen the plant walkthrough scenarios. Where this situation exist, it was noted along with the resolution description.

Of the fifty five devices that are Resolution 2 (RETRACT Input/Output) and eleven devices that are Resolution 3 (Dynamic Simulation), only fifteen Resolution 2 and two Resolution 3 had a composite number of 2 or less. The remainder of these devices received dynamic resolutions because they were devices that display the CFS parameters and were given special consideration as discussed in Section 4.1.4.2. The CSF parameters and associated devices are:

<u>Critical Safety Function</u>	<u>Parameter</u>
Reactivity Control	Power Range Monitors RR-RI05A Flux Level Chan 3 RR-RI05B Flux Level Chan 2 RR-RI05C Flux Level Chan 1
Core Cooling and Heat Removal	Primary System Level LI-3384 Drum Level Chan A LI-3385 Drum Level Chan B LI-3386 Drum Level Chan C LI-3387 Drum Level Chan D Reactor Water Level

- * Devices associated with the plant protective relaying which are the actual protective relays or used for diagnostic purposes by the laboratory technicians.
- * Devices associated with other plant systems which are used for diagnostic purposes by the I/C laboratory technicians.
- * Indicating lights associated with control switched and control stations that were called out separately in the plant equipment list or control room inventory but were included in the data base as part of the associated control.

4.2.7 Final LSS Results

A complete listing of devices and their Phase II resolutions are included in Attachment 4-J. The following is a summary by quantity of devices for Phase II with Phase I included for comparison:

	CMFA Results		PPR Results		Final LSS Results	
	Ph I	Ph II	Ph I	Ph II	Phase II	
1. Use of Actual Plant	3	0	0	0	0	
2. RETACT Input/Output	56	116	1	14	131	/
3. Dynamic Simulation	19	176	0	275	451	/
4. Physical Mock-Up	46	10	0	0	10	/
5. Use of Actual Plant (Outage)	0	0	0	0	0	
6. Static Mock-Up	64	21	266	0	21	/
7. Plant Walkthrough	197	61	22	0	61	/
Total Devices	385	385	289	289	674	/

The first two columns under CMFA Results are the devices identified the MDRT review. The first column is the quantity of devices for each resolution to be completed at the end of Phase I. The second column is those same Phase I devices but with their Phase II resolution. As can be seen from the table, the quantities in resolutions 4 through 7 decreased in Phase II and the quantities in dynamic resolutions 1 through 3 increased in Phase II. The third and fourth column under PPR Results are the quantity of additional devices identified during the PPR which were discussed in Section 4.2.5. Like the MDRT Results the first column is the quantity of devices for each resolution to be completed at the end of Phase I. These devices are different and not originally in the data base following the CMFA process. The second column is those same Phase II devices but with their Phase II resolution. The results here are similar, all the non-dynamic devices shifted to dynamic in Phase II. The last column is the total quantities of all devices in their final Phase II resolution. Of the 674 devices, / 582 or 86% have dynamic resolutions 1, 2 or 3. A complete device / listing with description, system, panel location and range/mode for each device is included in Attachment 4-K.

1) CONTROL DEVICE: CS-42/2A44 Service: CORE SPRAY PUMP 2

System: PIS Panel Loc: C02-2

Range/Mode: TRIP/CLOSE R/L-G/L

MDRT COMPOSITE NO: 1.94

RES NO: PHASE I-2 PHASE II-2

2) TASK ANALYSIS CONTROL MANIPULATION:

<u>Task Number-Step</u>	<u>Step Description</u>	<u>Device Manipulation</u>	<u>Task Difficulty</u>
209-201-01-01-S10	START A CORE SPRAY PUMP	START PUMP	3
298-214-05-01-S03	START THE FOLLOWING INJECTION PUMPS: CORE SPRAY PUMPS	START PUMP	3
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0

3) PLANT ROUTINE CONTROL MANIPULATION (Device No: CS-42/2A44):

<u>Procedure or Routine Use</u>	<u>Use Description</u>	<u>Device Use/ Manipulation</u>	<u>Frequency Of Manipulation</u>
TR-09	START & STOP PUMP DURING FLOW TEST	START/STOP PUMP	REFOUT
SOP-8 (EOP-2,6.3)	PLACE POST INCIDENT COOLING SYSTEM IN OPERA- TION	START PUMP	EOP

Attachment 4-G
CMFA Phase I Results
Device Listing by Resolution Number

DEVICE NO: CS-42/2A44 DESCRIPTION: CORE SPRAY PUMP 2

TEAM COMP NO: 1.94

PHASE I RES METHOD: RES NO: 2

Retact Digital Input

COMMENTS:

Retact will be modeling containment level when the core spray pumps are being used. This device uses the same Retact D/I as CS-42/2A44. See coments for CS-42/2A44.

DEVICE NO: RR-8055

DESCRIPTION: HI RANGE CONTAINMENT
GAMMA MONITOR

TEAM COMP NO: 0.00

PHASE I RES METHOD:

RES NO: 2

Retact Analog Output

COMMENTS:

The above device represents one of the six critical plant function and is used to demonstrate performance of Procedures EOP-3 & ONP-2.17. The above device uses the same Retact A/O as RR-8057 and 8058. This device was not identified during TA review and therefore was not ranked by the Multi-Disciplinary Review Team.

DEVICE NO: CV 4014

DESCRIPTION: TURBINE STEAM BYPASS
VALVE

TEAM COMP NO: 0.00

PHASE I RES METHOD:

RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

The above device represents containment isolation which is one of the six critical plant functions. This device was not identified during TA review and therefore was not ranked by the Multi-Disciplinary Review Team.

DEVICE NO: CV 4106 DESCRIPTION: TURBINE BYPASS WARMUP VALVE

TEAM COMP NO: 0.00

PHASE I RES METHOD: RES NO: 3

Dynamic Simulation (Actual Device With Feedback)

COMMENTS:

Phase I dynamic simulation is for containment isolation which is one of the six CFS parameters.

DEVICE NO: CV 4107 DESCRIPTION: MAIN STEAM DRAIN ISOLATION VALVE

TEAM COMP NO: 0.00

PHASE I RES METHOD: RES NO: 3

Dynamic Simulation (Actual Device With Feedback)

COMMENTS:

Phase I dynamic simulation is for containment isolation which is one of the six CFS parameters.

DEVICE NO: HS-7025 DESCRIPTION: RESIN SLUICE & DEMIN WATER ISOLATION VALVES CV-4091/4105

TEAM COMP NO: 2.92

PHASE I RES METHOD: RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

This device is used to demonstrate performance of Procedure SOP-10. This device controls MO-7067 which is part of containment isolation which represents one of the six critical plant functions.

DEVICE NO: HS-7036 DESCRIPTION: AUXILARY SWITCH FOR STEAM ISOLATION VALVE CV-4106 & CV-4104

TEAM COMP NO: 3.04

PHASE I RES METHOD: RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

This device is used to demonstrate performance of Procedure ONP-2.24 & GOP-1. This device controls CV-4104 & CV-4106 which are part of containment isolation which is one of the six critical plant functions.

DEVICE NO: MO-7067

DESCRIPTION: TURBINE BYPASS ISOLATION
VALVE

TEAM COMP NO: 0.00

PHASE I RES METHOD:

RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

This device represents containment isolation which is one of the six critical plant functions. This device was not ranked by the MDRT because it was not identified during TA review.

DEVICE NO: RMC-5524

DESCRIPTION: TURBINE BYPASS ISOLATION
VALVE

TEAM COMP NO: 2.72

PHASE I RES METHOD:

RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

This device is used to demonstrate performance of Procedure EOP-1 RC/L. This device controls MO-7067 which is part of containment isolation which represents one of the six critical plant functions.

DEVICE NO: HS-7019 DESCRIPTION: REACTOR ENCLOSURE SUMP
PUMP DIRTY DISCH
TEAM COMP NO: 2.62 CV-4103/4025

PHASE I RES METHOD: RES NO: 4

Physical Mock-Up (Actual Device without Feedback)

COMMENTS:

Probably will incorporate feedback in Phase 2.

DEVICE NO: HS-7048 DESCRIPTION: 4K30A BYPASS - ALL RODS
IN INTERLOCK BYPASS

TEAM COMP NO: 2.03

PHASE I RES METHOD: RES NO: 4

Physical Mock-Up (Actual Device Without Feedback)

COMMENTS:

Subsequent review changed this from a Retact I/O to other dynamic simulation methods for Phase II. The function of this device is not modeled by Retact.

DEVICE NO: HS-7902 DESCRIPTION: FIRE WATER TO EMERGENCY
CONDENSER

TEAM COMP NO: 2.30

PHASE I RES METHOD: RES NO: 4

Physical Mock-Up (Actual Device Without Feedback)

COMMENTS:

This device is used to demonstrate performance of all EOP Procedures.

DEVICE NO: HS-S4 DESCRIPTION: REACTOR MODE SELECTOR
SWITCH

TEAM COMP NO: 2.90

PHASE I RES METHOD: RES NO: 4

Physical Mock-Up (Actual Device without Feedback)

COMMENTS:

The handle on this switch cannot be duplicated but slight difference should not cause any negative training of the operators. The handle will be made as close as possible to the actual device.
The four digital inputs to Retact are for switch positions Refuel, Run, By-Pass Dump Tank and Shutdown. This device is used to demonstrate performance of Procedures EOP-1 RC/Q and ONP-2.9.

DEVICE NO: RMC-5510 DESCRIPTION: SHUTDOWN SYSTEM
SECONDARY ISOLATION
TEAM COMP NO: 2.60 VALVES MO-7057 & MO-7059
PHASE I RES METHOD: RES NO: 4

Physical Mock-Up (Actual Device Without Feedback)

COMMENTS:

The above device uses the same Retact D/I as RMC-5509. See comments for RMC-5509.

DEVICE NO: RMC-5525 DESCRIPTION: BACKUP ENCLOSURE SPRAY
MO-7068
TEAM COMP NO: 2.24
PHASE I RES METHOD: RES NO: 4

Physical Mock-Up (Actual Device without Feedback)

COMMENTS:

This device is used to demonstrate performance of Procedures EOP-2 and SOP-8.

DEVICE NO: RMC-5529 DESCRIPTION: CORE SPRAY BACKUP
MO-7072
TEAM COMP NO: 2.42
PHASE I RES METHOD: RES NO: 4

Physical Mock-Up (Actual Device without Feedback)

COMMENTS:

The above device will be made dynamic using circuits associated with Retact I/O for MO-7070 and 7071 and/or MO-7061 and 7051. This device is used to demonstrate performance of Procedures ???

DEVICE NO: HS-7000 DESCRIPTION: REACTOR FEED PUMP 1
MINIMUM FLOW VALVE
CV-4001

TEAM COMP NO: 3.40

PHASE I RES METHOD: RES NO: 7

Plant Walkthrough

COMMENTS:

This device is used to demonstrate performance of Procedure GOP-1.

DEVICE NO: HS-7001 DESCRIPTION: REACTOR FEED PUMP 2
MINIMUM FLOW VALVE
CV-4002

TEAM COMP NO: 3.40

PHASE I RES METHOD: RES NO: 7

Plant Walkthrough

COMMENTS:

This device is used to demonstrate performance of Procedure
ONP-2.3

DEVICE NO: HS-7011 DESCRIPTION: TREATED WASTE TO FUEL
PIT CV-4049

TEAM COMP NO: 3.08

PHASE I RES METHOD: RES NO: 7

Plant Walkthrough

COMMENTS:

Probably will install actual device during Phase 2. This device
is used to demonstrate performance of Procedure SOP-10.

DEVICE NO: HS-7045 DESCRIPTION: CONDENSATE STORAGE TANK
LEVEL CV-4041

TEAM COMP NO: 3.86

PHASE I RES METHOD: RES NO: 7

Plant Walkthrough (May use actual plant)

COMMENTS:

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DEVICE NO: CS-42/2A44

DESCRIPTION: CORE SPRAY PUMP 2

TEAM COMP NO: 1.94

PHASE II RES METHOD:

RES NO: 2

Retact Digital Input

COMMENTS:

Retact will be modeling containment level when the core spray pumps are being used. This device uses the same Retact D/I as CS-42/2A44. See coments for CS-42/2A44.

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DEVICE NO: CV 4014

DESCRIPTION: TURBINE STEAM BYPASS
VALVE

TEAM COMP NO: 0.00

PHASE II RES METHOD:

RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

The above device represents containment isolation which is one of the six critical plant functions. This device was not identified during TA review and therefore was not ranked by the Multi-Disciplinary Review Team.

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DEVICE NO: CV 4106

DESCRIPTION: TURBINE BYPASS WARMUP
VALVE

TEAM COMP NO: 0.00

PHASE II RES METHOD:

RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

Phase I dynamic simulation is for containment isolation which is one of the six CFS parameters.

DEVICE NO: CV 4107

DESCRIPTION: MAIN STEAM DRAIN
ISOLATION VALVE

TEAM COMP NO: 0.00

PHASE II RES METHOD:

RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

Phase I dynamic simulation is for containment isolation which is one of the six CFS parameters.

DEVICE NO: HS-7011 DESCRIPTION: TREATED WASTE TO FUEL
PIT CV-4049

TEAM COMP NO: 3.08

PHASE II RES METHOD: RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

Probably will install actual device during Phase 2. This device is used to demonstrate performance of Procedure SOP-10.

DEVICE NO: HS-7019 DESCRIPTION: REACTOR ENCLOSURE SUMP
PUMP DIRTY DISCH
CV-4103/4025

TEAM COMP NO: 2.62

PHASE II RES METHOD: RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

Probably will incorporate feedback in Phase 2.

DEVICE NO: HS-7022 DESCRIPTION: DEMIN WATER TO CONTROL
ROD DRIVE

TEAM COMP NO: 2.92

PHASE II RES METHOD: RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

Probably will install actual device during Phase 2. This device is used to demonstrate performance of Procedure SOP-10.

DEVICE NO: HS-7025 DESCRIPTION: RESIN SLUICE & DEMIN
WATER ISOLATION VALVES
CV-4091/4105

TEAM COMP NO: 2.92

PHASE II RES METHOD: RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

This device is used to demonstrate performance of Procedure SOP-10. This device controls MO-7067 which is part of containment isolation which represents one of the six critical plant functions. /
/
/
/

DEVICE NO: HS-7036 DESCRIPTION: AUXILARY SWITCH FOR
STEAM ISOLATION VALVE
TEAM COMP NO: 3.04 CV-4106 & CV-4104
PHASE II RES METHOD: RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

This device is used to demonstrate performance of Procedure ONP-2.24 & GOP-1. This device controls CV-4104 & CV-4106 which are part of containment isolation which is one of the six critical plant functions. /
/
/

DEVICE NO: HS-7048 DESCRIPTION: 4K30A BYPASS - ALL RODS
IN INTERLOCK BYPASS
TEAM COMP NO: 2.03
PHASE II RES METHOD: RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

Subsequent review changed this from a Retact I/O to other dynamic simulation methods for Phase II. The function of this device is not modeled by Retact.

DEVICE NO: HS-7049 DESCRIPTION: XFMR DELUGE ISOL CV-4101
TEAM COMP NO: 3.13
PHASE II RES METHOD: RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

This device is used to demonstrate performance of Procedure EOP-3 Cont 1.

DEVICE NO: HS-7084-1 DESCRIPTION: CONTAINMENT EVACUATION
ALARM
TEAM COMP NO: 3.96
PHASE II RES METHOD: RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

Since tested once a week could use actual plant. This device is used to demonstrate performance of Procedure EIP-4.

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DEVICE NO: MO-7067

DESCRIPTION: TURBINE BYPASS ISOLATION
VALVE

TEAM COMP NO: 0.00

PHASE II RES METHOD:

RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

This device represents containment isolation which is one of the six critical plant functions. This device was not ranked by the MDRT because it was not identified during TA review.

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DEVICE NO: RMC-5515

DESCRIPTION: REACTOR COOLING WATER
FROM SHUTDOWN HT EXCH
CV-4022

TEAM COMP NO: 3.00

PHASE II RES METHOD:

RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

This device is used to demonstrate performance of Procedure EOP-1
RC/L & ONP-2.9.

DEVICE NO: RMC-5521

DESCRIPTION: FIRE WATER TO CORE SPRAY
HEAT EXCH VLV MO-7066

TEAM COMP NO: 2.78

PHASE II RES METHOD:

RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

This device is used to demonstrate performance of Procedure SOP-8
(Ref EOP-2 CN/L & EOP-1 RC/L-2).

DEVICE NO: RMC-5524

DESCRIPTION: TURBINE BYPASS ISOLATION
VALVE

TEAM COMP NO: 2.72

PHASE II RES METHOD:

RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

This device is used to demonstrate performance of Procedure EOP-1
RC/L. This device controls MO-7067 which is part of containment
isolation which represents one of the six critical plant
functions. //
//
//

DEVICE NO: RMC-5529

DESCRIPTION: CORE SPRAY BACKUP
MO-7072

TEAM COMP NO: 2.42

PHASE II RES METHOD:

RES NO: 3

Dynamic Simulation (Actual Device with Feedback)

COMMENTS:

The above device will be made dynamic using circuits associated
with React I/O for MO-7070 and 7071 and/or MO-7061 and 7051.
This device is used to demonstrate performance of Procedures ???

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
38 SYN LTS	138KV SYNC LIGHTS	SPS	C02-3	OFF/BRIGHT/DIM
138 SYN PWR	SYNC RELAY & METER POT NOT AVAILABLE	SPS	C02-3	ON/OFF
138 SYN SCOPE	138KV SYNC SCOPE	SPS	C02-3	SLOW/FAST
A-46A-D	CONTAINMENT WATER LEVEL LIGHTS EL 574FT, 579FT, 587FT & 595FT	PIS	C01-A	FOUR W/LT'S
A-47	SHUTDOWN SYS INLET DRAIN VALVE CV-4017	SCS	C01-A	G/L (CLOSED POS)
A-48	SHUTDOWN SYS OUTLET DRAIN VALVE CV-4018	SCS	C01-A	R/L-G/L (CLOSED/OPEN)
A-49A	CONDENSER CIRC WATER PUMP 1 VALVE MO-7054	CWS	C01-A	R/L (OPEN POS)
A-49B	CONDENSER CIRC WATER PUMP 1 VALVE MO-7054	CWS	C01-A	G/L (CLOSED POS)
A-50A	CONDENSER CIRC WATER PUMP 2 VALVE MO-7055	CWS	C01-A	R/L (OPEN POS)
A-50B	CONDENSER CIRC WATER PUMP 2 VALVE MO-7055	CWS	C01-A	G/L (OPEN POS)
A-51A	POISON TANK HIGH LEVEL	LPS	C01-A	W/L
A-51B	POISON TANK LOW LEVEL	LPS	C01-A	W/L
A-53	OFF GAS ISOLATION VALVE OPEN CV-4015	WGS	C01-A	R/L ON/OFF
A-61	SHUTDOWN SYS INHIBITOR INLET VALVE CV-4115	SCS	C01-A	G/L (CLOSED POS)
A-62	SHUTDOWN SYS INHIBITOR OUTLET VALVE CV-4116	SCS	C01-A	G/L (CLOSED POS)

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
-63	POISON SYSTEM RECTRC VALVE CV-4050 OPEN	LPS	C01-A	ON/OFF R/L
A-70	HOT WELL HIGH LEVEL REJECT VALVE CV-4010 OPEN DEMAND	CDS	C01-A	A/L ON/OFF
ALP-1.15-01	CHANNEL A STEAM DRUM LEVEL LOW	ALP	C40	ALARM
ALP-1.15-02	CHANNEL A FIRE MAIN PRESSURE AVAILABLE	ALP	C40	ALARM
ALP-1.15-03	CHANNEL A TIME DELAY TRIP IN 30 SECONDS	ALP	C40	ALARM
ALP-1.15-04	CHANNEL A TIME DELAY TRIP	ALP	C40	ALARM
ALP-1.15-05	CHANNEL A REACTOR WATER LEVEL LOW	ALP	C40	ALARM
ALP-1.15-06	CHANNEL A TRIP	ALP	C40	ALARM
ALP-1.15-07	CHANNEL 1.1 OUTPUT TRIP	ALP	C40	ALARM
ALP-1.15-08	CHANNEL 1.2 OUTPUT TRIP	ALP	C40	ALARM
ALP-1.15-09	CHANNEL 1 VALVES OPEN	ALP	C40	ALARM
ALP-1.15-10	CHANNEL A STEAM DRUM LEVEL HIGH	ALP	C40	ALARM
ALP-1.15-11	CHANNEL A UPS ABNORMAL	ALP	C40	ALARM
ALP-1.15-13	CHANNEL A NOT AVAILABLE	ALP	C40	ALARM
ALP-1.15-14	CHANNEL 1 NOT AVAILABLE	ALP	C40	ALARM

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
ALP-1.15-15	AUTO TEST FAULT	ALP	C40	ALARM
ALP-1.15-16	CHANNEL B STEAM DRUM LEVEL LOW	ALP	C40	ALARM
ALP-1.15-17	CHANNEL B FIRE MAIN PRESSURE AVAILABLE	ALP	C40	ALARM
ALP-1.15-18	CHANNEL B TIME DELAY TRIP IN 30 SECONDS	ALP	C40	ALARM
ALP-1.15-19	CHANNEL B TIME DELAY TRIP	ALP	C40	ALARM
ALP-1.15-20	CHANNEL B REACTOR WATER LEVEL LOW	ALP	C40	ALARM
ALP-1.15-21	CHANNEL B TRIP	ALP	C40	ALARM
ALP-1.15-22	CHANNEL 2.1 OUTPUT TRIP	ALP	C40	ALARM
ALP-1.15-23	CHANNEL 2.2 OUTPUT TRIP	ALP	C40	ALARM
ALP-1.15-24	CHANNEL 2 VALVES OPEN	ALP	C40	ALARM
ALP-1.15-25	CHANNEL B STEAM DRUM LEVEL HIGH	ALP	C40	ALARM
ALP-1.15-26	CHANNEL B UPS ABNORMAL	ALP	C40	ALARM
ALP-1.15-28	CHANNEL B NOT AVAILABLE	ALP	C40	ALARM
ALP-1.15-29	CHANNEL 2 NOT AVAILABLE	ALP	C40	ALARM
ALP-1.15-31	CHANNEL C STEAM DRUM LEVEL LOW	ALP	C40	ALARM

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
ALP-1.15-32	CHANNEL C FIRE MAIN PRESSURE AVAILABLE	ALP	C40	ALARM
ALP-1.15-33	CHANNEL C TIME DELAY TRIP IN 30 SECONDS	ALP	C40	ALARM
ALP-1.15-34	CHANNEL C TIME DELAY TRIP	ALP	C40	ALARM
ALP-1.15-35	CHANNEL C REACTOR WATER LEVEL LOW	ALP	C40	ALARM
ALP-1.15-36	CHANNEL C TRIP	ALP	C40	ALARM
ALP-1.15-37	CHANNEL 3.1 OUTPUT TRIP	ALP	C40	ALARM
ALP-1.15-38	CHANNEL 3.2 OUTPUT TRIP	ALP	C40	ALARM
ALP-1.15-39	CHANNEL 3 VALVES OPEN	ALP	C40	ALARM
ALP-1.15-40	CHANNEL C STEAM DRUM LEVEL HIGH	ALP	C40	ALARM
ALP-1.15-41	CHANNEL C UPS ABNORMAL	ALP	C40	ALARM
ALP-1.15-43	CHANNEL C NOT AVAILABLE	ALP	C40	ALARM
ALP-1.15-44	CHANNEL 3 NOT AVAILABLE	ALP	C40	ALARM
ALP-1.15-45	SPARE	ALP	C40	ALARM
ALP-1.15-46	CHANNEL D STEAM DRUM LEVEL LOW	ALP	C40	ALARM
ALP-1.15-47	CHANNEL D FIRE MAIN PRESSURE AVAILABLE	ALP	C40	ALARM

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
ALP-1.15-48	CHANNEL D TIME DELAY TRIP IN 30 SECONDS	ALP	C40	ALARM
ALP-1.15-49	CHANNEL D TIME DELAY TRIP	ALP	C40	ALARM
ALP-1.15-50	CHANNEL D REACTOR WATER LEVEL LOW	ALP	C40	ALARM
ALP-1.15-51	CHANNEL D TRIP	ALP	C40	ALARM
ALP-1.15-52	CHANNEL 4.1 OUTPUT TRIP	ALP	C40	ALARM
ALP-1.15-53	CHANNEL 4.2 OUTPUT TRIP	ALP	C40	ALARM
ALP-1.15-54	CHANNEL 4 VALVES OPEN	ALP	C40	ALARM
ALP-1.15-55	CHANNEL D STEAM DRUM LEVEL HIGH	ALP	C40	ALARM
ALP-1.15-56	CHANNEL D UPS ABNORMAL	ALP	C40	ALARM
ALP-1.15-58	CHANNEL D NOT AVAILABLE	ALP	C40	ALARM
ALP-1.15-59	CHANNEL 4 NOT AVAILABLE	ALP	C40	ALARM
ALP-1.15-63	CONTAINMENT EVACUATION	ALP	C40	ALARM
ALP-1.15-65	DISCHARGE PIPE TEMPERATURE HIGH	ALP	C40	ALARM
ALP-1.15-66	ISOLATION VALVE AIR PRESSURE LOW	ALP	C40	ALARM
ALP-1.15-67	RDS CABINET OPEN	ALP	C40	ALARM

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
ALP-1.15-73	CONTAINMENT ALARM OFF NORMAL	ALP	C40	ALARM
ALP-1.15-74	FIRE PUMP OFF NORMAL	ALP	C40	ALARM
ALP-1.2-01	RPS CHANNEL TROUBLE	ALP	C02-1	ALARM
ALP-1.2-02	CHANNEL 1 SCRAM	ALP	C02-1	ALARM
ALP-1.2-03	CHANNEL 2 SCRAM	ALP	C02-1	ALARM
ALP-1.2-04	NEUTRON FLUX HI-HI SCRAM	ALP	C02-1	ALARM
ALP-1.2-05	NEUTRON FLUX HI ROD BLOCK	ALP	C02-1	ALARM
ALP-1.2-06	DOWNSCALE INSTRUMENT TROUBLE ROD BLOCK	ALP	C02-1	ALARM
ALP-1.2-07	MANUAL SCRAM	ALP	C02-1	ALARM
ALP-1.2-08	SPARE	ALP	C02-1	ALARM
ALP-1.2-09	SHORT PERIOD SCRAM	ALP	C02-1	ALARM
ALP-1.2-10	REACTOR LOW WATER LEVEL SCRAM	ALP	C02-1	ALARM
ALP-1.2-11	SHUTDOWN MODE ONE ROD OFF 00	ALP	C02-1	ALARM
ALP-1.2-12	IN-CORE FLUX HIGH	ALP	C02-1	ALARM
ALP-1.2-13	STEAM DRUM LOW WATER LEVEL SCRAM	ALP	C02-1	ALARM

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
ALP-1.2-14	STEAM DRUM LOW WATER LEVEL	ALP	C02-1	ALARM
ALP-1.2-15	STEAM DRUM HI WATER LEVEL	ALP	C02-1	ALARM
ALP-1.2-16	SCRAM DUMP TANK HIGH WATER LEVEL SCRAM	ALP	C02-1	ALARM
ALP-1.2-17	SCRAM DUMP TANK HIGH WATER LEVEL	ALP	C02-1	ALARM
ALP-1.2-18	ROD POSITION MG SET OVERLOAD	ALP	C02-1	ALARM
ALP-1.2-19	REACTOR HIGH PRESSURE SCRAM	ALP	C02-1	ALARM
ALP-1.2-20	REACTOR VERY HIGH PRESSURE	ALP	C02-1	ALARM
ALP-1.2-21	REACTOR HIGH PRESSURE	ALP	C02-1	ALARM
ALP-1.2-22	ENCLOSURE HIGH PRESSURE SCRAM	ALP	C02-1	ALARM
ALP-1.2-23	ACCUMULATOR LEAK	ALP	C02-1	ALARM
ALP-1.2-24	ROD DRIVE FILTER HI DIFF PRESSURE	ALP	C02-1	ALARM
ALP-1.2-25	MAIN STEAM ISOLATION VALVE SCRAM	ALP	C02-1	ALARM
ALP-1.2-26	LOW ACCUMULATOR PRESSURE BLOCK ROD WITHDRAWAL	ALP	C02-1	ALARM
ALP-1.2-27	LOW ACCUMULATOR PRESSURE	ALP	C02-1	ALARM
ALP-1.2-28	RECIRC LINE VALVES CLOSED SCRAM	ALP	C02-1	ALARM

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
ALP-1.2-29	REACTOR PROTECTION MG SET 1 MOTOR OVERLOAD	ALP	C02-1	ALARM
ALP-1.2-30	LOSS OF POWER TO MG SET 1	ALP	C02-1	ALARM
ALP-1.2-31	CONDENSER LOW VACUUM SCRAM	ALP	C02-1	ALARM
ALP-1.2-32	REACTOR PROTECTION MG SET 2 MOTOR OVERLOAD	ALP	C02-1	ALARM
ALP-1.2-33	LOSS OF POWER TO MG SET 2	ALP	C02-1	ALARM
ALP-1.3-01	RECIRC PUMP 1 SEAL LEAKAGE PRESSURE HI-LO	ALP	C02-1	ALARM
ALP-1.3-02	RECIRC PUMP 2 SEAL LEAKAGE PRESSURE HI-LO	ALP	C02-1	ALARM
ALP-1.3-03	RECIRC PUMPS OVERLOAD	ALP	C02-1	ALARM
ALP-1.3-04	RECIRC PUMP MOTOR 1 BEARING HI TEMP	ALP	C02-1	ALARM
ALP-1.3-05	RECIRC PUMP MOTOR 2 BEARING HI TEMP	ALP	C02-1	ALARM
ALP-1.3-06	RECIRC PUMPS TRIP	ALP	C02-1	ALARM
ALP-1.3-07	RECIRC PUMP 1 SEAL LEAKAGE HI FLOW	ALP	C02-1	ALARM
ALP-1.3-08	RECIRC PUMP 2 SEAL LEAKAGE HI FLOW	ALP	C02-1	ALARM
ALP-1.3-09	OFF-GAS FILTER HI DIFF PRESSURE	ALP	C02-1	ALARM
ALP-1.3-10	RECIRC PUMP 1 COOLING WATER LO FLOW	ALP	C02-1	ALARM

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
ALP-1.3-11	RECIRC PUMP 2 COOLING WATER LO FLOW	ALP	C02-1	ALARM
ALP-1.3-12	ENGINEERED SAFETY FEATURE BYPASS IND	ALP	C02-1	ALARM
ALP-1.3-13	RECIRC PUMP 1 LOWER BEARING LO OIL LEVEL	ALP	C02-1	ALARM
ALP-1.3-14	RECIRC PUMP 2 LOWER BEARING LO OIL LEVEL	ALP	C02-1	ALARM
ALP-1.3-15	SPARE	ALP	C02-1	ALARM
ALP-1.3-16	RECIRC PUMP 1 UPPER BEARING LO OIL LEVEL	ALP	C02-1	ALARM
ALP-1.3-17	RECIRC PUMP 2 UPPER BEARING LO OIL LEVEL	ALP	C02-1	ALARM
ALP-1.3-18	RECIRC PUMPS MOTOR WINDING HI TEMP	ALP	C02-1	ALARM
ALP-1.3-19	RECIRC PUMP 1 UPPER BEARING HI OIL LEVEL	ALP	C02-1	ALARM
ALP-1.3-20	RECIRC PUMP 2 UPPER BEARING HI OIL LEVEL	ALP	C02-1	ALARM
ALP-1.3-21	RECIRC PUMPS SEAL COOLING HI TEMP	ALP	C02-1	ALARM
ALP-1.3-22	RECIRC PUMP 1 VIBRATION	ALP	C02-1	ALARM
ALP-1.3-23	RECIRC PUMP 2 VIBRATION	ALP	C02-1	ALARM
ALP-1.3-24	REACTOR WATER HI COND	ALP	C02-1	ALARM
ALP-1.3-25	PROCESS LIQUID MONITORING HI RADIATION	ALP	C02-1	ALARM

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
ALP-1.3-26	SPARE	ALP	C02-1	ALARM
ALP-1.3-27	SPARE	ALP	C02-1	ALARM
ALP-1.3-28	AREA MONITORING HI RADIATION	ALP	C02-1	ALARM
ALP-1.3-29	AIR EJECTOR OFF-GAS HI RADIATION	ALP	C02-1	ALARM
ALP-1.3-30	OFF-GAS TIMER ON	ALP	C02-1	ALARM
ALP-1.3-31	ROD DRIVE COOLING HEADER HI TEMP	ALP	C02-1	ALARM
ALP-1.3-32	ROD DRIVE HI TEMP	ALP	C02-1	ALARM
ALP-1.3-33	EMERGENCY CONDENSER VENT HI RADIATION	ALP	C02-1	ALARM
ALP-1.3-34	HIGH- HIGH CONTAINMENT GAMMA RADIATION	ALP	C02-1	ALARM
ALP-1.3-35	HIGH CONTAINMENT GAMMA RADIATION	ALP	C02-1	ALARM
ALP-1.3-36	CONTAINMENT GAMMA MONITOR TROUBLE	ALP	C02-1	ALARM
ALP-1.3-37	HIGH-HIGH STACK GAS RADIATION	ALP	C02-1	ALARM
ALP-1.3-38	HIGH STACK GAS RADIATION	ALP	C02-1	ALARM
ALP-1.3-39	STACK GAS RADIATION MONITOR TROUBLE	ALP	C02-1	ALARM
ALP-1.3-40	ALTERNATE SHUTDOWN BLDG TROUBLE ALARM	ALP	C02-1	ALARM

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
LP-1.3-41	CONTROL TRANSFERRED TO ALTERNATE SHUTDOWN BLDG	ALP	C02-1	ALARM
ALP-1.3-42	SPARE	ALP	C02-1	ALARM
ALP-1.4-01	HP HEATER HIGH LEVEL	ALP	C02-2	ALARM
ALP-1.4-02	IP HEATER HIGH LEVEL	ALP	C02-2	ALARM
ALP-1.4-03	LP HEATER HIGH LEVEL	ALP	C02-2	ALARM
ALP-1.4-04	HP HEATER LOW LEVEL	ALP	C02-2	ALARM
ALP-1.4-05	IP HEATER LOW LEVEL	ALP	C02-2	ALARM
LP-1.4-06	LP HEATER LOW LEVEL	ALP	C02-2	ALARM
ALP-1.4-07	CONDENSER HOTWELL HIGH LEVEL	ALP	C02-2	ALARM
ALP-1.4-08	CONDENSER HOTWELL LOW LEVEL	ALP	C02-2	ALARM
ALP-1.4-09	CONTROL ROD DRIVE PUMPS LOW DISCH PRESS	ALP	C02-2	ALARM
ALP-1.4-10	REACTOR FEED PUMPS OVER- LOAD	ALP	C02-2	ALARM
ALP-1.4-11	REACTOR FEED PUMPS LOW SUCTION PRESS	ALP	C02-2	ALARM
ALP-1.4-12	CONTROL ROD DRIVE PUMPS LOW SUCTION PRESS	ALP	C02-2	ALARM
LP-1.4-13	REACTOR FEED PUMPS TRIP	ALP	C02-2	ALARM

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
ALP-1.4-14	REACTOR FEED PUMPS WIND- INGS & BEARINGS HIGH TEMP	ALP	C02-2	ALARM
ALP-1.4-15	CONDENSATE PUMPS OVER- LOAD	ALP	C02-2	ALARM
ALP-1.4-16	CONTROL ROD DRIVE PUMP 1 OVERLOAD	ALP	C02-2	ALARM
ALP-1.4-17	CONTROL ROD DRIVE PUMP 2 OVERLOAD	ALP	C02-2	ALARM
ALP-1.4-18	CONDENSATE HIGH CONDUCTIVITY	ALP	C02-2	ALARM
ALP-1.4-19	MOISTURE SEPARATOR DRAIN HIGH-LOW LEVEL	ALP	C02-2	ALARM
ALP-1.4-20	CLEAN-UP DEMIN TROUBLE	ALP	C02-2	ALARM
ALP-1.4-21	CLEAN-UP DEMIN EFFLUENT HIGH CONDUCTIVITY	ALP	C02-2	ALARM
ALP-1.4-22	REACTOR SHUTDOWN PUMP 1 OVERLOAD	ALP	C02-2	ALARM
ALP-1.4-23	REACTOR SHUTDOWN PUMP 2 OVERLOAD	ALP	C02-2	ALARM
ALP-1.4-24	EMERGENCY CONDENSER LOW LEVEL	ALP	C02-2	ALARM
ALP-1.4-25	SHUTDOWN SYSTEM PRIMARY ISOLATION VALVES OPEN	ALP	C02-2	ALARM
ALP-1.4-26	SHUTDOWN SYSTEM DRAIN VALVES CLOSED	ALP	C02-2	ALARM
ALP-1.4-27	SHUTDOWN SYSTEM HIGH PRESSURE	ALP	C02-2	ALARM
ALP-1.4-28	SHUTDOWN SYSTEM SECONDARY ISOLATION VALVES OPEN	ALP	C02-2	ALARM

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
ALP-1.4-29	SHUTDOWN SYSTEM ISOLATION VALVES LEAKAGE	ALP	C02-2	ALARM
ALP-1.4-30	POISON SYSTEM CONTROL CIRCUIT A FAILURE	ALP	C02-2	ALARM
ALP-1.4-31	POISON SYSTEM CONTROL CIRCUIT B FAILURE	ALP	C02-2	ALARM
ALP-1.4-32	POISON TANK LOW TEMP	ALP	C02-2	ALARM
ALP-1.4-33	POISON AIR SUPPLY LOW PRESSURE	ALP	C02-2	ALARM
ALP-1.4-34	DPLM SAFETY VALVE LEAK	ALP	C02-2	ALARM
ALP-1.4-35	POISON TANK LOW TEMP	ALP	C02-2	ALARM
ALP-1.4-36	REACTOR BUILDING VACUUM	ALP	C02-2	ALARM
ALP-1.4-37	REACTOR BUILDING VENT- ILATION SYSTEM TROUBLE	ALP	C02-2	ALARM
ALP-1.4-38	COND DEMIN EQUIP ROOM SHOP VENT UNITS TROUBLE	ALP	C02-2	ALARM
ALP-1.4-39	RADWASTE TROUBLE	ALP	C02-2	ALARM
ALP-1.4-40	PLANT EXHAUST FANS TROUBLE	ALP	C02-2	ALARM
ALP-1.4-41	CONDENSER CIRC WATER PUMPS OVERLOAD	ALP	C02-2	ALARM
ALP-1.4-42	CONDENSER CIRC WATER PUMPS TRIP	ALP	C02-2	ALARM
ALP-1.4-43	CONDENSER CIRC WATER PUMPS SEAL WATERLOW FLOW	ALP	C02-2	ALARM

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
LP-1.4-44	REACTOR COOLING WATER TANK LOW LEVEL	ALP	C02-2	ALARM
ALP-1.4-45	REACTOR COOLING WATER PUMPS LOW DISCH PRESS	ALP	C02-2	ALARM
ALP-1.4-46	CORE SPRAY PUMPS LOW DISCH PRESS	ALP	C02-2	ALARM
ALP-1.4-47	SERVICE WATER PUMPS LOW DISCH PRESS	ALP	C02-2	ALARM
ALP-1.4-48	SERVICE WATER PUMPS OVERLOAD	ALP	C02-2	ALARM
ALP-1.4-49	WELL WATER STORAGE TANK HIGH-LOW LEVEL	ALP	C02-2	ALARM
ALP-1.4-50	DOMESTIC WATER PUMP SUCTION LOW PRESS	ALP	C02-2	ALARM
LP-1.4-51	CONDENSATE STORAGE TANK HIGH-LOW LEVEL	ALP	C02-2	ALARM
ALP-1.4-52	CONDENSATE DEMIN TROUBLE	ALP	C02-2	ALARM
ALP-1.4-53	DEMIN WATER STORAGE TANK HIGH-LOW LEVEL	ALP	C02-2	ALARM
ALP-1.4-54	PIPE TUNNEL STEAM LEAK	ALP	C02-2	ALARM
ALP-1.4-55	MAKEUP DEMIN TROUBLE	ALP	C02-2	ALARM
ALP-1.4-56	INTAKE STRUCTURE BAYS LOW LEVEL	ALP	C02-2	ALARM
ALP-1.4-57	HEATING BOILER TROUBLE	ALP	C02-2	ALARM
LP-1.4-58	AIR COMPRESSORS DISCH HIGH TEMPERATURE	ALP	C02-2	ALARM

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
ALP-1.4-59	SERVICE AIR LOW PRESSURE	ALP	C02-2	ALARM
ALP-1.4-60	CORE SPRAY VALVE OPEN	ALP	C02-2	ALARM
ALP-1.4-61	INSTRUMENT AIR LO PRESS	ALP	C02-2	ALARM
ALP-1.4-62	AIR COMPRESSOR OVERLOAD	ALP	C02-2	ALARM
ALP-1.4-63	PRIMARY ENCLOSURE SPRAY ACTUATION	ALP	C02-2	ALARM
ALP-1.4-A1	REACTOR CONTAINMENT SPRAY SYSTEM FLOW NORMAL	ALP	C02-2	ALARM
ALP-1.4-A2	REACTOR CONTAINMENT BACKUP SPRAY SYSTEM FLOW NORMAL	ALP	C02-2	ALARM
ALP-1.4-A3	REACTOR CORE SPRAY SYSTEM FLOW HIGH	ALP	C02-2	ALARM
ALP-1.4-A4	REACTOR CORE BACKUP SPRAY SYSTEM FLOW HIGH	ALP	C02-2	ALARM
ALP-1.4-A5	CORE SPRAY HEAT EXCH STRAINER NO 5760 HIGH DP	ALP	C02-2	ALARM
ALP-1.4-A6	CORE SPRAY HEAT EXCH PLUGGED NO FLOW HIGH DP	ALP	C02-2	ALARM
ALP-1.4-A7	FIRE SYSTEM STRAINER NO 5761 HIGH DP	ALP	C02-2	ALARM
ALP-1.4-A8	FIRE SYSTEM STRAINER NO 5761 PLUGGED NO FLOW HIGH DP	ALP	C02-2	ALARM
ALP-1.4-A9	CONTAINMENT BUILDING HIGH TEMPERATURE	ALP	C02-2	ALARM
ALP-1.5-01	TURBINE EXCESS VIBRATION	ALP	C02-3	ALARM

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
ALP-1.5-02	TURBINE THRUST BEARING EXCESS WEAR	ALP	C02-3	ALARM
ALP-1.5-03	TURBINE HI ECCENTRICITY	ALP	C02-3	ALARM
ALP-1.5-04	TURBINE STEAM SEAL MANIFOLD TROUBLE	ALP	C02-3	ALARM
ALP-1.5-05	GLAND SEAL CONDENSER LC VACUUM	ALP	C02-3	ALARM
ALP-1.5-06	SPARE	ALP	C02-3	ALARM
ALP-1.5-07	TURBINE MINIMUM STEAM FLOW	ALP	C02-3	ALARM
ALP-1.5-08	CONDENSER LOW VACUUM	ALP	C02-3	ALARM
ALP-1.5-09	GLAND SEAL CONDENSER TUBE LEAK	ALP	C02-3	ALARM
ALP-1.5-10	TURBINE LUBE OIL RESERVOIR HI-LOW LEVEL	ALP	C02-3	ALARM
ALP-1.5-11	STATION POWER TRANS- FORMER 11 & 22 OVER- CURRENT	ALP	C02-3	ALARM
ALP-1.5-12	TURBINE GENERATOR BEAR- ING OIL HI TEMP	ALP	C02-3	ALARM
ALP-1.5-13	AUXILIARY OIL PUMP RUNNING	ALP	C02-3	ALARM
ALP-1.5-14	AC EMERG BRG & SEAL OIL PUMP RUNNING	ALP	C02-3	ALARM
ALP-1.5-15	DC EMERG BRG & SEAL OIL PUMP RUNNING	ALP	C02-3	ALARM
ALP-1.5-16	AUXILIARY OIL PUMP OVERLOAD	ALP	C02-3	ALARM

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
ALP-1.5-17	AC EMERG BRG & SEAL OIL PUMP OVERLOAD	ALP	C02-3	ALARM
ALP-1.5-18	DC EMERG BRG & SEAL OIL PUMP OVERLOAD	ALP	C02-3	ALARM
ALP-1.5-19	TURBINE BEARING OIL LO PRESSURE	ALP	C02-3	ALARM
ALP-1.5-20	TURBINE OVERLOAD	ALP	C02-3	ALARM
ALP-1.5-21	TURBINE EXCESS EXPANSION	ALP	C02-3	ALARM
ALP-1.5-22	GENERATOR STATOR WINDING GAS & EXCITER AIR HIGH TEMPERATURE	ALP	C02-3	ALARM
ALP-1.5-23	GENERATOR ROTOR HIGH TEMPERATURE	ALP	C02-3	ALARM
ALP-1.5-24	GENERATOR FIELD GROUND	ALP	C02-3	ALARM
ALP-1.5-25	GENERATOR NEGATIVE SEQUENCE	ALP	C02-3	ALARM
ALP-1.5-26	CHARLEVOIX 46-KV LINE LOSS OF POTENTIAL	ALP	C02-3	ALARM
ALP-1.5-27	HYDROGEN SYSTEM TROUBLE	ALP	C02-3	ALARM
ALP-1.5-28	AMPLIDYNE OVERLOAD	ALP	C02-3	ALARM
ALP-1.5-29	VOLTAGE REGULATOR PT CIRCUIT BREAKER TRIP	ALP	C02-3	ALARM
ALP-1.5-30	1126 OCB & 7726 OCB CLOSED	ALP	C02-3	ALARM
ALP-1.5-31	125 VOLT DC SYSTEM TROUBLE	ALP	C02-3	ALARM

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
ALP-1.5-32	480 SYSTEM GROUND	ALP	C02-3	ALARM
ALP-1.5-33	2400 VOLT SYSTEM GROUND	ALP	C02-3	ALARM
ALP-1.5-34	EMERG GENERATOR ENGINE TROUBLE	ALP	C02-3	ALARM
ALP-1.5-35	ENERGENCY GENERATOR START/CONTROL FAILURE	ALP	C02-3	ALARM
ALP-1.5-36	EMERGENCY GENERATOR OVERLOAD	ALP	C02-3	ALARM
ALP-1.5-37	MAIN TRANSFORMER 1 HI TEMPERATURE	ALP	C02-3	ALARM
ALP-1.5-38	MAIN TRANSFORMER 1 MISC ALARMS	ALP	C02-3	ALARM
ALP-1.5-39	GUARD FREQUENCY LOSS	ALP	C02-3	ALARM
ALP-1.5-40	MAIN TRANS 1 & STATION POWER TRANS 1 SUDDEN PRESS	ALP	C02-3	ALARM
ALP-1.5-41	STATION POWER TRANS 1 AND NO 7 MISC ALARMS	ALP	C02-3	ALARM
ALP-1.5-42	SPARE	ALP	C02-3	ALARM
ALP-1.5-43	116 OCB TRIP	ALP	C02-3	ALARM
ALP-1.5-44	116 OCB UV & LO AIR MISC	ALP	C02-3	ALARM
ALP-1.5-45	SPARE	ALP	C02-3	ALARM
ALP-1.5-46	199 OCB TRIP	ALP	C02-3	ALARM

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
ALP-1.5-47	199 OCB UV & LO AIR MISC	ALP	C02-3	ALARM
ALP-1.5-48	EMMET 138-KV OCB OPEN	ALP	C02-3	ALARM
ALP-1.5-49	2400-VOLT BUS INCOMING BREAKER TRIP	ALP	C02-3	ALARM
ALP-1.5-50	BYPASS VALVE CONTROL ABNORMAL	ALP	C02-3	ALARM
ALP-1.5-51	TURBINE BYPASS VALVE OPEN	ALP	C02-3	ALARM
ALP-1.5-52	TURBINE BYPASS HYDRAULIC SYSTEM LO PRESS	ALP	C02-3	ALARM
ALP-1.5-53	BYPASS VALVE ACCUM LOW NITROGEN	ALP	C02-3	ALARM
ALP-1.5-54	TURBINE BYPASS VALVE OIL FILTER HI DIFF PRESS	ALP	C02-3	ALARM
ALP-1.6-07	DIESEL FIRE PUMP RUN	ALP	C02-2	ALARM
ALP-1.6-08	ELECTRIC FIRE PUMP RUN	ALP	C02-2	ALARM
AM-100	GENERATOR FIELD AMMETER	TGS	C01-B	0-1000AMPS
AM-104	138KV LINE (X) AMMETER	SPS	C01-B	0-400AMPS
AM-105	138KV LINE (Y) AMMETER	SPS	C01-B	0-400AMPS
AM-106	138KV LINE (Z) AMMETER	SPS	C01-B	0-400AMPS
AM-107	STATION PWR (X) AMMETER	SPS	C01-B	0-2000AMPS

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
AM-108	STATION PWR (Y) AMMETER	SPS	C01-B	0-2000AMPS
AM-109	STATION PWR (Z) AMMETER	SPS	C01-B	0-2000AMPS
AM-110	EMERGENCY GENERATOR AMMETER	EPS	C01-B	0-400AMPS
AM-111	STATION PWR TRANSFORMER NO 11 AMMETER	SPS	C01-B	0-300AMPS
AM-112	STATION PWR TRANSFORMER NO 22 AMMETER	SPS	C01-B	0-300AMPS
AM-113	REACTOR FEED PUMP 1 AMMETER	FWS	C01-A	0-500AMPS
AM-114	REACTOR FEED PUMP 2 AMMETER	FWS	C01-A	0-500AMPS
AM-115	CONDENSATE PUMP 1 AMMETER	CDS	C01-A	0-400AMPS
AM-116	CONDENSATE PUMP 2 AMMETER	CDS	C01-A	0-400AMPS
AM-117	CONDENSER CIRC WATER PUMP 1 AMMETER	CWS	C01-A	0-400AMPS
AM-118	CONDENSER CIRC WATER PUMP 2 AMMETER	CWS	C01-A	0-400AMPS
AM-119	RECIRC PUMP 1 AMMETER	PCS	C01-C	0-150AMPS
AM-120	RECIRC PUMP 2 AMMETER	PCS	C01-C	0-150AMPS
B-47	EMERGENCY GENERATOR TRIP/CLOSE INDICATION	EPS	C01-B	R/L-G/L (CLOSED/TRIPPED)
B-51	TURBINE INITIAL PRESS GOVERNOR TRIP	TGS	C01-B	A/L

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
-70	BUS TIE 2A-2B 480V POSITION	EPS	C01-B	R/L-G/L (CLOSED/TRIPPED)
B-71	BUS TIE 1A-2A 480V POSITION	EPS	C01-B	R/L-G/L (CLOSED/TRIPPED)
B-74	CONTROL CENTER 1A 480V BREAKER POSITION	EPS	C01-B	R/L-G/L (CLOSED/TRIPPED)
B-79	CONTROL CENTER 2A 480V BREAKER POSITION	EPS	C01-B	R/L-G/L (CLOSED/TRIPPED)
B-90	STATION POWER OCB7726 TRIP/CLOSE INDICATION	SPS	C01-B	R/L-G/L (CLOSED/TRIPPED)
B-95	STATION POWER OCB1126 TRIP/CLOSE INDICATION	SPS	C01-B	R/L-G/L (CLOSED/TRIPPED)
C-28E	SCRAM DUMP TANK RELIEF VALVE NC-15	CRD	C01-C	G/L (CLOSED)
-28F	SCRAM DUMP TANK RELIEF VALVE NC-14	CRD	C01-C	G/L (CLOSED)
CB-RE04A	POWER SWITCH CHAN 1	RPS	C02-5	ON/OFF
CB-RE04B	POWER SWITCH CHAN 2	RPS	C02-5	ON/OFF
CB-RE11A	SCRAM CHAN 1 (UV)	RPS	C02-5	RESET/TRIP
CB-RE11B	SCRAM CHAN 2 (UV)	RPS	C02-5	RESET/TRIP
CB-RE17A	POWER SWITCH (AUX) CHAN 1	RPS	C02-5	ON/OFF
CB-RE17B	POWER SWITCH (AUX) CHAN 2	RPS	C02-5	ON/OFF
CR-6050	PLANT CONDUCTIVITY	CDS	C02-2	0-1 MICRO-MHO

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
CS OCB116	OCB 116 TRIP INDICATION	SPS	C01-B	R/L-G/L (CLOSED/TRIPPED)
CS-152-104	STATION POWER ACB 1136	SPS	C01-B	TRIP/CLOSE R/L-G/L
CS-20BP	TURBINE BYPASS VALVE CONTROL SELECTOR	MSS	C01-B	CLOSE/ISOLATE/AUTC
CS-241	GENERATOR FIELD AC BKR	TGS	C01-B	TRIP/CLOSE; R/L-G/L
CS-243	AMPLIDYNE MOTOR CONTROL	TGS	C01-B	OFF/TEST/ON
CS-270	GENERATOR FIELD RHEOSTAT	TGS	C01-B	RAISE/LOWER
CS-31	EMERG GOVERNOR EXERCISER	TGS	C02-2	UNLOCK/LOCK/NEUT/LOCK/ TEST TRIP B,R,A,W/L
CS-42/1A23	FUEL PIT PUMP 1	SFP	C02-2	ON/OFF; R/L-G/L
CS-42/1A31	SHUTDOWN COOLING PUMP 1	SCS	C02-2	TRIP/CLOSE R/L-G/L PUMP STATUS
CS-42/1A41	REACTOR COOLING WATER PUMP 1	RCS	C02-2	STANDBY/OFF/RUN R/L-G/L
CS-42/1A44	CORE SPRAY PUMP 1	PIS	C02-2	TRIP/CLOSE R/L-G/L
CS-42/1A57	CRD PUMP 1	CRD	C02-2	STANDBY/OFF/RUN R/L-G/L
CS-42/1A62	CONDENSER CIRC WATER VACUUM PUMP NO 1	CWS	C02-2	ON/OFF; R/L-G/L
CS-42/1E22	DEMIN WATER PUMP	DMW	C02-2	AUTO/OFF/RUN; R/L-G/L
CS-42/1E27	CONTROL ROD DRIVE BOOSTER PUMP	CRD	C02-2	STANDBY/OFF/RUN R/L-G/L

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
S-42/2A13	AC GLAND SEAL COND EXHAUSTER NO 1	CDS	C02-2	ON/OFF; R/L-G/L
CS-42/2A22	TURBINE-GEN AC EMERGENCY BEARING AND SEAL OIL	TGS	C02-3	AUTO START/OFF/RUN
CS-42/2A23	FUEL PIT PUMP 2	SFP	C02-2	ON/OFF; R/L-G/L
CS-42/2A25	TURBINE AUXILARY OIL PUMP	TGS	C02-3	AUTO-START/OFF/RUN R/L-G/L
CS-42/2A31	SHUTDOWN COOLING PUMP 2	SCS	C02-2	TRIP/CLOSE R/L-G/L PUMP STATUS
CS-42/2A41	REACTOR COOLING WATER PUMP 2	RCS	C02-2	STANDBY/OFF/RUN R/L-G/L
CS-42/2A44	CORE SPRAY PUMP 2	PIS	C02-2	TRIP/CLOSE R/L-G/L /
S-42/2A58	CRD PUMP 2	CRD	C02-2	STANDBY/OFF/RUN R/L-G/L
CS-42/2A62	CONDENSER CIRC WATER VACUUM PUMP NO 2	CWS	C02-2	ON/OFF; R/L-G/L
CS-42/2B21	AC GLAND SEAL COND EXHAUSTER NO 2	CDS	C02-2	ON/OFF; R/L-G/L
CS-43	AUTO TRANSFER TO EMERG GENERATOR	EPS	C01-B	OFF/ON
CS-52-12	CONDENSATE PUMP 1	CDS	C01-A	CLOSE/TRIP; R/L-G/L
CS-52-22	CONDENSATE PUMP 2	CDS	C01-A	CLOSE/TRIP; R/L-G/L
CS-52/11	CONDENSER CIRC WATER PUMP 1	CWS	C01-A	CLOSE/TRIP; R/L-G/L
S-52/21	CONDENSER CIRC WATER PUMP 2	CWS	C01-A	CLOSE/TRIP; R/L-G/L

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
CS-72/22	TURBINE-GEN DC EMERGENCY BEARING AND SEAL OIL	TGS	C02-3	AUTO START/OFF/RUN
CS-B14	GENERATOR VOLTAGE ADJUSTMENT	TGS	C01-B	INCREASE/DECREASE
CS-B19	GENERATOR VOLT METER PHASE SELECTOR	TGS	C01-B	XY/YZ/XZ/OFF
CS-B22A	SYNC SCOPE FOR OCB199	SPS	C01-B	ON/OFF
CS-B22B	SYNC SCOPE OCB116 CONTROL SWITCH	SPS	C01-B	CLOSE/OFF
CS-B37	STATION POWER ACB 1199	SPS	C01-B	CLOSE/TRIP; R/L-G/L
CS-B40	STATION POWER 2400V BUS PHASE SELECTOR	SPS	C01-B	XY/YZ/ZX/OFF
CS-B53	STATION PWR TRANSFORMER NO 11 (X,Y,Z) AMMETER SELECTOR	SPS	C01-B	SELECT X,Y,Z
CS-B54	STATION PWR TRANSFORMER NO 22 (X,Y,Z) AMMETER SELECTOR	SPS	C01-B	SELECT X,Y,Z
CS-B56	VM-13.8KV VOLT METER PHASE SELECTOR	TGS	C01-B	XY/YZ/XZ/OFF
CS-DRX386	DRX 386 TRIP CONTROL	TGS	C02-3	RESET/TRIP
CS-GSM	TURBINE SYNC GOVERNOR	TGS	C01-B	RAISE/LOWER
CS-IGM	TURBINE INITIAL PRESSURE REGULATOR	TGS	C01-B	RAISE/LOWER
CS-LIM	TURBINE GOVERNOR LOAD LIMIT	TGS	C01-B	RAISE/LOWER; R/L-G/L
CS-OCB116	OCB 116 CONTROL SWITCH	SPS	C01-B	TRIP/CLOSE; PULL TO LOCK R/L-G/L

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
CS-OCB199	OCB199 CONTROL	SPS	C01-B	TRIP/CLOSE; R/L-G/L
CS-ST5	TURBINE STOP VALVE TEST AND POSITION INDICATION	TGS	C01-B	OFF-TEST, R/L-G/L
CV 4000	REACTOR FEEDWATER REG VALVE CV-4000 POSITION	FWS	C02-2	R/L-G/L OPEN/CLOSED
CV 4012	REACTOR FEEDWATER REG BYPASS VALVE CV-4012 POSITION	FWS	C02-2	R/L-G/L OPEN/CLOSED
CV 4014	TURBINE STEAM BYPASS VALVE	MSS	C02-2	R/L-G/L OPEN/CLOSED /
CV 4016	CRD PUMPS SUCTION COND PUMP DISCH	CRD	C02-2	R/L-G/L OPEN/CLOSED
CV 4025	REACTOR ENCLOSURE DIRTY SUMP PUMP DISCH INSIDE	CIS	C02-2	R/L-G/L OPEN/CLOSED
CV 4027	REACTOR AND FUEL PIT DRAIN INSIDE	CIS	C02-2	R/L-G/L OPEN/CLOSED
CV 4031	REACTOR ENCLOSURE CLEAN SUMP PUMP DISCH INSIDE	CIS	C02-2	R/L-G/L OPEN/CLOSED
CV 4049	TREATED WASTE TO FUEL PIT	RWS	C02-2	R/L-G/L OPEN/CLOSED
CV 4090	CONDENSATE STORAGE SUPPLY TO CRD PUMP	CRD	C02-2	R/L-G/L OPEN/CLOSED
CV 4091	CLEANUP DEMIN RESIN SLUICE	CIS	C02-2	R/L-G/L OPEN/CLOSED
CV 4092	CLEANUP DEMIN RESIN SLUICE	CIS	C02-2	R/L-G/L OPEN/CLOSED
CV 4093	CLEANUP DEMIN RESIN SLUICE	CIS	C02-2	R/L-G/L OPEN/CLOSED
CV 4094	VENTILATION ISOL VALVE POSITION INDICATION	CIS	C02-2	R/L-G/L OPEN/CLOSED

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>	
CV 4095	VENTILATION ISOL VALVE POSITION INDICATION	CIS	C02-2	R/L-G/L OPEN/CLOSED	
CV 4096	VENTILATION ISOL VALVE POSITION INDICATION	CIS	C02-2	R/L-G/L OPEN/CLOSED	
CV 4097	VENTILATION ISOL VALVE POSITION INDICATION	CIS	C02-2	R/L-G/L OPEN/CLOSED	
CV 4102	REACTOR ENCLOSURE CLEAN SUMP PUMP DISCH OUTSIDE	CIS	C02-2	R/L-G/L OPEN/CLOSED	
CV 4103	REACTOR ENCLOSURE DIRTY SUMP PUMP DISCH OUTSIDE	CIS	C02-2	R/L-G/L OPEN/CLOSED	
CV 4104	STEAM TO STM SEAL REG & AIR EJECTOR	AES	C02-2	R/L-G/L OPEN/CLOSED	
CV 4105	DEMINERALIZED WATER	DMW	C02-2	R/L-G/L OPEN/CLOSED	
CV 4106	TURBINE BYPASS WARMUP VALVE	MSS	C02-2	R/L-G/L OPEN/CLOSED	/
CV 4107	MAIN STEAM DRAIN ISOLATION VALVE	MSS	C02-2	R/L-G/L OPEN/CLOSED	/
CV 4117	REACTOR AND FUEL PIT DRAIN OUTSIDE	CIS	C02-2	R/L-G/L OPEN/CLOSED	
CV 4200	TURBINE STOP VALVE POSITION INDICATION	MSS	C02-2	R/L-G/L OPEN/CLOSED	
DPI-IA41	REACTOR CORE DIFF PRESS	RVG	C02-1	0-15PSID	
DPI-IA46A	REACTOR RECIRC PUMP 1	PCS	C02-1	0-60PSID	
DPI-IA46B	REACTOR RECIRC PUMP 2	PCS	C02-1	0-60PSID	
PI-RD01A	CRD COOLING HEADER DP	CRD	C01-C	0-50 PSIG	

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
DPI-RD01B	CRD HEADER DP	CRD	C01-C	0-500 PSIG
ES-R112	AC POWER SUPPLY CHAN 3 (STATIC INVERTER)	RPS	C02-5	VOLTS
FI-2330	FEEDWATER TO STEAM DRUM LOW FLOW	FWS	C01-A	0-300(X1000)LB/HR
FI-2333	ENCLOSURE SPRAYS	PIS	C01-A	0-400GPM
FI-2334	BACKUP ENCLOSURE SPRAY	PIS	C01-A	0-400GPM
FI-2335	CORE SPRAY	PIS	C01-A	0-900GPM
FI-2336	REDUNDANT CORE SPRAY	PIS	C01-A	0-900GPM
FI-5000	RELIEF VALVE MONITOR CHANNEL 1	RSD	C02-1	0-100%
FI-5001	RELIEF VALVE MONITOR CHANNEL 2	RSD	C02-1	0-100%
FI-5002	RELIEF VALVE MONITOR CHANNEL 3	RSD	C02-1	0-100%
FI-5003	RELIEF VALVE MONITOR CHANNEL 4	RSD	C02-1	0-100%
FI-5045	RELIEF VALVE MONITOR CHANNEL 5	RSD	C02-1	0-100%
FI-5046	RELIEF VALVE MONITOR CHANNEL 6	RSD	C02-1	0-100%
FI-IA44A	REACTOR RECIRC PUMP 1	PCS	C02-1	0-24,000LB/HR
FI-IA44B	REACTOR RECIRC PUMP 2	PCS	C02-1	0-24,000LB/HR

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
FI-ID27	STEAM FLOW	FWS	C02-1	0-1000(X1000)LB/HR
FI-ID53	FEEDWATER FLOW	FWS	C01-C	0-1000(X1000)LB/HR
FI-RD36A	CRD COOLING FLOW	CRD	C01-C	0-16 GPM
FI-RD36B	CRD HEADER FLOW	CRD	C01-C	0-40 GPM
FQM-100	GENERATOR FREQUENCY	TGS	C01-B	56-65HZ
FQM-101	BUS 2B FREQUENCY METER	EPS	C01-B	55-65HZ
FR-2108	CORE SPRAY FLOW WITH RED ON IND LT & RESET/ A/M SEL(HS-7047);PB CAL	PIS	C02-1	0-900GPM; R/L; RESET/ AUTO/MANUAL SELECTOR SW
FR-IA61	REACTOR RECIRC FLOW	PCS	C02-5	0-24,000GPM
FR-ID06	STEAM FLOW	FWS	C02-1	0-100%(X10-6)LB/HR
FR-ID07	FEEDWATER FLOW	FWS	C02-1	0-100%(X10-6)LB/HR
HS-0501-1	EVACUATION SIREN	XXX	C01-A	ON/NEUTRAL
HS-4S1	CONTROL ROD LETTER SELECT	CRD	C01-C	A, B, C, OFF, D, E, F
HS-4S2	CONTROL ROD NUMBER SELECT	CRD	C01-C	1, 2, 3, OFF, 4, 5, 6
HS-4S3	CONTROL ROD OPERATION	CRD	C01-C	INSERT/WITHDRAW
HS-4S5	CONTROL ROD JOG OVERRIDE	CRD	C01-C	RUN/JOG/RUN

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
E-4S6	SCRAM DUMP TANK VENT AND DRAIN VALVE POSITION CV-NC11, 11A, 12, 12A	CRD	C01-C	CLOSED/OPEN R/L-G/L
HS-6410	REACTOR CLEAN-UP PUMP	RCS	C02-2	OFF/ON/BYPASS
HS-7000	REACTOR FEED PUMP 1 MINIMUM FLOW VALVE CV-4001	FWS	C01-A	AUTO/OPEN; R/L OPEN POS
HS-7001	REACTOR FEED PUMP 2 MINIMUM FLOW VALVE CV-4002	FWS	C01-A	AUTO/OPEN; R/L OPEN POS
HS-7003	REACTOR ENCLOSURE CLEAN SUMP DISCH CV-4031/4102	CIS	C01-A	OPEN/CLOSE; W/L PERMISS; PB PERMISSIVE RESET
HS-7006	CLEAN-UP DEMIN & FUEL PIT DRAINS CV-4027 & CV-4117	CIS	C01-A	CLOSE/OPEN; W/L PERMISS; PB PERMISSIVE RESET
HS-7008	POISON TO REACTOR	LPS	C01-A	OPEN
HS-7009	POISON TO REACTOR	LPS	C01-A	OPEN
HS-7011	TREATED WASTE TO FUEL PIT CV-4049	RWS	C01-A	OPEN/CLOSE; W/L PERMISS; PB PERMISSIVE RESET
HS-7019	REACTOR ENCLOSURE SUMP PUMP DIRTY DISCH CV-4103/4025	CIS	C01-A	OPEN/CLOSE; W/L PERMISS; PB PERMISSIVE RESET
HS-7022	DEMIN WATER TO CONTROL ROD DRIVE	CRD	C01-A	CLOSE/NORMAL
HS-7025	RESIN SLUICE & DEMIN WATER ISOLATION VALVES CV-4091/4105	RCS	C01-A	OPEN/CLOSE; W/L PERMISS; PB PERMISSIVE RESET
HS-7033	POISON SHUTOFF VALVE CV-4020	LPS	C01-A	OPEN/CLOSE R/L-G/L
HS-7036	AUXILARY SWITCH FOR STEAM ISOLATION VALVE CV-4106 & CV-4104	MSS	C01-A	OPEN/CLOSE
HS-7045	CONDENSATE STORAGE TANK LEVEL CV-4041	CDS	C02-2	AUTO/CLOSED

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
S-7048	4K30A BYPASS - ALL RODS IN INTERLOCK BYPASS	CRD	C02-5	OFF/ON
HS-7049	XFMR DELUGE ISOL CV-4101	FPS	C02-2	AUTO/MAN OPEN R/L-G/L
HS-7084-1	CONTAINMENT EVACUATION ALARM	RDS	C40	PUSH BUTTON
HS-7084-2	CONTAINMENT EVACUATION RESET	RDS	C40	PUSH BUTTON RESET
HS-7085	ELECTRIC FIRE PUMP OFF-NORMAL	RDS	C40	NORM/INHIBIT
HS-7085-1	FIRE SYS MOTOR DRIVE PUMP START	RDS	C40	START- AUTO/INHIBIT
HS-7086	DIESEL FIRE PUMP OFF-NORMAL	RDS	C40	NORM/INHIBIT
S-7086-1	FIRE SYS DIESEL DRIVEN PUMP START	RDS	C40	START-AUTO/INHIBIT
HS-7087	BYPASS ISOLATION VALVE CV-4184	RDS	C40	OPEN/CLOSED
HS-7902	FIRE WATER TO EMERGENCY CONDENSER	ECS	C01-A	OPEN/CLOSE R/L (ENERGIZED)
HS-9001	VENT VALVES CV-4096, CV-4097, CV-4094 & CV-4095	CIS	C01-A	OPEN/NORMAL/CLOSE
HS-A66	CONDENSATE PUMP AUTO START SELECTOR	CDS	C01-A	NO 1/OFF/NO 2
HS-ID24	STEAM DRUM LEVEL TRANS- MITTER SELECTOR	FWS	C01-C	SELECT LI-IA19/LR-ID12
HS-OCB1126	STATION POWER OCB1126 2400VOLTS	SPS	C02-2	TRIP/CLOSE; R/L-G/L
S-OCB7726	STATION POWER OCB7726 2400VOLTS	SPS	C02-2	TRIP/CLOSE; R/L-G/L

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
HS-OCB7726SS	OCB7726 SYNC SWITCH	SPS	C02-2	ON/OFF
HS-RT1.11	CHANNEL A1.1 SV-4984 VALVE POSITION TEST (TYPICAL 4 CHANNELS)	RDS	C40	PUSH BUTTON
HS-RT1.12	CHANNEL A1.1 ISOLATION VALVE CV-4180 POSITION TEST (TYP 4 CHANNELS)	RDS	C40	PUSH BUTTON
HS-RT1.21	CHANNEL A1.2 SV-4984 VALVE POSITION TEST (TYPICAL 4 CHANNELS)	RDS	C40	R/L-G/L
HS-S4	REACTOR MODE SELECTOR SWITCH	RPS	C01-C	RUN/DUMP TK/BYPASS/REFUEL/SHUTDOWN
HS-S5	PENETRATION CLOSURE SWITCH	RPS	C01-C	ISOLATE/NEUTRAL
HS-S6	RPS ALTERNATE POWER SOURCE SELECT	RPS	C02-5	BUS 1/BUS 2/BUS 3
HSX-1	RDS CHANNEL TIME DELAY RESET CHANNEL A	RDS	C40	PUSH BUTTON
HSX-2	RDS CHANNEL TIME DELAY RESET CHANNEL B	RDS	C40	PUSH BUTTON
HSX-3	RDS CHANNEL TIME DELAY RESET CHANNEL C	RDS	C40	PUSH BUTTON
HSX-4	RDS CHANNEL TIME DELAY RESET CHANNEL D	RDS	C40	PUSH BUTTON
ICD-RF01A	CHAMBER POSITION CONTROL CHANNEL 7	NMS	C01-C	OUT/MID/IN W/L'S
ICD-RF01B	CHAMBER POSITION CONTROL CHANNEL 7	NMS	C01-C	OUT/MID/IN
K-RE10ABEF	1K4A CHAN 1 ISOLATION VALVE 1K5A VENT TRIP	CIS	C02-5	RELAY
K-RE10CDGH	2K4A CHAN 2 ISOLATION VALVE 2K5A VENT TRIP	CIS	C02-5	RELAY

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
I-3303	CONDENSER HOTWELL LEVEL	CDS	C01-A	0-100%
LI-3305	EMERGENCY CONDENSER	ECS	C01-A	0-100%
LI-3380	REACTOR WATER LEVEL CHAN A (TYP FOR LI-3381, 3382,3383)	RDS	C40	0-24IN
LI-3384	STEAM DRUM LEVEL CHAN A (TYP LI-3385,3386,3387)	RDS	C40	-30-0-+30IN
LI-IA-19	80IN WEST DRUM LEVEL	FWS	C02-1	-40-0-+40INCH
LI-IA40	REACTOR WATER LEVEL	RVG	C02-1	30 TO -16FT
LI-RE19A	60IN WEST DRUM LEVEL	RPS	C02-1	-30-0-+30IN
I-RE19B	60IN EAST DRUM LEVEL	RPS	C02-1	-30-0-+30IN
LITE C3.1	RDS CHANNEL C3.1 IN TEST (TYP 4 CHANNELS)	RDS	C40	R/L
LITE CHAN A	CHANNEL A1.1 IN TEST INDICATION (TYPICAL 4 CHANNELS)	RDS	C40	RED LIGHT
LITE-BPCH A	RDS CHANNEL A IN BYPASS (TYP 4 CHANNELS)	RDS	C40	
LR-3100	CONDENSER HOTWELL LEVEL	CDS	C02-2	0-100%
LR-3104	CONDENSATE STORAGE TANK	CDS	C02-2	0-100%
LR-3105	DEMIN WATER STORAGE TANK	DMW	C02-2	0-100%
LR-31	CONTAINMENT LEVEL	PIS	C02-1	574-596FT

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
LR-3111	CONTAINMENT LEVEL	PIS	C02-1	574-596FT
LR-ID12	STEAM DRUM LEVEL	FWS	CC2-1	-25-0-+25IN
LU-RE03A	RPS LOGIC UNIT WITH MANUAL CONTROLS CHAN 1	RPS	C02-5	RPS INPUTS; TEST & TRIP SWITCHES
LU-RE03B	RPS LOGIC UNIT WITH MANUAL CONTROLS CHAN 2	RPS	C02-5	RPS INPUTS; TEST & TRIP SWITCHES
MO-7050	MAIN STEAM ISOLATION VALVE MO-7050 POSITION INDICATION	MSS	C02-2	R/L-G/L (OPEN/CLOSED)
MO-7051	REACTOR EMERGENCY CORE SPRAY PRIMARY ISOLATION VALVE POSITION	PIS	C02-1	W/L, ESF POSITION
MO-7052	EMERGENCY CONDENSER INLET VALVE LOOP 2 POSITION	ECS	C02-1	W/L, ESF POSITION
MO-7053	EMERGENCY CONDENSER INLET VALVE LOOP 2	ECS	C02-1	W/L, ESF POSITION
MO-7061	REACTOR EMERGENCY CORE SPRAY SEC ISOLATION VALVE	PIS	C02-1	W/L, ESF POSITION
MO-7062	EMERGENCY CONDENSER INLET VALVE LOOP 1	ECS	C02-1	W/L, ESF POSITION
MO-7063	EMERGENCY CONDENSER OUTLET VALVE LOOP 1	ECS	C02-1	W/L, ESF POSITION
MO-7064	REACTOR BUILDING SPRAY VALVE	ECS	C02-1	W/L, ESF POSITION
MO-7067	TURBINE BYPASS ISOLATION VALVE	MSS	C02-1	R/L-G/L OPEN/CLOSED / /
MO-7070	BACKUP EMERGENCY CORE SEC ISOLATION VALVE POSITION	PIS	C02-1	W/L, ESF POSITION
MO-7071	BACKUP EMERGENCY CORE PRIM ISOLATION VALVE POSITION	PIS	C02-1	W/L, ESF POSITION

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
OR-RE01A	CHANNEL 1 OPERATION EVENTS RECORDER	RPS	C02-5	MUTI-POINTS SET/OFFSET
OR-RE01B	CHANNEL 2 OPERATION EVENTS RECORDER	RPS	C02-5	MUTI-POINTS SET/OFFSET
PB-1S1	REACTOR PROTECTION SYS RESET CHAN 1	RPS	C01-C	PUSH BUTTON
PB-1S2	REACTOR PROTECTION SYS RESET CHAN 1	RPS	C01-C	PUSH BUTTON
PB-2S1	REACTOR PROTECTION SYS RESET CHAN 2	RPS	C01-C	PUSH BUTTON
PB-2S2	REACTOR PROTECTION SYS RESET CHAN 2	RPS	C01-C	PUSH BUTTON
PB-A67	REACTOR RECIRC PUMP 1 VIBRATION ALARM RESET	PCS	C01-A	RESET
PB-A68	REACTOR RECIRC PUMP 2 VIBRATION ALARM RESET	PCS	C01-A	RESET
PB-B7	TURBINE EMERGENCY TRIP	TGS	C01-B	PUSH BUTTON
PB-MT1.1	CHANNEL A1.1 MANUAL TRIP (TYPICAL FOR 4 CHANNELS)	RDS	C40	PUSH BUTTON
PB-RT1.1	RDS CHANN A1.1 RESET (TYP 8 CHANNELS)	RDS	C40	PUSH BUTTON RESET
PB-S3	REACTOR SCARM	RPS	C01-C	PUSH BUTTON
PC-1	TURBINE BYPASS VALVE CV-4014 CONTROLLER	MSS	C01-B	0-100% POS; 1000-1500PSI SET PT; 0-2000PSIG IND
PC-2	TURBINE BYPASS VALVE CV-4014 CONTROLLER	MSS	C01-B	0-100% POS; 1000-1500PSI SET PT; 0-2000PSIG IND
PI-300	REACTOR FEEDWATER PUMP DISCH HEADER	FWS	C02-2	0-2000PSIG

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
PI-302	STEAM FROM TURBINE STEAM SEAL REGULATOR	TGS	C02-3	0-10PSIG
PI-309	STEAM TO AIR EJECTORS	AES	C01-A	0-500PSIG
PI-310	CONDENSATE PUMP DISCH HEADER	CDS	C02-2	0-300PSIG
PI-314	TURBINE EXHAUST (CONDENSER VACUUM)	TGS	C02-3	0-30IN HG
PI-322	REACTOR FEED PUMPS SUCTION PRESSURE	FWS	C02-2	0-300PSIG
PI-323	CRD PUMP DISCH HEADER	CRD	C01-A	0-2000PSIG
PI-324	TURBINE BEARING HEADER OIL PRESSURE	SLO	C02-3	0-60PSIG
PI-327	TURBINE AUXILIARY OIL PUMP	SLO	C02-3	0-300PSIG
PI-328	TURBINE HYDRAULIC OIL HEADER PRESSURE	SLO	C02-3	0-300PSIG
PI-353	SHUTDOWN PUMP 1 SUCTION	SCS	C01-A	0-400PSIG
PI-354	SHUTDOWN PUMP 1 DISCH	SCS	C01-A	0-500PSIG
PI-355	SHUTDOWN PUMP 2 SUCTION	SCS	C01-A	0-400PSIG
PI-356	SHUTDOWN PUMP 2 DISCH	SCS	C01-A	0-500PSIG
PI-364	INSTRUMENT AIR PRESSURE	CAS	C02-2	0-160PSIG
PI-367	CONTAINMENT PRESSURE	CIS	C02-2	-1 TO 29PSIG

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
PI-376	POISON TANK PRESSURE: LOW RANGE	LPS	C01-A	0-100PSIG
PI-377	POISON TANK PRESSURE HIGH RANGE	LPS	C01-A	0-2500PSIG
PI-412	CORE SPRAY LINE PRESSURE	PIS	C02-2	0-1500PSIG
PI-IA05	REACTOR PRESSURE	RVG	C02-1	0-2000PSIG
PI-IA70A	RECIRC PUMP 1 SEAL INNER PRESSURE	PCS	C01-C	0-2000PSIG
PI-IA70B	RECIRC PUMP 2 SEAL INNER PRESSURE	PCS	C01-C	0-2000PSIG
PI-IA72A	RECIRC PUMP 1 SEAL OUTER PRESSURE	PCS	C01-C	0-1250PSIG
PI-IA72B	RECIRC PUMP 2 SEAL OUTER PRESSURE	PCS	C01-C	0-1250PSIG
PI-RD19	ACCUMULATOR CHARGING HEADER	CRD	C01-C	0-2000PSIG
PIS-173	CONTAINMENT PRESSURE	CIS	C02-4	-1.25 TO 0.25PSIG
PIS-187	CONTAINMENT PRESSURE	CIS	C02-2	-1.25 TO 0.25PSIG
PIS-190	CONTAINMENT PRESSURE	CIS	C02-5	-1.25 TO 0.25PSIG
PIS-191	CONTAINMENT PRESSURE	CIS	C02-4	-1.25 TO 0.25PSIG
POI-IGMSR	TURBINE INITIAL PRESSURE	TGS	C01-B	10-15(X100)PSIG
POI-LLSR	TURBINE LOAD LIMITOR	TGS	C01-B	OPEN/CLOSED

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
OI-RC01-A2	CRD POSITION (TYPICAL FOR 32 RODS)	CRD	C02-1	00-23 NOTCHES
POI-RD31	ROD BOTTOM AND OUTLET SCRAM VALVE OPEN INDICATION	PIS	C02-1	R/L
POI-RD32	ROD BOTTOM AND INLET SCRAM VALVE OPEN INDICATION	PIS	C02-1	R/L
POI-SDRS	GENERATOR SYNCHRONIZING DEVICE	TGS	C01-B	HSS-LSS
POS 6680	CHANNEL A CV-4180 POSITION INDICATION (TYP 4 CHANNELS)	RDS	C40	R/L-G/L, OPEN/CLOSED
POS 6684	RDS RELIEF VALVE SV-4984 (TYP SV-4985,6 & 7)	RDS	C40	R/L-G/L (OPEN/CLOSED)
POS 6688	BYPASS ISOLATION VALVE CV-4184 POSITION	RDS	C40	R/L-G/L, OPEN/CLOSED
PR-50	REACTOR FEED PUMP SUCTION PRESSURE	FWS	C02-2	0-300PSIG
PR-51	REACTOR FEEDWATER PUMPS DISCHARGE	FWS	C02-2	0-2000PSIG
PR-53	CONTAINMENT PRESSURE	PIS	C02-2	-5 TO 115PSIG
PR-54	CONTAINMENT PRESSURE	PIS	C02-2	-5 TO 115PSIG
PR-1A09	REACTOR PRESSURE	FWS	C02-1	0-100% (0-2000PSIG)
RC-1A-2A	FSD RADIOACTIVE GASEOUS EFF MONITORING SYS (1A - CONTROLS; 2A - RELAYS)	SGM	C02-4	SYSTEM CONTROL
RCS-152-101	RECIRC PUMP NO 1	PCS	C01-C	TRIP/CLOSE R/L-G/L
RCS-152-103	REACTOR FEED PUMP 2	FWS	C01-A	CLOSE/TRIP; R/L-G/L

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
CS-152-105	REACTOR FEED PUMP 1	FWS	C01-A	CLOSE/TRIP; R/L-G/L
RCS-152-107	RECIRC PUMP NO 2	PCS	C01-C	TRIP/CLOSE R/L-G/L
RI-8306	NEW FUEL STORAGE	RIA	C02-4	1-1000MR/HR
RI-8307	SPENT FUEL STORAGE	RIA	C02-4	1-1000MR/HR
RI-8318	EMERGENCY CONDENSER VENT	RIA	C02-4	0.1-100 MR/HR
RI-8321	EMERGENCY CONDENSER VENT	RIA	C02-4	0.1-100 MR/HR
RI-8324	CONTAINMENT GAMMA MONITORING- LEFT CHANN	CGM	C02-5	1-10(7)R/HR
RI-8325	CONTAINMENT GAMMA MONITORING- RIGHT CHANN	CGM	C02-4	1-10(7)R/HR
RI-8326	NORMAL RANGE IODINE	SGM	C02-4	10-10(6)CPM
RI-8327	NORMAL RANGE NOBLE GAS	SGM	C02-4	10-10(7)CPM
RI-8328	HIGH RANGE NOBLE GAS	SGM	C02-4	0.7-10(7)MR/HR
RI-R009A	AREA MONITOR CHANN 1-5	RIA	C02-4	MILLIREM/HR
RI-R009B	AREA MONITOR CHANN 6-10	RIA	C02-4	MILLIREM/HR
RI-R009C	AREA MONITOR CHANN 11-15	RIA	C02-4	MILLIREM/HR
RI-R009D	AREA MONITOR CHANN 16-20	RIA	C02-4	MILLIREM/HR

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
RI-RJ03A-H	INCORE FLUX CHANNELS 11 THROUGH 18	NMS	C02-1	0-150% POWER
RI-RL17	OFF GAS MONITOR CHAN 1	WGS	C02-5	1 TO 10(6) UNITS
RI-RN03	OFF GAS MONITOR CHAN 2	WGS	C02-4	1 TO 10(6) UNITS
RI-RN45	AREA MONITOR CHANN 21	RIA	C02-4	MILLIREM/HR
RM-RG01A	FLUX LEVEL CHAN 7 SOURCE RANGE	NMS	C01-C	1-10(5) COUNTS/SEC
RM-RG01B	FLUX LEVEL CHAN 6 SOURCE RANGE	NMS	C01-C	1-10(5) COUNTS/SEC
RM-RG02A	CHAN 7 SOURCE RANGE PERIOD	NMS	C01-C	-100 TO 10 SEC
RM-RG02B	CHAN 6 SOURCE RANGE PERIOD	NMS	C01-C	-100 TO 10 SEC
RM-RI03A	FLUX LEVEL CHAN 3 POWER RANGE	NMS	C01-C	10(-6) TO 150%
RM-RI03B	FLUX LEVEL CHAN 2 POWER RANGE	NMS	C01-C	10(-6) TO 150%
RM-RI03C	FLUX LEVEL CHAN 1 POWER RANGE	NMS	C01-C	10(-6) TO 150%
RMC-5500	MAIN STEAM ISOLATION VALVE MO-7050	MSS	C01-A	OPEN/CLOSE PULL TO STOP
RMC-5501	REACTOR EMERG CORE SPRAY MO-7061	PIS	C01-A	OPEN/CLOSE PULL TO STOP
RMC-5502	REACTOR FEEDWATER REG BYPASS VALVE CV-4012	FWS	C01-A	0-20PSIG OPEN/CLOSE & THROTTLING
RMC-5503	STEAM TO EMERGENCY CONDENSER MO-7062	ECS	C01-A	OPEN/CLOSE PULL TO STOP R/L-G/L POSITION

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
MC-5504	CONDENSATE FROM EMERG CONDENSER MO-7063	ECS	C01-A	OPEN/CLOSE PULL TO STOP R/L-G/L POSITION
RMC-5505	CONDENSATE REJECT VALVE CV-4010	CDS	C01-A	MAN/AUTO; 0-20PSI LOAD- ING (POSITION)
RMC-5506	TURBINE BYPASS VALVE MAN/BAL/AUTO STATION	MSS	C01-B	MAN/BALANCE/AUTO
RMC-5507	STEAM TO EMERGENCY CONDENSER MO-7052	ECS	C01-A	OPEN/CLOSE PULL TO STOP R/L-G/L POSITION
RMC-5508	CONDENSATE FROM EMERG CONDENSER MO-7053	ECS	C01-A	OPEN/CLOSE PULL TO STOP R/L-G/L POSITION
RMC-5509	SHUTDOWN SYSTEM PRIMARY ISOLATION VALVES MO-7056 & MO-7058	SCS	C01-A	OPEN/CLOSE PULL STOP R/L-G/L EACH VALVE
RMC-5510	SHUTDOWN SYSTEM SECONDARY ISOLATION VALVES MO-7057 & MO-7059	SCS	C01-A	OPEN/CLOSE PULL STOP R/L-G/L EACH VALVE
RMC-5514	ENCLOSURE SPRAYS MO-7064	PIS	C02-2	OPEN/CLOSE PULL TO STOP R/L-G/L
RMC-5515	REACTOR COOLING WATER FROM SHUTDOWN HT EXCH CV-4029	SCS	C01-A	OPEN/CLOSE (THROTTLE) 0-20PSIG LOADING (POS)
RMC-5517	REACTOR WTR TO RADWASTE CV-4040	RCS	C01-A	OPEN/CLOSE (THROTTLE) 0-20PSIG LOADING (POS)
RMC-5519	EMERG CORE SPRAY VALVE MO-7051	PIS	C01-A	OPEN/CLOSE PULL TO STOP R/L-G/L VALVE POSITION
RMC-5521	FIRE WATER TO CORE SPRAY HEAT EXCH VLV MO-7066	PIS	C02-2	OPEN/CLOSE PULL TO STOP R/L-G/L VALVE POSITION
RMC-5522	REACTOR LOW PRESSURE BLEED-OFF CV-4114	RCS	C01-A	OPEN/CLOSE (THROTTLE) 0-20PSIG LOADING (POS)
RMC-5524	TURBINE BYPASS ISOLATION VALVE	MSS	C01-B	OPEN/CLOSE PULL TO STOP R/L-G/L
RMC-5525	BACKUP ENCLOSURE SPRAY MO-7068	PIS	C01-A	OPEN/CLOSE PULL TO STOP R/L-G/L

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
RMC-5527	REDUNDANT CORE SPRAY VALVE MO-7070	PIS	C02-2	OPEN/CLOSE PULL TO STOP R/L-G/L VALVE POSITION
RMC-5528	REDUNDANT CORE SPRAY VALVE MO-7071	PIS	C02-2	OPEN/CLOSE PULL TO STOP R/L-G/L VALVE POSITION
RMC-5529	CORE SPRAY BACKUP MO-7072	PIS	C02-2	OPEN/CLOSE PULL TO STOP
RMC-5530	FIRE MAIN TO CONDENSER PRIMARY MO-7073	FPS	C02-2	OPEN/CLOSE PULL TO STOP R/L-G/L
RMC-5531	FIRE MAIN TO CONDENSER SECONDARY MO-7074	FPS	C02-2	OPEN/CLOSE PULL TO STOP R/L-G/L
RMC-5591	FIRE WATER TO CORE SPRAY HEAT EXCH BYPASS VALVE MO-7080	PIS	C02-2	OPEN/CLOSE PULL TO STOP R/L-G/L VALVE POSITION
RMC-IA48A	REACTOR RECIRC PUMP 1 DISCH VALVE MO-N001A	PCS	C01-C	CLOSE/OPEN/PULL TO STOP R/L-G/L VALVE POSITION
RMC-IA48B	REACTOR RECIRC PUMP 2 DISCH VALVE MO-N002A	PCS	C01-C	CLOSE/OPEN/PULL TO STOP R/L-G/L VALVE POSITION
RMC-IA48C	REACTOR RECIRC PUMP 1 SUCTION VALVE MO-N003A	PCS	C01-C	CLOSE/OPEN/PULL TO STOP R/L-G/L VALVE POSITION
RMC-IA48D	REACTOR RECIRC PUMP 1 SUCTION VALVE MO-N003B	PCS	C01-C	CLOSE/OPEN/PULL TO STOP R/L-G/L VALVE POSITION
RMC-IA50C	REACTOR RECIRC PUMP 1 DISCH BYPASS VALVE MO-N002A	PCS	C01-C	CLOSE/OPEN/PULL TO STOP R/L-G/L VALVE POSITION
RMC-IA50D	REACTOR RECIRC PUMP 2 DISCH BYPASS VALVE MO-N002B	PCS	C01-C	CLOSE/OPEN/PULL TO STOP R/L-G/L VALVE POSITION
RMC-IA50F	REACTOR VENT TO STEAM DRUM	PCS	C01-C	OPEN/CLOSE; PULL TO STOP
RMC-ID18	RX FEEDWATER REGULATOR CV-4000	FWS	C01-C	0-100% THROTTLING
RMC-RD21	CONTROL ROD BYPASS CONTROL VALVE NC-33 AT APPROX 50%	CRD	C01-C	CLOSE/OPEN/POSITION

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
RR-8053	AREA RADIATION MONITOR	LPM	C02-4	0.1-100%
RR-8054	LIQUID PROCESS RADIATION MONITOR	LPM	C02-4	0-100%
RR-8055	HI RANGE CONTAINMENT GAMMA MONITOR	CGM	C02-4	0-10(7) LOG INPUTS FROM RI-8324&8325
RR-8057	NORMAL RANGE STACK GAS	SGM	C02-4	0-10(7) LOG
RR-8058	HIGH RANGE NOBLE GAS	SGM	C02-4	0.1-100
RR-RH06A	SOURCE RANGE CHAN 7 (SWITCHABLE TO OFF GAS CHAN 1)	NMS	C02-1	0.1 TO 10(6) CPS
RR-RH06B	FLUX LEVEL CHAN 6 (SWITCHABLE TO OFF GAS CHAN 2)	NMS	C02-1	10(-6) TO 150%
RR-RI05A	POWER LEVEL CHAN 3	NMS	C02-1	10(-7) TO 150%
RR-RI05B	POWER LEVEL CHAN 2	NMS	C02-1	10(-7) TO 150%
RR-RI05C	POWER LEVEL CHAN 1	NMS	C02-1	10(-7) TO 150%
RR-RJ13	INCORE RECORDER	NMS	C02-5	0-150%
RT-8107	MAIN CONDENSATE ACTIVITY	LPM	C02-4	0-10 ⁷ CPM
RT-8108	REACTOR COOLING WATER ACTIVITY	LPM	C02-4	0-10 ⁷ CPM
RT-8109	CONTAINMENT SERVICE WATER ACTIVITY	LPM	C02-4	0-10 ⁷ CPM
RT-8110	CIRC WATER DISCH ACTIVITY	LPM	C02-4	0-10 ⁷ CPM

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
8111	LIQUID RADWASTE EFFLUENT ACTIVITY	LPM	C02-4	0-10 ⁷ CPM
RT-RG07A	SOURCE RANGE CHAN 7	NMS	C02-5	1 TO 10(6)
RT-RG07B	SOURCE RANGE CHAN 6	NMS	C02-5	1 TO 10(6)
RT-RI09A	WIDE RANGE NEUTRON MONITOR CHAN 3	NMS	C02-5	10(-7) TO 150%
RT-RI09B	WIDE RANGE NEUTRON MONITOR CHAN 2	NMS	C02-5	10(-7) TO 150%
RT-RI09C	WIDE RANGE NEUTRON MONITOR CHAN 1	NMS	C02-5	10(-7) TO 150%
RT-RJ01A-H	FLUX AMPLIFIERS CHANNELS 11 THRU 18	NMS	C02-5	0-150%; LEVEL A, B, C
RT-RJ05	BLINKING POWER SUPPLY	NMS	C02-5	N/A
RT-SUMPS	CONTAINMENT SUMP RUN TIME METERS	PIS	C02-4	TIME INTEGRATED
SI-2	TURBINE SPEED	TGS	C01-B	0-5000RPM
SI-7726	OCB7726 SYNC SCOPE LIGHTS	SPS	C02-2	OFF/DIM/BRIGHT
SS-1126/7726	OCB 1126/7726 MODE SELECTOR	SPS	C02-2	MANUAL/AUTO
SS-1126/7726L	OCB 1126/7726 MODE SELECTOR IND LIGHT	SPS	C02-2	W/L ON/OFF
SS-7726	OCB7726 SYNC SCOPE	SPS	C02-2	SLOW/FAST
TD-CHANA-1	RDS CHANNEL A THRU D TIME DELAY STATUS	SGM	C02-4	0-120SEC

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
TIA-1380	RDS DISCH PIPE TEMPERATURES	RDS	C40	187F
TR-1050	PLANT TEMPERATURE RECORDER	CDS	C02-2	0-400F
TR-1051	TURBINE GENERATOR LUBE OIL TEMPS	TGS	C02-3	0-200F
TR-1052	GENERATOR ROTOR TEMPS	TGS	C02-3	0-200DEG C
TR-1053	GENERATOR STATOR TEMPS	TGS	C02-3	0-200DEG C
TR-1054	FEEDWATER PUMPS BEARINGS AND WINDINGS	FWS	C02	0-400F
TR-9623	CONTAINMENT TEMPERATURES AND DEW POINT TEMPS	VAS	C02-4	0-120F
TR-IA16	REACTOR STEAM DRUM AND VESSEL TEMPERATURES	RDS	C02-1	0-750F
TR-IA66	RECIRC. PUMPS TEMPS.	PCS	C02-1	0-250F
TSR-7300	TURBINE SPEED AND VALVE POSITION	TGS	C02-3	0-5000RPM/0-100%POSITION
VM-100	EXCITER VOLT METER	TGS	C01-B	0-300V
VM-101	AMPLIDYNE VOLTS	TGS	C01-B	300-0-300VOLTS
VM-102	GENERATOR VOLT METER	TGS	C01-B	0-18KV
VM-103	13.8KV BUS VOLT METER	TGS	C01-B	0-18KV
VM-104	STATION POWER TRANSFMR NO 1 VOLTS	SPS	C01-B	0-3000 VOLTS

<u>DEVICE</u>	<u>DESCRIPTION</u>	<u>SYS</u>	<u>LOC</u>	<u>RANGE/MODE</u>
VM-105	EMERGENCY GENERATOR VOLT METER	EPS	C01-B	0-600VOLTS
VM-106	STATION POWER TRANS- FORMER NO 7 VOLTS	SPS	C02-2	0-3000VOLTS
VM-13.8KV	EMMET LINE VOLTAGE	TGS	C02-3	0-18KV
VOT-RC-02	CRD POSITION PWR SUPPLY BREAKER	CRD	C02-1	BREAKER
VR-101	EXCITER VOLT RECORDER	TGS	C02-3	0-500V
WHM-100	GENERATOR GROSS KWH	TGS	C02-3	TOTALIZER
WHM-101	GENERATOR GROSS KVARH	TGS	C02-3	TOTALIZER
WHM-102	STATION POWER KWH	TGS	C02-3	TOTALIZER
WM-100	GENERATOR WATTS	TGS	C01-B	0-100MW
WM-101	138KV LINE WATTMETER	SPS	C01-B	100-0-100
WM-102	STATION PWR TRANSFORMER NO 1 WATT METER	SPS	C01-B	0-8000WATTS
WM-103	EMERGENCY GENERATOR WATT METER	EPS	C01-B	0-300KW
WM-105	STATION PWR TRANSFORMER NO 22 WATT METER	SPS	C01-B	0-1200KW
WR-100	NET GENERATION RECORDER	SPS	C02-3	100-0-100MW

d. The work station is comprised of a high resolution monitor and mouse/keyboard human machine interface to be used as an instructor console and student training device.

1. As an instructor console it manipulates the dynamic devices in the simulator.

2. As student training device it displays plant systems in dynamic presentations.

6.1.4 Dynamics: Dynamic instrument response will primarily be established via the 860 computer system. Prior to the completion of Phase II, other dynamic responses may also be included such as switch operated lights and meters. For example, the control switch for a valve operates the valve position light, either directly or through relay, annunciators operated from behind the boards by instructors and so on. Other possibilities may include meters whose reading can be adjusted using potentiometers. The Control Manipulation Analysis results and the Procedure Performance Review will be used as a basis of those devices to be simulated in Phase II. Examples include: /

a. Device No A 47

"Shutdown System Inlet Drain Valve CV-4017"..valve will be wired to indicate closed when valve is supposed to be closed and not, when valve is supposed to be open. This action is to be dependent on operator or system pressure and controlled in the scenario associated with its use.

b. Device A 51 B

"poison tank low level"...wired through a switch to simulate a gradual loss of LPS level to test operator response to ONP 2.22 for example.

6.1.5 Other devices (static): If a device can be located, it will be evaluated for installation in lieu of the picture as well as all others required in Phase I via the use of an actual device without feedback.

The control Manipulation Analysis Results determined minimum (Phase I) level for interim use of the LSS. The Procedure Performance Review results establishes the final (Phase II) LSS. The actual completion status of the LSS on May 26, 1991 is currently scheduled to incorporate 179 of the Phase II dynamic instruments in addition to the 66 Phase I dynamic devices. /

The primary and backup containment spray headers will be modeled. Flow will either be supplied by the electric, diesel or core spray pumps. The status of the pumps and water level in containment will determine the pump configuration.

AC Power

Panel IO CS-152-104
CS-OCB-1136
Station Power CB control Switch

The ac power system will be modeled. Upon loss of offsite and/or station power the appropriate components will be tripped.

Shutdown System

Panel IO RMC-5509, RMC-5510
TR/1050

Shutdown system flow will be modeled as a function of the combined valve position of MO-7056, and MO-7058. Operational data and/or design data will be used to define the appropriate temperatures.

Main Condenser

Panel IO ALP 1.2.31
PI-307
ALP 1.5.8
LR-3100

A simplified control volume representation of the main condenser will be modeled. The mass and energy balance will include turbine exhaust flow, bypass flow, condensate flow, and circulating water flow.

Scram Dump Tank

Panel IO ALP 1.2.17

A control volume representation of the scram dump tank will be made. The mass accumulation will be calculated and the digital alarm will be activated when the corresponding level setpoint is reached.

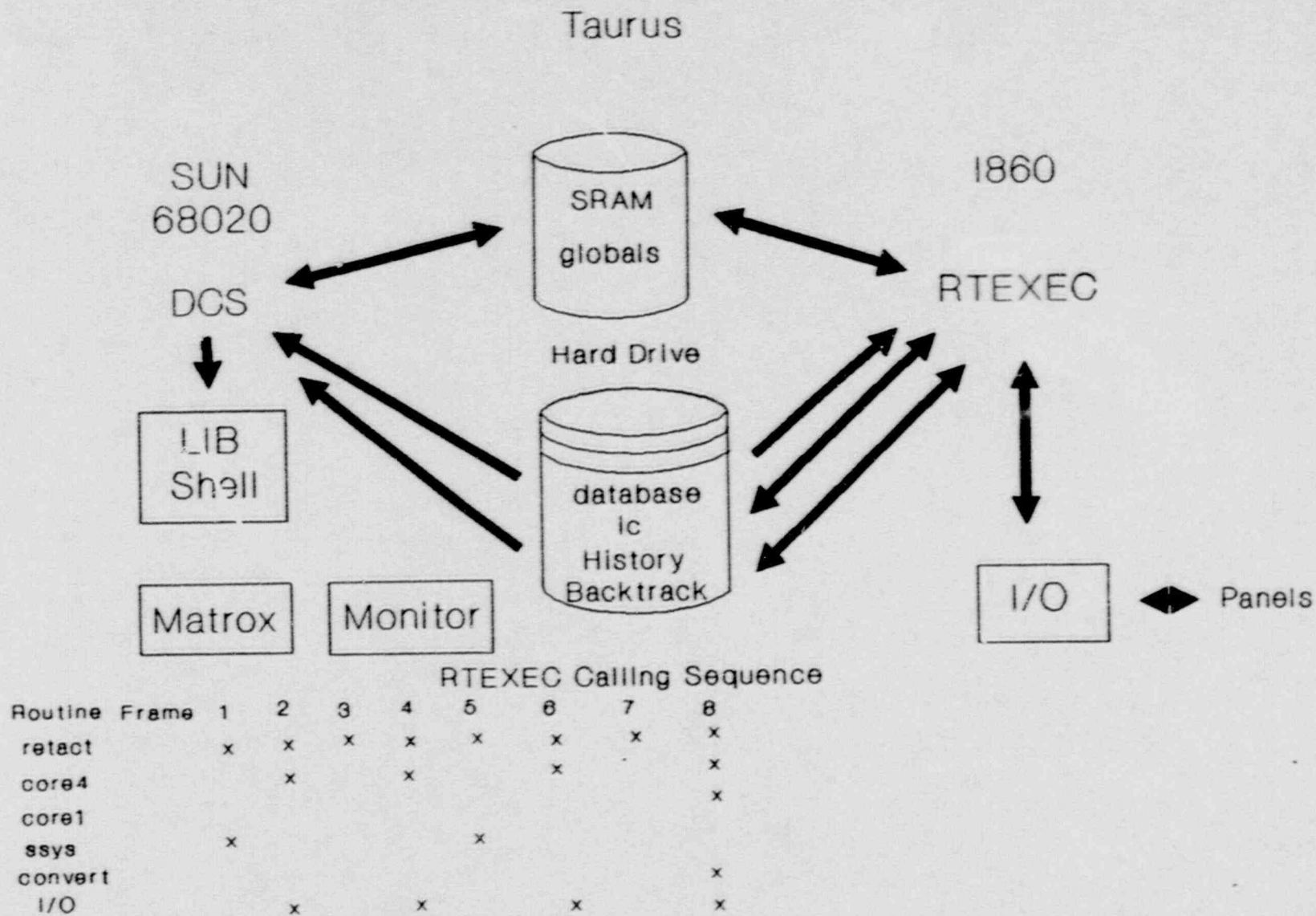
6.2.4 Real Time Objective

The appropriate acceptance criteria for the real time objective of the LSS will be determined during the performance testing program. The performance test program will use plant data where applicable. It is expected that the present hardware configuration may require more than the plus or minus 2% variation for /

critical parameters and more than the plus or minus 10% variation for noncritical parameters as recommended by ANSI/ANS-3.5. This information will be provided as an update to this application.

- 6.2.5 The hardware configuration includes one SAI Taurus Technologies, Inc /
860 Computer system. The system consists of an 860, 32 Mhz, /
8MB DRAM, 1MB SRAM computer; a SUN 3E, 68020, 20 Mhz, 8MB memory; /
SCSI Ethernet Interface; 766MB Hard Disk; 150MB tape drive; /
8/8 VME/VSI slots card cage; Xylogic 781, 16 RS-232 (serial /
ports); Wyse 85 console device, Fortran 77 and C Compilers for /
APX-860 and SUN OS. An additional 386 computer is also required to /
facilitate use of the SUN cross compiler. The Workstation includes a /
Mitsubishi high resolution graphics monitor, Logitech three - /
button series Mouse, and an HP 7475A Six-Pen Plotter. The /
configuration is shown in 6.2-1. /

Figure 6.2-1



DEVICE LIST - PHASE I - RES 2: RETACT INPUT/OUTPUT

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
CS-42/1A44	CORE SPRAY PUMP 1
CS-42/2A44	CORE SPRAY PUMP 2
CV 4025	REACTOR ENCLOSURE DIRTY SUMP PUMP DISCH INSIDE
CV 4027	REACTOR AND FUEL PIT DRAIN INSIDE
CV 4031	REACTOR ENCLOSURE CLEAN SUMP PUMP DISCH INSIDE
CV 4049	TREATED WASTE TO FUEL PIT
CV 4091	CLEANUP DEMIN RESIN SLUICE
CV 4092	CLEANUP DEMIN RESIN SLUICE
CV 4093	CLEANUP DEMIN RESIN SLUICE
CV 4094	VENTILATION ISOL VALVE POSITION INDICATION
CV 4095	VENTILATION ISOL VALVE POSITION INDICATION
CV 4096	VENTILATION ISOL VALVE POSITION INDICATION
CV 4097	VENTILATION ISOL VALVE POSITION INDICATION
CV 4102	REACTOR ENCLOSURE CLEAN SUMP PUMP DISCH OUTSIDE

DEVICE LIST - PHASE I - RES 2: RETACT INPUT/OUTPUT

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
CV 4103	REACTOR ENCLOSURE DIRTY SUMP PUMP DISCH OUTSIDE
CV 4117	REACTOR AND FUEL PIT DRAIN OUTSIDE
FI-2335	CORE SPRAY
FI-2336	REDUNDANT CORE SPRAY
FR-2108	CORE SPRAY FLOW WITH RED ON IND LT & RESET/ A/M SEL(HS-7047);PB CAL
HS-7008	POISON TO REACTOR
HS-7009	POISON TO REACTOR
HS-7033	POISON SHUTOFF VALVE CV-4020
LI-3380	REACTOR WATER LEVEL CHAN A (TYP FOR LI-3381, 3382,3383)
LI-3384	STEAM DRUM LEVEL CHAN A (TYP LI-3385,3386,3387)
LR-3110	CONTAINMENT LEVEL
LR-3111	CONTAINMENT LEVEL
MO-7050	MAIN STEAM ISOLATION VALVE MO-7050 POSITION INDICATION
PB-MT1.1	CHANNEL A1.1 MANUAL TRIP (TYPICAL FOR 4 CHANNELS)

DEVICE LIST - PHASE I - RES 2: RETACT INPUT/OUTPUT

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
PB-RT1.1	RDS CHANN A1.1 RESET (TYP 8 CHANNELS)
PB-S3	REACTOR SCARM
PI-IA05	REACTOR PRESSURE
PIS-187	CONTAINMENT PRESSURE
PR-53	CONTAINMENT PRESSURE
PR-54	CONTAINMENT PRESSURE
RM-RG01A	FLUX LEVEL CHAN 7 SOURCE RANGE
RM-RG01B	FLUX LEVEL CHAN 6 SOURCE RANGE
RM-RG02A	CHAN 7 SOURCE RANGE PERIOD
RM-RG02B	CHAN 6 SOURCE RANGE PERIOD
RM-RI03A	FLUX LEVEL CHAN 3 POWER RANGE
RM-RI03B	FLUX LEVEL CHAN 2 POWER RANGE
RM-RI03C	FLUX LEVEL CHAN 1 POWER RANGE
RMC-5500	MAIN STEAM ISOLATION VALVE MO-7050

DEVICE LIST - PHASE I - RES 2: RETRACT INPUT/OUTPUT

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
RMC-5501	REACTOR EMERG CORE SPRAY MO-7061
RMC-5514	ENCLOSURE SPRAYS MO-7064
RMC-5519	EMERG CORE SPRAY VALVE MO-7051
RMC-5527	REDUNDANT CORE SPRAY VALVE MO-7070
RMC-5528	REDUNDANT CORE SPRAY VALVE MO-7071
RR-8055	HI RANGE CONTAINMENT GAMMA MONITOR
RR-RH06A	SOURCE RANGE CHAN 7 (SWITCHABLE TO OFF GAS CHAN 1)
RR-RH06B	FLUX LEVEL CHAN 6 (SWITCHABLE TO OFF GAS CHAN 2)
RR-RI05A	POWER LEVEL CHAN 3
RR-RI05B	POWER LEVEL CHAN 2
RR-RI05C	POWER LEVEL CHAN 1
RT-RG07A	SOURCE RANGE CHAN 7
RT-RI09A	WIDE RANGE NEUTRON MONITOR CHAN 3
TR-9623	CONTAINMENT TEMPERATURES AND DEW POINT TEMPS

DEVICE LIST - PHASE I - RES 3: DYNAMIC SIMULATION - ACTUAL
 DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>	
CV 4000	REACTOR FEEDWATER REG VALVE CV-4000 POSITION	
CV 4012	REACTOR FEEDWATER REG BYPASS VALVE CV-4012 POSITION	
CV 4014	TURBINE STEAM BYPASS VALVE	/
CV 4016	CRD PUMPS SUCTION COND PUMP DISCH	
CV 4090	CONDENSATE STORAGE SUPPLY TO CRD PUMP	
CV 4104	STEAM TO STM SEAL REG & AIR EJECTOR	
CV 4105	DEMINERALIZED WATER	
CV 4106	TURBINE BYPASS WARMUP VALVE	/
CV 4107	MAIN STEAM DRAIN ISOLATION VALVE	/
CV 4200	TURBINE STOP VALVE POSITION INDICATION	
HS-7025	RESIN SLUICE & DEMIN WATER ISOLATION VALVES CV-4091/4105	/
HS-7036	AUXILARY SWITCH FOR STEAM ISOLATION VALVE CV-4106 & CV-4104	/
HS-S5	PENETRATION CLOSURE SWITCH	
MO-7067	TURBINE BYPASS ISOLATION VALVE	/

DEVICE LIST - PHASE I - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>	
PI-377	POISON TANK PRESSURE HIGH RANGE	
RMC-5506	TURBINE BYPASS VALVE MAN/BAL/AUTO STATION	
RMC-5524	TURBINE BYPASS ISOLATION VALVE	/ /
RR-8057	NORMAL RANGE STACK GAS	
RR-8058	HIGH RANGE NOBLE GAS	

DEVICE LIST - PHASE 1 - RES 4: PHYSICAL MOCK-UP - ACTUAL
DEVICE WITHOUT FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
138 SYN PWR	SYNC RELAY & METER POT NOT AVAILABLE
A-48	SHUTDOWN SYS OUTLET DRAIN VALVE CV-4018
B-51	TURBINE INITIAL PRESS GOVERNOR TRIP
B-74	CONTROL CENTER 1A 480V BREAKER POSITION
B-79	CONTROL CENTER 2A 480V BREAKER POSITION
CB-RE11A	SCRAM CHAN 1 (UV)
CB-RE11B	SCRAM CHAN 2 (UV)
CB-RE17A	POWER SWITCH (AUX) CHAN 1
CB-RE17B	POWER SWITCH (AUX) CHAN 2
CS-52-12	CONDENSATE PUMP 1
CS-52-22	CONDENSATE PUMP 2
CS-52/11	CONDENSER CIRC WATER PUMP 1
CS-52/21	CONDENSER CIRC WATER PUMP 2
CS-B37	STATION POWER ACB 1199

DEVICE LIST - PHASE I - RES 4: PHYSICAL MOCK-UP - ACTUAL
DEVICE WITHOUT FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
CS-GSM	TURBINE SYNC GOVERNOR
CS-LLM	TURBINE GOVERNER LOAD LIMIT
CS-OCB116	OCB 116 CONTROL SWITCH
CS-OCB199	OCB199 CONTROL
HS-4S1	CONTROL ROD LETTER SELECT
HS-4S2	CONTROL ROD NUMBER SELECT
HS-4S3	CONTROL ROD OPERATION
HS-4S5	CONTROL ROD JOG OVERRIDE
HS-4S6	SCRAM DUMP TANK VENT AND DRAIN VALVE POSITION CV-NC11, 11A, 12, 12A
HS-7003	REACTOR ENCLOSURE CLEAN SUMP DISCH CV-4031/4102
HS-7019	REACTOR ENCLOSURE SUMP PUMP DIRTY DISCH CV-4103/4025
HS-7048	4K30A BYPASS - ALL RODS IN INTERLOCK BYPASS
HS-7902	FIRE WATER TO EMERGENCY CONDENSER
HS-S4	REACTOR MODE SELECTOR SWITCH

DEVICE LIST - PHASE I - RES 4: PHYSICAL MOCK-UP - ACTUAL
 DEVICE WITHOUT FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
HS-S6	RPS ALTERNATE POWER SOURCE SELECT
PB-B7	TURBINE EMERGENCY TRIP
RCS-152-101	RECIRC PUMP NO 1
RCS-152-103	REACTOR FEED PUMP 2
RCS-152-105	REACTOR FEED PUMP 1
RCS-152-107	RECIRC PUMP NO 2
RMC-5502	REACTOR FEEDWATER REG BYPASS VALVE CV-4012
RMC-5503	STEAM TO EMERGENCY CONDENSER MO-7062
RMC-5504	CONDENSATE FROM EMERG CONDENSER MO-7063
RMC-5507	STEAM TO EMERGENCY CONDENSER MO-7052
RMC-5508	CONDENSATE FROM EMERG CONDENSER MO-7053
RMC-5509	SHUTDOWN SYSTEM PRIMARY ISOLATION VALVES MO-7056 & MO-7058
RMC-5510	SHUTDOWN SYSTEM SECONDARY ISOLATION VALVES MO-7057 & MO-7059
RMC-5525	BACKUP ENCLOSURE SPRAY MO-7068

DEVICE LIST - PHASE I - RES 4: PHYSICAL MOCK-UP - ACTUAL
DEVICE WITHOUT FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
RMC-5529	CORE SPRAY BACKUP MO-7072
RMC-5530	FIRE MAIN TO CONDENSER PRIMARY MO-7073
RMC-5531	FIRE MAIN TO CONDENSER SECONDARY MO-7074
RMC-ID18	RX FEEDWATER REGULATOR CV-4000

DEVICE LIST - PHASE I - RES 7: PLANT WALKTHROUGH

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
A-46A-D	CONTAINMENT WATER LEVEL LIGHTS EL 574FT, 579FT, 587FT & 595FT
A-47	SHUTDOWN SYS INLET DRAIN VALVE CV-4017
A-49A	CONDENSER CIRC WATER PUMP 1 VALVE MO-7054
A-49B	CONDENSER CIRC WATER PUMP 1 VALVE MO-7054
A-50A	CONDENSER CIRC WATER PUMP 2 VALVE MO-7055
A-50B	CONDENSER CIRC WATER PUMP 2 VALVE MO-7055
A-51A	POISON TANK HIGH LEVEL
A-51B	POISON TANK LOW LEVEL
A-53	OFF GAS ISOLATION VALVE OPEN CV-4015
A-61	SHUTDOWN SYS INHIBITOR INLET VALVE CV-4115
A-62	SHUTDOWN SYS INHIBITOR OUTLET VALVE CV-4116
A-63	POISON SYSTEM RECIRC VALVE CV-4050 OPEN
A-70	HOT WELL HIGH LEVEL REJECT VALVE CV-4010 OPEN DEMAND
AM-100	GENERATOR FIELD AMMETER

DEVICE LIST - PHASE I - RES 7: PLANT WALKTHROUGH

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
AM-104	138KV LINE (X) AMMETER
AM-105	138KV LINE (Y) AMMETER
AM-106	138KV LINE (Z) AMMETER
AM-107	STATION PWR (X) AMMETER
AM-108	STATION PWR (Y) AMMETER
AM-109	STATION PWR (Z) AMMETER
AM-110	EMERGENCY GENERATOR AMMETER
AM-111	STATION PWR TRANSFORMER NO 11 AMMETER
AM-112	STATION PWR TRANSFORMER NO 22 AMMETER
AM-113	REACTOR FEED PUMP 1 AMMETER
AM-114	REACTOR FEED PUMP 2 AMMETER
AM-115	CONDENSATE PUMP 1 AMMETER
AM-116	CONDENSATE PUMP 2 AMMETER
AM-117	CONDENSER CIRC WATER PUMP 1 AMMETER

DEVICE LIST - PHASE I - RES 7: PLANT WALKTHROUGH

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
AM-118	CONDENSER CIRC WATER PUMP 2 AMMETER
AM-119	RECIRC PUMP 1 AMMETER
AM-120	RECIRC PUMP 2 AMMETER
B-47	EMERGENCY GENERATOR TRIP/CLOSE INDICATION
B-70	BUS TIE 2A-2B 480V POSITION
B-71	BUS TIE 1A-2A 480V POSITION
CB-RE04A	POWER SWITCH CHAN 1
CB-RE04B	POWER SWITCH CHAN 2
CR-6050	PLANT CONDUCTIVITY
CS OCB116	OCB 116 TRIP INDICATION
CS-152-104	STATION POWER ACB 1136
CS-20BP	TURBINE BYPASS VALVE CONTROL SELECTOR
CS-241	GENERATOR FIELD AC BKR
CS-270	GENERATOR FIELD RHEOSTAT

DEVICE LIST - PHASE I - RES 7: PLANT WALKTHROUGH

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
CS-31	EMERG GOVERNOR EXERCISER
CS-42/1A23	FUEL PIT PUMP 1
CS-42/1A31	SHUTDOWN COOLING PUMP 1
CS-42/1A41	REACTOR COOLING WATER PUMP 1
CS-42/1A62	CONDENSER CIRC WATER VACUUM PUMP NO 1
CS-42/1E22	DEMIN WATER PUMP
CS-42/1E27	CONTROL ROD DRIVE BOOSTER PUMP
CS-42/2A13	AC GLAND SEAL COND EXHAUSTER NO 1
CS-42/2A22	TURBINE-GEN AC EMERGENCY BEARING AND SEAL OIL
CS-42/2A23	FUEL PIT PUMP 2
CS-42/2A25	TURBINE AUXILARY OIL PUMP
CS-42/2A31	SHUTDOWN COOLING PUMP 2
CS-42/2A41	REACTOR COOLING WATER PUMP 2
CS-42/2A62	CONDENSEP CIRC WATER VACUUM PUMP NO 2

DEVICE LIST - PHASE I - RES 7: PLANT WALKTHROUGH

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
CS-42/2B21	AC GIAND SEAL COND EXHAUSTER NO 2
CS-43	AUTO TRANSFER TO EMERG GENERATOR
CS-72/22	TURBINE-GEN DC EMERGENCY BEARING AND SEAL OIL
CS-B14	GENERATOR VOLTAGE ADJUSTMENT
CS-B19	GENERATOR VOLT METER PHASE SELECTOR
CS-B40	STATION POWER 2400V BUS PHASE SELECTOR
CS-B53	STATION PWR TRANSFORMER NO 11 (X,Y,Z) AMMETER SELECTOR
CS-B54	STATION PWR TRANSFORMER NO 22 (X,Y,Z) AMMETER SELECTOR
CS-B56	VM-13.8KV VOLT METER PHASE SELECTOR
CS-IGM	TURBINE INITIAL PRESSURE REGULATOR
CS-ST5	TURBINE STOP VALVE TEST AND POSITION INDICATION
DPI-IA41	REACTOR CORE DIFF PRESS
DPI-IA46A	REACTOR RECIRC PUMP 1
DPI-IA46B	REACTOR RECIRC PUMP 2

DEVICE LIST - PHASE I - RES 7: PLANT WALKTHROUGH

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
DPI-RD01A	CRD COOLING HEADER DP
DPI-RD01B	CRD HEADER DP
ES-R112	AC POWER SUPPLY CHAN 3 (STATIC INVERTER)
FI-2330	FEEDWATER TO STEAM DRUM LOW FLOW
FI-IA44A	REACTOR RECIRC PUMP 1
FI-IA44B	REACTOR RECIRC PUMP 2
FI-ID27	STEAM FLOW
FI-ID53	FEEDWATER FLOW
FI-RD36A	CRD COOLING FLOW
FI-RD36B	CRD HEADER FLOW
FQM-100	GENERATOR FREQUENCY
FQM-101	BUS 2B FREQUENCY METER
FR-IA61	REACTOR RECIRC FLOW
FR-ID06	STEAM FLOW

DEVICE LIST - PHASE I - RES 7: PLANT WALKTHROUGH

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
FR-ID07	FEEDWATER FLOW
HS-7000	REACTOR FEED PUMP 1 MINIMUM FLOW VALVE CV-4001
HS-7001	REACTOR FEED PUMP 2 MINIMUM FLOW VALVE CV-4002
HS-7011	TREATED WASTE TO FUEL PIT CV-4049
HS-7045	CONDENSATE STORAGE TANK LEVEL CV-4041
HS-7049	XFMR DELUGE ISOL CV-4101
HS-7084-2	CONTAINMENT EVACUATION RESET
HS-7085	ELECTRIC FIRE PUMP OFF-NORMAL
HS-7086	DIESEL FIRE PUMP OFF-NORMAL
HS-9001	VENT VALVES CV-4096, CV-4097, CV-4094 & CV-4095
HS-A66	CONDENSATE PUMP AUTO START SELECTOR
HSX-1	RDS CHANNEL TIME DELAY RESET CHANNEL A
HSX-2	RDS CHANNEL TIME DELAY RESET CHANNEL B
HSX-3	RDS CHANNEL TIME DELAY RESET CHANNEL C

DEVICE LIST - PHASE I - RES 7: PLANT WALKTHROUGH

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
HSX-4	RDS CHANNEL TIME DELAY RESET CHANNEL D
ICD-RF01A	CHAMBER POSITION CONTROL CHANNEL 7
ICD-RF01B	CHAMBER POSITION CONTROL CHANNEL 7
K-RE10ABEF	1K4A CHAN 1 ISOLATION VALVE 1K5A VENT TRIP
K-RE10CDGH	2K4A CHAN 2 ISOLATION VALVE 2K5A VENT TRIP
LI-3303	CONDENSER HOTWELL LEVEL
LI-3305	EMERGENCY CONDENSER
LI-IA-19	80IN WEST DRUM LEVEL
LI-IA40	REACTOR WATER LEVEL
LI-RE19A	60IN WEST DRUM LEVEL
LI-RE19B	60IN EAST DRUM LEVEL
LITE-BPCH A	RDS CHANNEL A IN BYPASS (TYP 4 CHANNELS)
LR-3100	CONDENSER HOTWELL LEVEL
LR-3104	CONDENSATE STORAGE TANK

DEVICE LIST - PHASE I - RES 7: PLANT WALKTHROUGH

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
LR-3105	DEMIN WATER STORAGE TANK
LR-ID12	STEAM DRUM LEVEL
MO-7051	REACTOR EMERGENCY CORE SPRAY PRIMARY ISOLATION VALVE POSITION
MO-7052	EMERGENCY CONDENSER INLET VALVE LOOP 2 POSITION
MO-7053	EMERGENCY CONDENSER INLET VALVE LOOP 2
MO-7061	REACTOR EMERGENCY CORE SPRAY SEC ISOLATION VALVE
MO-7062	EMERGENCY CONDENSER INLET VALVE LOOP 1
MO-7063	EMERGENCY CONDENSER OUTLET VALVE LOOP 1
MO-7064	REACTOR BUILDING SPRAY VALVE
MO-7070	BACKUP EMERGENCY CORE SEC ISOLATION VALVE POSITION
MO-7071	BACKUP EMERGENCY CORE PRIM ISOLATION VALVE POSITION
OR-RE01A	CHANNEL 1 OPERATION EVENTS RECORDER
OR-RE01B	CHANNEL 2 OPERATION EVENTS RECORDER
PB-A67	REACTOR RECIRC PUMP 1 VIBRATION ALARM RESET

DEVICE LIST - PHASE I - RES 7: PLANT WALKTHROUGH

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
PB-A68	REACTOR RECIRC PUMP 2 VIBRATION ALARM RESET
PI-300	REACTOR FEEDWATER PUMP DISCH HEADER
PI-302	STEAM FROM TURBINE STEAM SEAL REGULATOR
PI-309	STEAM TO AIR EJECTORS
PI-310	CONDENSATE PUMP DISCH HEADER
PI-314	TURBINE EXHAUST (CONDENSER VACUUM)
PI-322	REACTOR FEED PUMPS SUCTION PRESSURE
PI-323	CRD PUMP DISCH HEADER
PI-324	TURBINE BEARING HEADER OIL PRESSURE
PI-327	TURBINE AUXILIARY OIL PUMP
PI-328	TURBINE HYDRAULIC OIL HEADER PRESSURE
PI-353	SHUTDOWN PUMP 1 SUCTION
PI-354	SHUTDOWN PUMP 1 DISCH
PI-355	SHUTDOWN PUMP 2 SUCTION

DEVICE LIST - PHASE I - RES 7: PLANT WALKTHROUGH

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
PI-356	SHUTDOWN PUMP 2 DISCH
PI-364	INSTRUMENT AIR PRESSURE
PI-367	CONTAINMENT PRESSURE
PI-376	POISON TANK PRESSURE LOW RANGE
PI-IA70A	RECIRC PUMP 1 SEAL INNER PRESSURE
PI-IA70B	RECIRC PUMP 2 SEAL INNER PRESSURE
PI-IA72A	RECIRC PUMP 1 SEAL OUTER PRESSURE
PI-IA72B	RECIRC PUMP 2 SEAL OUTER PRESSURE
PI-RD19	ACCUMULATOR CHARGING HEADER
POI-IGMSR	TURBINE INITIAL PRESSURE
POI-LLSR	TURBINE LOAD LIMITOR
POI-SDRS	GENERATOR SYNCHRONIZING DEVICE
POS 6688	BYPASS ISOLATION VALVE CV-4184 POSITION
PR-50	REACTOR FEED PUMP SUCTION PRESSURE

DEVICE LIST - PHASE I - RES 7: PLANT WALKTHROUGH

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
PR-51	REACTOR FEEDWATER PUMPS DISCHARGE
PR-IA09	REACTOR PRESSURE
RC-1A-2A	FSD RADIOACTIVE GASEOUS EFF MONITORING SYS (1A - CONTROLS; 2A - RELAYS)
RI-8318	EMERGENCY CONDENSER VENT
RI-8321	EMERGENCY CONDENSER VENT
RI-8324	CONTAINMENT GAMMA MONITORING- LEFT CHANN
RI-8326	NORMAL RANGE IODINE
RI-8327	NORMAL RANGE NOBLE GAS
RI-R009A	AREA MONITOR CHANN 1-5
RI-R009B	AREA MONITOR CHANN 6-10
RI-R009C	AREA MONITOR CHANN 11-15
RI-R009D	AREA MONITOR CHANN 16-20
RI-RJ03A-H	IN CORE FLUX CHANNELS 11 THROUGH 18
RI-RL17	OFF GAS MONITOR CHAN 1

DEVICE LIST - PHASE I - RES 7: PLANT WALKTHROUGH

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
RI-RN03	OFF GAS MONITOR CHAN 2
RI-RN45	AREA MONITOR CHANN 21
RMC-5517	REACTOR WTR TO RADWASTE CV-4040
RMC-5522	REACTOR LOW PRESSURE BLEED-OFF CV-4114
RMC-IA48A	REACTOR RECIRC PUMP 1 DISCH VALVE MO-N001A
RMC-IA48B	REACTOR RECIRC PUMP 2 DISCH VALVE MO-N002A
RMC-IA48C	REACTOR RECIRC PUMP 1 SUCTION VALVE MO-N003A
RMC-IA48D	REACTOR RECIRC PUMP 2 SUCTION VALVE MO-N003B
RMC-IA50C	REACTOR RECIRC PUMP 1 DISCH BYPASS VALVE MO-N002A
RMC-IA50D	REACTOR RECIRC PUMP 2 DISCH BYPASS VALVE MO-N002B
RMC-IA50F	REACTOR VENT TO STEAM DRUM
RMC-RD21	CONTROL ROD BYPASS CONTROL VALVE NC-33 AT APPROX 50%
RR-8053	AREA RADIATION MONITOR
RR-8054	LIQUID PROCESS RADIATION MONITOR

DEVICE LIST - PHASE I - RES 7: PLANT WALKTHROUGH

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
RR-1713	INCORE RECORDER
RT-8107	MAIN CONDENSATE ACTIVITY
RT-8108	REACTOR COOLING WATER ACTIVITY
RT-8109	CONTAINMENT SERVICE WATER ACTIVITY
RT-8110	CIRC WATER DISCH ACTIVITY
RT-8111	LIQUID RADWASTE EFFLUENT ACTIVITY
RT-RJ01A-H	FLUX AMPLIFIERS CHANNELS 11 THRU 18
RT-RJ05	BLINKING POWER SUPPLY
RT-SUMPS	CONTAINMENT SUMP RUN TIME METERS
SI-2	TURBINE SPEED
TIA-1380	RDS DISCH PIPE TEMPERATURES
TR-1050	PLANT TEMPERATURE RECORDER
TR-1051	TURBINE GENERATOR LUBE OIL TEMPS
TR-1052	GENERATOR ROTOR TEMPS

DEVICE LIST - PHASE I - RES 7: PLANT WALKTHROUGH

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
TR-1053	GENERATOR STATOR TEMPS
TR-1054	FEEDWATER PUMPS BEARINGS AND WINDINGS
TR-IA66	RECIRC. PUMPS TEMPS.
TSR-7300	TURBINE SPEED AND VALVE POSITION
VM-100	EXCITER VOLT METER
VM-101	AMPLIDYNE VOLTS
VM-102	GENERATOR VOLT METER
VM-103	13.8KV BUS VOLT METER
VM-104	STATION POWER TRANSFMR NO 1 VOLTS
VM-105	EMERGENCY GENERATOR VOLT METER
VM-106	STATION POWER TRANS- FORMER NO 7 VOLTS
VM-13.8KV	EMMET LINE VOLTAGE
VOT-RC-02	CRD POSITION PWR SUPPLY BREAKER
VR-101	EXCITER VOLT RECORDER

DEVICE LIST - PHASE I - RES 7: PLANT WALKTHROUGH

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
WHM-100	GENERATOR GROSS KWH
WHM-101	GENERATOR GROSS KVARH
WHM-102	STATION POWER KWH
WM-100	GENERATOR WATTS
WM-101	138KV LINE WATTMETER
WM-102	STATION PWR TRANSFORMER NO 1 WATT METER
WM-103	EMERGENCY GENERATOR WATT METER
WM-105	STATION PWR TRANSFORMER NO 22 WATT METER
WR-100	NET GENERATION RECORDER

DEVICE LIST - PHASE II - RES 2: RETACT INPUT/OUTPUT

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.2-04	NEUTRON FLUX HI-HI SCRAM
ALP-1.2-10	REACTOR LOW WATER LEVEL SCRAM
ALP-1.2-13	STEAM DRUM LOW WATER LEVEL SCRAM
ALP-1.2-14	STEAM DRUM LOW WATER LEVEL
ALP-1.2-16	SCRAM DUMP TANK HIGH WATER LEVEL SCRAM
ALP-1.2-17	SCRAM DUMP TANK HIGH WATER LEVEL
ALP-1.2-19	REACTOR HIGH PRESSURE SCRAM
ALP-1.2-22	ENCLOSURE HIGH PRESSURE SCRAM
ALP-1.2-25	MAIN STEAM ISOLATION VALVE SCRAM
ALP-1.2-28	RECIRC LINE VALVES CLOSED SCRAM
ALP-1.2-31	CONDENSER LOW VACUUM SCRAM
ALP-1.4-34	DRUM SAFETY VALVE LEAK
ALP-1.5-08	CONDENSER LOW VACUUM
AM-119	RECIRC PUMP 1 AMMETER

DEVICE LIST - PHASE II - RES 2: RETACT INPUT/OUTPUT

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
AM-120	RECIRC PUMP 2 AMMETER
CS-42/1A44	CORE SPRAY PUMP 1
CS-42/1A57	CRD PUMP 1
CS-42/2A44	CORE SPRAY PUMP 2 /
CS-42/2A58	CRD PUMP 2
CS-52-12	CONDENSATE PUMP 1
CS-52-22	CONDENSATE PUMP 2
CS-IGM	TURBINE INITIAL PRESSURE REGULATOR
CV 4000	REACTOR FEEDWATER REG VALVE CV-4000 POSITION
CV 4025	REACTOR ENCLOSURE DIRTY SUMP PUMP DISCH INSIDE
CV 4027	REACTOR AND FUEL PIT DRAIN INSIDE
CV 4031	REACTOR ENCLOSURE CLEAN SUMP PUMP DISCH INSIDE
CV 4049	TREATED WASTE TO FUEL PIT
CV 4091	CLEANUP DEMIN RESIN SLUICE

DEVICE LIST - PHASE II - RES 2: RETRACT INPUT/OUTPUT

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
CV 4092	CLEANUP DEMIN RESIN SLUICE
CV 4093	CLEANUP DEMIN RESIN SLUICE
CV 4094	VENTILATION ISOL VALVE POSITION INDICATION
CV 4095	VENTILATION ISOL VALVE POSITION INDICATION
CV 4096	VENTILATION ISOL VALVE POSITION INDICATION
CV 4097	VENTILATION ISOL VALVE POSITION INDICATION
CV 4102	REACTOR ENCLOSURE CLEAN SUMP PUMP DISCH OUTSIDE
CV 4103	REACTOR ENCLOSURE DIRTY SUMP PUMP DISCH OUTSIDE
CV 4117	REACTOR AND FUEL PIT DRAIN OUTSIDE
FI-2333	ENCLOSURE SPRAYS
FI-2334	BACKUP ENCLOSURE SPRAY
FI-2335	CORE SPRAY
FI-2336	REDUNDANT CORE SPRAY
FI-IA44A	REACTOR RECIRC PUMP 1

DEVICE LIST - PHASE II ~ RES 2: RETACT INPUT/OUTPUT

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
FI-IA44B	REACTOR RECIRC PUMP 2
FI-ID27	STEAM FLOW
FI-ID53	FEEDWATER FLOW
FR-2108	CORE SPRAY FLOW WITH RED ON IND LT & RESET/ A/M SEL(HS-7047);PB CAL
FR-ID06	STEAM FLOW
FR-ID07	FEEDWATER FLOW
HS-4S3	CONTROL ROD OPERATION
HS-6410	REACTOR CLEAN-UP PUMP
HS-7008	POISON TO REACTOR
HS-7009	POISON TO REACTOR
HS-7033	POISON SHUTOFF VALVE CV-4020
HS-7085-1	FIRE SYS MOTOR DRIVE PUMP START
HS-7086-1	FIRE SYS DIESEL DRIVEN PUMP START
HS-7902	FIRE WATER TO EMERGENCY CONDENSER

DEVICE LIST - PHASE II - RES 2: RETACT INPUT/OUTPUT

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
HS-9001	VENT VALVES CV-4096, CV-4097, CV-4094 & CV-4095
HS-S4	REACTOR MODE SELECTOR SWITCH
LI-3305	EMERGENCY CONDENSER
LI-3380	REACTOR WATER LEVEL CHAN A (TYP FOR LI-3381, 3382,3383)
LI-3384	STEAM DRUM LEVEL CHAN A (TYP LI-3385,3386,3387)
LI-IA-19	80IN WEST DRUM LEVEL
LI-IA40	REACTOR WATER LEVEL
LI-RE19A	60IN WEST DRUM LEVEL
LI-RE19B	60IN EAST DRUM LEVEL
LR-3100	CONDENSER HOTWELL LEVEL
LR-3110	CONTAINMENT LEVEL
LR-3111	CONTAINMENT LEVEL
LR-ID12	STEAM DRUM LEVEL
MO-7050	MAIN STEAM ISOLATION VALVE MO-7050 POSITION INDICATION

DEVICE LIST - PHASE II - RES 2: RETACT INPUT/OUTPUT

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
PB-B7	TURBINE EMERGENCY TRIP
PB-MT1.1	CHANNEL A1.1 MANUAL TRIP (TYPICAL FOR 4 CHANNELS)
PB-RT1.1	RDS CHANN A1.1 RESET (TYP 8 CHANNELS)
PB-S3	REACTOR SCARM
PC-1	TURBINE BYPASS VALVE CV-4014 CONTROLLER
PC-2	TURBINE BYPASS VALVE CV-4014 CONTROLLER
PI-300	REACTOR FEEDWATER PUMP DISCH HEADER
PI-314	TURBINE EXHAUST (CONDENSER VACUUM)
PI-323	CRD PUMP DISCH HEADER
PI-367	CONTAINMENT PRESSURE
PI-IA05	REACTOR PRESSURE
PIS-173	CONTAINMENT PRESSURE
PIS-187	CONTAINMENT PRESSURE
PIS-190	CONTAINMENT PRESSURE

DEVICE LIST - PHASE II - RES 2: RETACT INPUT/OUTPUT

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
PIS-191	CONTAINMENT PRESSURE
PR-51	REACTOR FEEDWATER PUMPS DISCHARGE
PR-53	CONTAINMENT PRESSURE
PR-54	CONTAINMENT PRESSURE
PR-1709	REACTOR PRESSURE
RCS-152-101	RECIRC PUMP NO 1
RCS-152-103	REACTOR FEED PUMP 2
RCS-152-105	REACTOR FEED PUMP 1
RCS-152-107	RECIRC PUMP NO 2
RM-RG01A	FLUX LEVEL CHAN 7 SOURCE RANGE
RM-RG01B	FLUX LEVEL CHAN 6 SOURCE RANGE
RM-RG02A	CHAN 7 SOURCE RANGE PERIOD
RM-RG02B	CHAN 6 SOURCE RANGE PERIOD
RM-RI03A	FLUX LEVEL CHAN 3 POWER RANGE

DEVICE LIST - PHASE II - RES 2: RETRACT INPUT/OUTPUT

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
RM-RI03B	FLUX LEVEL CHAN 2 POWER RANGE
RM-RI03C	FLUX LEVEL CHAN 1 POWER RANGE
RMC-5500	MAIN STEAM ISOLATION VALVE MO-7050
RMC-5501	REACTOR EMERG CORE SPRAY MO-7061
RMC-5504	CONDENSATE FROM EMERG CONDENSER MO-7063
RMC-5508	CONDENSATE FROM EMERG CONDENSER MO-7053
RMC-5509	SHUTDOWN SYSTEM PRIMARY ISOLATION VALVES MO-7056 & MO-7058
RMC-5510	SHUTDOWN SYSTEM SECONDARY ISOLATION VALVES MO-7057 & MO-7059
RMC-5514	ENCLOSURE SPRAYS MO-7064
RMC-5517	REACTOR WTR TO RADWASTE CV-4040
RMC-5519	EMERG CORE SPRAY VALVE MO-7051
RMC-5522	REACTOR LOW PRESSURE BLEED-OFF CV-4114
RMC-5525	BACKUP ENCLOSURE SPRAY MO-7068
RMC-5527	REDUNDANT CORE SPRAY VALVE MO-7070

DEVICE LIST - PHASE II - RES 2: RETACT INPUT/OUTPUT

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
RMC-5528	REDUNDANT CORE SPRAY VALVE MO-7071
RMC-IA48A	REACTOR RECIRC PUMP 1 DISCH VALVE MO-N001A
RMC-IA48B	REACTOR RECIRC PUMP 2 DISCH VALVE MO-N002A
RMC-IA48C	REACTOR RECIRC PUMP 1 SUCTION VALVE MO-N003A
RMC-IA48D	REACTOR RECIRC PUMP 2 SUCTION VALVE MO-N003B
RMC-IA50C	REACTOR RECIRC PUMP 1 DISCH BYPASS VALVE MO-N002A
RMC-IA50D	REACTOR RECIRC PUMP 2 DISCH BYPASS VALVE MO-N002B
RMC-ID18	RX FEEDWATER REGULATOR CV-4000
RR-8055	HI RANGE CONTAINMENT GAMMA MONITOR
RR-RH06A	SOURCE RANGE CHAN 7 (SWITCHABLE TO OFF GAS CHAN 1)
RR-RH06B	FLUX LEVEL CHAN 6 (SWITCHABLE TO OFF GAS CHAN 2)
RR-RI05A	POWER LEVEL CHAN 3
RR-RI05B	POWER LEVEL CHAN 2
RR-RI05C	POWER LEVEL CHAN 1

DEVICE LIST - PHASE II - RES 2: RETACT INPUT/OUTPUT

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
RT-RG07A	SOURCE RANGE CHAN 7
RT-RI09A	WIDE RANGE NEUTRON MONITOR CHAN 3
TD-CHANA-D	RDS CHANNEL A THRU D TIME DELAY STATUS
TR-1050	PLANT TEMPERATURE RECORDER
TR-9623	CONTAINMENT TEMPERATURES AND DEW POINT TEMPS

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
138 SYN LTS	138KV SYNC LIGHTS
138 SYN SCOPE	138KV SYNC SCOPE
A-46A-D	CONTAINMENT WATER LEVEL LIGHTS EL 574FT, 579FT, 587FT & 595FT
A-47	SHUTDOWN SYS INLET DRAIN VALVE CV-4017
A-48	SHUTDOWN SYS OUTLET DRAIN VALVE CV-4018
A-51A	POISON TANK HIGH LEVEL
A-51B	POISON TANK LOW LEVEL
A-53	OFF GAS ISOLATION VALVE OPEN CV-4015
A-61	SHUTDOWN SYS INHIBITOR INLET VALVE CV-4115
A-62	SHUTDOWN SYS INHIBITOR OUTLET VALVE CV-4116
A-63	POISON SYSTEM RECIRC VALVE CV-4050 OPEN
A-70	HOT WELL HIGH LEVEL REJECT VALVE CV-4010 OPEN DEMAND
ALP-1.15-01	CHANNEL A STEAM DRUM LEVEL LOW
ALP-1.15-02	CHANNEL A FIRE MAIN PRESSURE AVAILABLE

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.15-03	CHANNEL A TIME DELAY TRIP IN 30 SECONDS
ALP-1.15-04	CHANNEL A TIME DELAY TRIP
ALP-1.15-05	CHANNEL A REACTOR WATER LEVEL LOW
ALP-1.15-06	CHANNEL A TRIP
ALP-1.15-07	CHANNEL 1.1 OUTPUT TRIP
ALP-1.15-08	CHANNEL 1.2 OUTPUT TRIP
ALP-1.15-09	CHANNEL 1 VALVES OPEN
ALP-1.15-10	CHANNEL A STEAM DRUM LEVEL HIGH
ALP-1.15-11	CHANNEL A UPS ABNORMAL
ALP-1.15-13	CHANNEL A NOT AVAILABLE
ALP-1.15-14	CHANNEL 1 NOT AVAILABLE
ALP-1.15-15	AUTO TEST FAULT
ALP-1.15-16	CHANNEL B STEAM DRUM LEVEL LOW
ALP-1.15-17	CHANNEL B FIRE MAIN PRESSURE AVAILABLE

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.15-18	CHANNEL B TIME DELAY TRIP IN 30 SECONDS
ALP-1.15-19	CHANNEL B TIME DELAY TRIP
ALP-1.15-20	CHANNEL B REACTOR WATER LEVEL LOW
ALP-1.15-21	CHANNEL B TRIP
ALP-1.15-22	CHANNEL 2.1 OUTPUT TRIP
ALP-1.15-23	CHANNEL 2.2 OUTPUT TRIP
ALP-1.15-24	CHANNEL 2 VALVES OPEN
ALP-1.15-25	CHANNEL B STEAM DRUM LEVEL HIGH
ALP-1.15-26	CHANNEL B UPS ABNORMAL
ALP-1.15-28	CHANNEL B NOT AVAILABLE
ALP-1.15-29	CHANNEL 2 NOT AVAILABLE
ALP-1.15-31	CHANNEL C STEAM DRUM LEVEL LOW
ALP-1.15-32	CHANNEL C FIRE MAIN PRESSURE AVAILABLE
ALP-1.15-33	CHANNEL C TIME DELAY TRIP IN 30 SECONDS

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.15-34	CHANNEL C TIME DELAY TRIP
ALP-1.15-35	CHANNEL C REACTOR WATER LEVEL LOW
ALP-1.15-36	CHANNEL C TRIP
ALP-1.15-37	CHANNEL 3.1 OUTPUT TRIP
ALP-1.15-38	CHANNEL 3.2 OUTPUT TRIP
ALP-1.15-39	CHANNEL 3 VALVES OPEN
ALP-1.15-40	CHANNEL C STEAM DRUM LEVEL HIGH
ALP-1.15-41	CHANNEL C UPS ABNORMAL
ALP-1.15-43	CHANNEL C NOT AVAILABLE
ALP-1.15-44	CHANNEL 3 NOT AVAILABLE
ALP-1.15-45	SPARE
ALP-1.15-46	CHANNEL D STEAM DRUM LEVEL LOW
ALP-1.15-47	CHANNEL D FIRE MAIN PRESSURE AVAILABLE
ALP-1.15-48	CHANNEL D TIME DELAY TRIP IN 30 SECONDS

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.15-49	CHANNEL D TIME DELAY TRIP
ALP-1.15-50	CHANNEL D REACTOR WATER LEVEL LOW
ALP-1.15-51	CHANNEL D TRIP
ALP-1.15-52	CHANNEL 4.1 OUTPUT TRIP
ALP-1.15-53	CHANNEL 4.2 OUTPUT TRIP
ALP-1.15-54	CHANNEL 4 VALVES OPEN
ALP-1.15-55	CHANNEL D STEAM DRUM LEVEL HIGH
ALP-1.15-56	CHANNEL D UPS ABNORMAL
ALP-1.15-58	CHANNEL D NOT AVAILABLE
ALP-1.15-59	CHANNEL 4 NOT AVAILABLE
ALP-1.15-63	CONTAINMENT EVACUATION
ALP-1.15-65	DISCHARGE PIPE TEMPERATURE HIGH
ALP-1.15-66	ISOLATION VALVE AIR PRESSURE LOW
ALP-1.15-67	RDS CABINET OPEN

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.15-73	CONTAINMENT ALARM OFF NCRMAL
ALP-1.15-74	FIRE PUMP OFF NORMAL
ALP-1.2-01	RPS CHANNEL TROUBLE
ALP-1.2-02	CHANNEL 1 SCRAM
ALP-1.2-03	CHANNEL 2 SCRAM
ALP-1.2-05	NEUTRON FLUX HI ROD BLOCK
ALP-1.2-06	DOWNSCALE INSTRUMENT TROUBLE ROD BLOCK
ALP-1.2-07	MANUAL SCRAM
ALP-1.2-08	SPARE
ALP-1.2-09	SHORT PERIOD SCRAM
ALP-1.2-11	SHUTDOWN MODE ONE ROD OFF 00
ALP-1.2-12	IN-CORE FLUX HIGH
ALP-1.2-15	STEAM DRUM HI WATER LEVEL
ALP-1.2-18	ROD POSITION MG SET OVERLOAD

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.2-20	REACTOR VERY HIGH PRESSURE
ALP-1.2-21	REACTOR HIGH PRESSURE
ALP-1.2-23	ACCUMULATOR LEAK
ALP-1.2-24	ROD DRIVE FILTER HI DIFF PRESSURE
ALP-1.2-26	LOW ACCUMULATOR PRESSURE BLOCK ROD WITHDRAWAL
ALP-1.2-27	LOW ACCUMULATOR PRESSURE
ALP-1.2-29	REACTOR PROTECTION MG SET 1 MOTOR OVERLOAD
ALP-1.2-30	LOSS OF POWER TO MG SET 1
ALP-1.2-32	REACTOR PROTECTION MG SET 2 MOTOR OVERLOAD
ALP-1.2-33	LOSS OF POWER TO MG SET 2
ALP-1.3-01	RECIRC PUMP 1 SEAL LEAKAGE PRESSURE HI-LO
ALP-1.3-02	RECIRC PUMP 2 SEAL LEAKAGE PRESSURE HI-LO
ALP-1.3-03	RECIRC PUMPS OVERLOAD
ALP-1.3-04	RECIRC PUMP MOTOR 1 BEARING HI TEMP

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.3-05	RECIRC PUMP MOTOR 2 BEARING HI TEMP
ALP-1.3-06	RECIRC PUMPS TRIP
ALP-1.3-07	RECIRC PUMP 1 SEAL LEAKAGE HI FLOW
ALP-1.3-08	RECIRC PUMP 2 SEAL LEAKAGE HI FLOW
ALP-1.3-09	OFF-GAS FILTER HI DIFF PRESSURE
ALP-1.3-10	RECIRC PUMP 1 COOLING WATER LO FLOW
ALP-1.3-11	RECIRC PUMP 2 COOLING WATER LO FLOW
ALP-1.3-12	ENGINEERED SAFETY FEATURE BYPASS IND
ALP-1.3-13	RECIRC PUMP 1 LOWER BEARING LO OIL LEVEL
ALP-1.3-14	RECIRC PUMP 2 LOWER BEARING LO OIL LEVEL
ALP-1.3-15	SPARE
ALP-1.3-16	RECIRC PUMP 1 UPPER BEARING LO OIL LEVEL
ALP-1.3-17	RECIRC PUMP 2 UPPER BEARING LO OIL LEVEL
ALP-1.3-18	RECIRC PUMPS MOTOR WINDING HI TEMP

DEVICE LIST - PHASE II - REL 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.3-19	RECIRC PUMP 1 UPPER BEARING HI OIL LEVEL
ALP-1.3-20	RECIRC PUMP 2 UPPER BEARING HI OIL LEVEL
ALP-1.3-21	RECIRC PUMPS SEAL COOLING HI TEMP
ALP-1.3-22	RECIRC PUMP 1 VIBRATION
ALP-1.3-23	RECIRC PUMP 2 VIBRATION
ALP-1.3-24	REACTOR WATER HI COND
ALP-1.3-25	PROCESS LIQUID MONITORING HI RADIATION
ALP-1.3-26	SPARE
ALP-1.3-27	SPARE
ALP-1.3-28	AREA MONITORING HI RADIATION
ALP-1.3-29	AIR EJECTOR OFF-GAS HI RADIATION
ALP-1.3-30	OFF-GAS TIMER ON
ALP-1.3-31	ROD DRIVE COOLING HEADER HI TEMP
ALP-1.3-32	ROD DRIVE HI TEMP

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.3-33	EMERGENCY CONDENSER VENT HI RADIATION
ALP-1.3-34	HIGH- HIGH CONTAINMENT GAMMA RADIATION
ALP-1.3-35	HIGH CONTAINMENT GAMMA RADIATION
ALP-1.3-36	CONTAINMENT GAMMA MONITOR TROUBLE
ALP-1.3-37	HIGH-HIGH STACK GAS RADIATION
ALP-1.3-38	HIGH STACK GAS RADIATION
ALP-1.3-39	STACK GAS RADIATION MONITOR TROUBLE
ALP-1.3-40	ALTERNATE SHUTDOWN BLDG TROUBLE ALARM
ALP-1.3-41	CONTROL TRANSFERRED TO ALTERNATE SHUTDOWN BLDG
ALP-1.3-42	SPARE
ALP-1.4-01	HP HEATER HIGH LEVEL
ALP-1.4-02	IP HEATER HIGH LEVEL
ALP-1.4-03	LP HEATER HIGH LEVEL
ALP-1.4-04	HP HEATER LOW LEVEL

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.4-05	IP HEATER LOW LEVEL
ALP-1.4-06	LP HEATER LOW LEVEL
ALP-1.4-07	CONDENSER HOTWELL HIGH LEVEL
ALP-1.4-08	CONDENSER HOTWELL LOW LEVEL
ALP-1.4-09	CONTROL ROD DRIVE PUMPS LOW DISCH PRESS
ALP-1.4-10	REACTOR FEED PUMPS OVER- LOAD
ALP-1.4-11	REACTOR FEED PUMPS LOW SUCTION PRESS
ALP-1.4-12	CONTROL ROD DRIVE PUMPS LOW SUCTION PRESS
ALP-1.4-13	REACTOR FEED PUMPS TRIP
ALP-1.4-14	REACTOR FEED PUMPS WIND- INGS & BEARINGS HIGH TEMP
ALP-1.4-15	CONDENSATE PUMPS OVER- LOAD
ALP-1.4-16	CONTROL ROD DRIVE PUMP 1 OVERLOAD
ALP-1.4-17	CONTROL ROD DRIVE PUMP 2 OVERLOAD
ALP-1.4-18	CONDENSATE HIGH CONDUCTIVITY

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.4-19	MOISTURE SEPARATOR DRAIN HIGH-LOW LEVEL
ALP-1.4-20	CLEAN-UP DEMIN TROUBLE
ALP-1.4-21	CLEAN-UP DEMIN EFFLUENT HIGH CONDUCTIVITY
ALP-1.4-22	REACTOR SHUTDOWN PUMP 1 OVERLOAD
ALP-1.4-23	REACTOR SHUTDOWN PUMP 2 OVERLOAD
ALP-1.4-24	EMERGENCY CONDENSER LOW LEVEL
ALP-1.4-25	SHUTDOWN SYSTEM PRIMARY ISOLATION VALVES OPEN
ALP-1.4-26	SHUTDOWN SYSTEM DRAIN VALVES CLOSED
ALP-1.4-27	SHUTDOWN SYSTEM HIGH PRESSURE
ALP-1.4-28	SHUTDOWN SYSTEM SECONDARY ISOLATION VALVES OPEN
ALP-1.4-29	SHUTDOWN SYSTEM ISOLATION VALVES LEAKAGE
ALP-1.4-30	POISON SYSTEM CONTROL CIRCUIT A FAILURE
ALP-1.4-31	POISON SYSTEM CONTROL CIRCUIT B FAILURE
ALP-1.4-32	POISON TANK LOW TEMP

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.4-33	POISON AIR SUPPLY LOW PRESSURE
ALP-1.4-35	POISON TANK LOW TEMP
ALP-1.4-36	REACTOR BUILDING VACUUM
ALP-1.4-37	REACTOR BUILDING VENT- ILATION SYSTEM TROUBLE
ALP-1.4-38	COND DEMIN EQUIP ROOM SHOP VENT UNITS TROUBLE
ALP-1.4-39	RADWASTE TROUBLE
ALP-1.4-40	PLANT EXHAUST FANS TROUBLE
ALP-1.4-41	CONDENSER CIRC WATER PUMPS OVERLOAD
ALP-1.4-42	CONDENSER CIRC WATER PUMPS TRIP
ALP-1.4-43	CONDENSER CIRC WATER PUMPS SEAL WATERLOW FLOW
ALP-1.4-44	REACTOR COOLING WATER TANK LOW LEVEL
ALP-1.4-45	REACTOR COOLING WATER PUMPS LOW DISCH PRESS
ALP-1.4-46	CORE SPRAY PUMPS LOW DISCH PRESS
ALP-1.4-47	SERVICE WATER PUMPS LOW DISCH PRESS

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.4-48	SERVICE WATER PUMPS OVERLOAD
ALP-1.4-49	WELL WATER STORAGE TANK HIGH-LOW LEVEL
ALP-1.4-50	DOMESTIC WATER PUMP SUCTION LOW PRESS
ALP-1.4-51	CONDENSATE STORAGE TANK HIGH-LOW LEVEL
ALP-1.4-52	CONDENSATE DEMIN TROUBLE
ALP-1.4-53	DEMIN WATER STORAGE TANK HIGH-LOW LEVEL
ALP-1.4-54	PIPE TUNNEL STEAM LEAK
ALP-1.4-55	MAKEUP DEMIN TROUBLE
ALP-1.4-56	INTAKE STRUCTURE BAYS LOW LEVEL
ALP-1.4-57	HEATING BOILER TROUBLE
ALP-1.4-58	AIR COMPRESSORS DISCH HIGH TEMPERATURE
ALP-1.4-59	SERVICE AIR LOW PRESSURE
ALP-1.4-60	CORE SPRAY VALVE OPEN
ALP-1.4-61	INSTRUMENT AIR LO PRESS

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.4-62	AIR COMPRESSOR OVERLOAD
ALP-1.4-63	PRIMARY ENCLOSURE SPRAY ACTUATION
ALP-1.4-A1	REACTOR CONTAINMENT SPRAY SYSTEM FLOW NORMAL
ALP-1.4-A2	REACTOR CONTAINMENT BACKUP SPRAY SYSTEM FLOW NORMAL
ALP-1.4-A3	REACTOR CORE SPRAY SYSTEM FLOW HIGH
ALP-1.4-A4	REACTOR CORE BACKUP SPRAY SYSTEM FLOW HIGH
ALP-1.4-A5	CORE SPRAY HEAT EXCH STRAINER NO 5760 HIGH DP
ALP-1.4-A6	CORE SPRAY HEAT EXCH PLUGGED NO FLOW HIGH DP
ALP-1.4-A7	FIRE SYSTEM STRAINER NO 5761 HIGH DP
ALP-1.4-A8	FIRE SYSTEM STRAINER NO 5761 PLUGGED NO FLOW HIGH DP
ALP-1.4-A9	CONTAINMENT BUILDING HIGH TEMPERATURE
ALP-1.5-01	TURBINE EXCESS VIBRATION
ALP-1.5-02	TURBINE THRUST BEARING EXCESS WEAR
ALP-1.5-03	TURBINE HI ECCENTRICITY

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.5-04	TURBINE STEAM SEAL MANIFOLD TROUBLE
ALP-1.5-05	GLAND SEAL CONDENSER LO VACUUM
ALP-1.5-06	SPARE
ALP-1.5-07	TURBINE MINIMUM STEAM FLOW
ALP-1.5-09	GLAND SEAL CONDENSER TUBE LEAK
ALP-1.5-10	TURBINE LUBE OIL RESERVOIR HI-LOW LEVEL
ALP-1.5-11	STATION POWER TRANS- FORMER 11 & 22 OVER- CURRENT
ALP-1.5-12	TURBINE GENERATOR BEAR- ING OIL HI TEMP
ALP-1.5-13	AUXILIARY OIL PUMP RUNNING
ALP-1.5-14	AC EMERG BRG & SEAL OIL PUMP RUNNING
ALP-1.5-15	DC EMERG BRG & SEAL OIL PUMP RUNNING
ALP-1.5-16	AUXILIARY OIL PUMP OVERLOAD
ALP-1.5-17	AC EMERG BRG & SEAL OIL PUMP OVERLOAD
ALP-1.5-18	DC EMERG BRG & SEAL OIL PUMP OVERLOAD

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.5-19	TURBINE BEARING OIL LO PRESSURE
ALP-1.5-20	TURBINE OVERLOAD
ALP-1.5-21	TURBINE EXCESS EXPANSION
ALP-1.5-22	GENERATOR STATOR WINDING GAS & EXCITER AIR HIGH TEMPERATURE
ALP-1.5-23	GENERATOR ROTOR HIGH TEMPERATURE
ALP-1.5-24	GENERATOR FIELD GROUND
ALP-1.5-25	GENERATOR NEGATIVE SEQUENCE
ALP-1.5-26	CHARLEVOIX 46-KV LINE LOSS OF POTENTIAL
ALP-1.5-27	HYDROGEN SYSTEM TROUBLE
ALP-1.5-28	AMPLIDYNE OVERLOAD
ALP-1.5-29	VOLTAGE REGULATOR PT CIRCUIT BREAKER TRIP
ALP-1.5-30	1126 OCB & 7726 OCB CLOSED
ALP-1.5-31	125 VOLT DC SYSTEM TROUBLE
ALP-1.5-32	480 SYSTEM GROUND

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.5-33	2400 VOLT SYSTEM GROUND
ALP-1.5-34	EMERG GENERATOR ENGINE TROUBLE
ALP-1.5-35	EMERGENCY GENERATOR START/CONTROL FAILURE
ALP-1.5-36	EMERGENCY GENERATOR OVERLOAD
ALP-1.5-37	MAIN TRANSFORMER 1 HI TEMPERATURE
ALP-1.5-38	MAIN TRANSFORMER 1 MISC ALARMS
ALP-1.5-39	GUARD FREQUENCY LOSS
ALP-1.5-40	MAIN TRANS 1 & STATION POWER TRANS 1 SUDDEN PRESS
ALP-1.5-41	STATION POWER TRANS 1 AND NO 7 MISC ALARMS
ALP-1.5-42	SPARE
ALP-1.5-43	116 OCB TRIP
ALP-1.5-44	116 OCB UV & LO AIR MISC
ALP-1.5-45	SPARE
ALP-1.5-46	199 OCB TRIP

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
ALP-1.5-47	199 OCB LV & LO AIR MISC
ALP-1.5-48	EMMET 138-KV OCB OPEN
ALP-1.5-49	2400-VOLT BUS INCOMING BREAKER TRIP
ALP-1.5-50	BYPASS VALVE CONTROL ABNORMAL
ALP-1.5-51	TURBINE BYPASS VALVE OPEN
ALP-1.5-52	TURBINE BYPASS HYDRAULIC SYSTEM LO PRESS
ALP-1.5-53	BYPASS VALVE ACCUM LOW NITROGEN
ALP-1.5-54	TURBINE BYPASS VALVE OIL FILTER HI DIFF PRESS
ALP-1.6-07	DIESEL FIRE PUMP RUN
ALP-1.6-08	ELECTRIC FIRE PUMP RUN
AM-104	138KV LINE (X) AMMETER
AM-105	138KV LINE (Y) AMMETER
AM-106	138KV LINE (Z) AMMETER
AM-107	STATION PWR (X) AMMETER

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
AM-108	STATION PWR (Y) AMMETER
AM-109	STATION PWR (Z) AMMETER
AM-110	EMERGENCY GENERATOR AMMETER
AM-111	STATION PWR TRANSFORMER NO 11 AMMETER
AM-112	STATION PWR TRANSFORMER NO 22 AMMETER
AM-113	REACTOR FEED PUMP 1 AMMETER
AM-114	REACTOR FEED PUMP 2 AMMETER
AM-115	CONDENSATE PUMP 1 AMMETER
AM-116	CONDENSATE PUMP 2 AMMETER
AM-117	CONDENSER CIRC WATER PUMP 1 AMMETER
AM-118	CONDENSER CIRC WATER PUMP 2 AMMETER
B-47	EMERGENCY GENERATOR TRIP/CLOSE INDICATION
B-51	TURBINE INITIAL PRESS GOVERNOR TRIP
B-70	BUS TIE 2A-2B 480V POSITION

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
B-74	CONTROL CENTER 1A 480V BREAKER POSITION
B-79	CONTROL CENTER 2A 480V BREAKER POSITION
B-90	STATION POWER OCB7726 TRIP/CLOSE INDICATION
B-95	STATION POWER OCB1126 TRIP/CLOSE INDICATION
C-28E	SCRAM DUMP TANK RELIEF VALVE NC-15
C-28F	SCRAM DUMP TANK RELIEF VALVE NC-14
CB-RE04A	POWER SWITCH CHAN 1
CB-RE04B	POWER SWITCH CHAN 2
CB-RE11A	SCRAM CHAN 1 (UV)
CB-RE11B	SCRAM CHAN 2 (UV)
CB-RE17A	POWER SWITCH (AUX) CHAN 1
CB-RE17B	POWER SWITCH (AUX) CHAN 2
CS OCB116	CCS 116 TRIP INDICATION
CS-20BP	TURBINE BYPASS VALVE CONTROL SELECTOR

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
CS-243	AMPLIDYNE MOTOR CONTROL
CS-270	GENERATOR FIELD RHEOSTAT
CS-42/1A23	FUEL PIT PUMP 1
CS-42/1A31	SHUTDOWN COOLING PUMP 1
CS-42/1A41	REACTOR COOLING WATER PUMP 1
CS-42/1A62	CONDENSER CIRC WATER VACUUM PUMP NO 1
CS-42/1E27	CONTROL ROD DRIVE BOOSTER PUMP
CS-42/2A13	AC GLAND SEAL COND EXHAUSTER NO 1
CS-42/2A22	TURBINE-GEN AC EMERGENCY BEARING AND SEAL OIL
CS-42/2A23	FUEL PIT PUMP 2
CS-42/2A25	TURBINE AUXILARY OIL PUMP
CS-42/2A31	SHUTDOWN COOLING PUMP 2
CS-42/2A41	REACTOR COOLING WATER PUMP 2
CS-42/2A62	CONDENSER CIRC WATER VACUUM PUMP NO 2

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
CS-42/2B21	AC GLAND SEAL COND EXHAUSTER NO 2
CS-52/11	CONDENSER CIRC WATER PUMP 1
CS-52/21	CONDENSER CIRC WATER PUMP 2
CS-72/22	TURBINE-GEN DC EMERGENCY BEARING AND SEAL OIL
CS-B19	GENERATOR VOLT METER PHASE SELECTOR
CS-B22B	SYNC SCOPE OCB116 CONTROL SWITCH
CS-B53	STATION PWR TRANSFORMER NO 11 (X,Y,Z) AMMETER SELECTOR
CS-B54	STATION PWR TRANSFORMER NO 22 (X,Y,Z) AMMETER SELECTOR
CS-GSM	TURBINE SYNC GOVERNOR
CS-LLM	TURBINE GOVERNER LOAD LIMIT
CS-OCB116	OCB 116 CONTROL SWITCH
CS-OCB199	OCB199 CONTROL
CV 4012	REACTOR FEEDWATER REG BYPASS VALVE CV-4012 POSITION
CV 4014	TURBINE STEAM BYPASS VALVE

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION -- ACTUAL
 DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>	
CV 4016	CRD PUMPS SUCTION COND PUMP DISCH	
CV 4090	CONDENSATE STORAGE SUPPLY TO CRD PUMP	
CV 4104	STEAM TO STM SEAL REG & AIR EJECTOR	
CV 4105	DEMINERALIZED WATER	
CV 4106	TURBINE BYPASS WARMUP VALVE	/
CV 4107	MAIN STEAM DRAIN ISOLATION VALVE	/
CV 4200	TURBINE STOP VALVE POSITION INDICATION	
DPI-IA41	REACTOR CORE DIFF PRESS	
DPI-IA46A	REACTOR RECIRC PUMP 1	
DPI-IA46B	REACTOR RECIRC PUMP 2	
DPI-RD01A	CRD COOLING HEADER DP	
DPI-RD01B	CRD HEADER DP	
FI-2330	FEEDWATER TO STEAM DRUM LOW FLOW	
FI-RD36A	CRD COOLING FLOW	

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
FI-RD36B	CRD HEADER FLOW
FQM-100	GENERATOR FREQUENCY
HS-4S1	CONTROL ROD LETTER SELECT
HS-4S2	CONTROL ROD NUMBER SELECT
HS-4S5	CONTROL ROD JOG OVERRIDE
HS-4S6	SCRAM DUMP TANK VENT AND DRAIN VALVE POSITION CV-NC11, 11A, 12, 12A
HS-7000	REACTOR FEED PUMP 1 MINIMUM FLOW VALVE CV-4001
HS-7001	REACTOR FEED PUMP 2 MINIMUM FLOW VALVE CV-4002
HS-7003	REACTOR ENCLOSURE CLEAN SUMP DISCH CV-4031/4102
HS-7006	CLEAN-UP DEMIN & FUEL PIT DRAINS CV-4027 & CV-4117
HS-7011	TREATED WASTE TO FUEL PIT CV-4049
HS-7019	REACTOR ENCLOSURE SUMP PUMP DIRTY DISCH CV-4103/4025
HS-7022	DEMIN WATER TO CONTROL ROD DRIVE
HS-7025	RESIN SLUICE & DEMIN WATER ISOLATION VALVES CV-4091/4105

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
 DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
LS-7036	AUXILARY SWITCH FOR STEAM ISOLATION VALVE CV-4106, 410 & 4107
HS-7048	4K30A BYPASS - ALL RODS IN INTERLOCK BYPASS
HS-7049	XFMR DELUGE ISOL CV-4101
HS-7084-1	CONTAINMENT EVACUATION ALARM
HS-7084-2	CONTAINMENT EVACUATION RESET
HS-7085	ELECTRIC FIRE PUMP OFF-NORMAL
HS-7086	DIESEL FIRE PUMP OFF-NORMAL
HS-7087	BYPASS ISOLATION VALVE CV-4184
HS-A66	CONDENSATE PUMP AUTO START SELECTOR
HS-S5	PENETRATION CLOSURE SWITCH
HS-S6	RPS ALTERNATE POWER SOURCE SELECT
ICD-RF01A	CHAMBER POSITION CONTROL CHANNEL 7
ICD-RF01B	CHAMBER POSITION CONTROL CHANNEL 7
LITE CHAN A	CHANNEL A1.1 IN TEST INDICATION (TYPICAL 4 CHANNELS)

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
LITE-BPCH A	RDS CHANNEL A IN BYPASS (TYP 4 CHANNELS)
MO-7051	REACTOR EMERGENCY CORE SPRAY PRIMARY ISOLATION VALVE POSITION
MO-7052	EMERGENCY CONDENSER INLET VALVE LOOP 2 POSITION
MO-7053	EMERGENCY CONDENSER INLET VALVE LOOP 2
MO-7061	REACTOR EMERGENCY CORE SPRAY SEC ISOLATION VALVE
MO-7062	EMERGENCY CONDENSER INLET VALVE LOOP 1
MO-7063	EMERGENCY CONDENSER OUTLET VALVE LOOP 1
MO-7064	REACTOR BUILDING SPRAY VALVE
MO-7067	TURBINE BYPASS ISOLATION VALVE
MO-7070	BACKUP EMERGENCY CORE SEC ISOLATION VALVE POSITION
MO-7071	BACKUP EMERGENCY CORE PRIM ISOLATION VALVE POSITION
OR-RE01A	CHANNEL 1 OPERATION EVENTS RECORDER
OR-RE01B	CHANNEL 2 OPERATION EVENTS RECORDER
PB-1S1	REACTOR PROTECTION SYS RESET CHAN 1

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
PB-1S2	REACTOR PROTECTION SYS RESET CHAN 1
PB-2S1	REACTOR PROTECTION SYS RESET CHAN 2
PB-2S2	REACTOR PROTECTION SYS RESET CHAN 2
PB-A67	REACTOR RECIRC PUMP 1 VIBRATION ALARM RESET
PB-A68	REACTOR RECIRC PUMP 2 VIBRATION ALARM RESET
PI-302	STEAM FROM TURBINE STEAM SEAL REGULATOR
PI-309	STEAM TO AIR EJECTORS
PI-310	CONDENSATE PUMP DISCH HEADER
PI-322	REACTOR FEED PUMPS SUCTION PRESSURE
PI-327	TURBINE AUXILIARY OIL PUMP
PI-353	SHUTDOWN PUMP 1 SUCTION
PI-354	SHUTDOWN PUMP 1 DISCH
PI-355	SHUTDOWN PUMP 2 SUCTION
PI-356	SHUTDOWN PUMP 2 DISCH

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
PI-364	INSTRUMENT AIR PRESSURE
PI-376	POISON TANK PRESSURE LOW RANGE
PI-377	POISON TANK PRESSURE HIGH RANGE
PI-IA70A	RECIRC PUMP 1 SEAL INNER PRESSURE
PI-IA70B	RECIRC PUMP 2 SEAL INNER PRESSURE
PI-IA72A	RECIRC PUMP 1 SEAL OUTER PRESSURE
PI-RD19	ACCUMULATOR CHARGING HEADER
POI-RC01-A2	CRD POSITION (TYPICAL FOR 32 RODS)
POI-RD31	ROD BOTTOM AND OUTLET SCRAM VALVE OPEN INDICATION
POI-RD32	ROD BOTTOM AND INLET SCFAM VALVE OPEN INDICATION
POI-SDRS	GENERATOR SYNCHRONIZING DEVICE
POS 6680	CHANNEL A CV-4180 POSI- TION INDICATION (TYP 4 CHANNELS)
POS 6684	RDS RELIEF VALVE SV-4984 (TYP SV-4985,6 & 7)
RI-8306	NEW FUEL STORAGE

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
RI-8307	SPENT FUEL STORAGE
RI-8324	CONTAINMENT GAMMA MONITORING- LEFT CHANN
RI-8325	CONTAINMENT GAMMA MONITORING- RIGHT CHANN
RI-8326	NORMAL RANGE IODINE
RI-8327	NORMAL RANGE NOBLE GAS
RI-8328	HIGH RANGE NOBLE GAS
RI-RJ03A-H	INCORE FLUX CHANNELS 11 THROUGH 18
RI-RL17	OFF GAS MONITOR CHAN 1
RI-RN03	OFF GAS MONITOR CHAN 2
RMC-5502	REACTOR FEEDWATER REG BYPASS VALVE CV-4012
RMC-5503	STEAM TO EMERGENCY CONDENSER MO-7062
RMC-5505	CONDENSATE REJECT VALVE CV-4010
RMC-5506	TURBINE BYPASS VALVE MAN/BAL/AUTO STATION
RMC-5507	STEAM TO EMERGENCY CONDENSER MO-7052

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
RMC-5515	REACTOR COOLING WATER FROM SHUTDOWN HT EXCH CV-4029
RMC-5521	FIRE WATER TO CORE SPRAY HEAT EXCH VLV MO-7066
RMC-5524	TURBINE BYPASS ISOLATION VALVE
RMC-5529	CORE SPRAY BACKUP MO-7072
RMC-5530	FIRE MAIN TO CONDENSER PRIMARY MO-7073
RMC-5531	FIRE MAIN TO CONDENSER SECONDARY MO-7074
RMC-5591	FIRE WATER TO CORE SPRAY HEAT EXCH BYPASS VALVE MO-7080
RMC-IA50F	REACTIR VENT TO STEAM DRUM
RMC-RD21	CONTROL ROD BYPASS CONTROL VALVE NC-33 AT APPROX 50%
RR-8053	AREA RADIATION MONITOR
RR-8054	LIQUID PROCESS RADIATION MONITOR
RR-8057	NORMAL RANGE STACK GAS
RR-8058	HIGH RANGE NOBLE GAS
RR-RJ13	INCORE RECORDER

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
RT-8109	CONTAINMENT SERVICE WATER ACTIVITY
RT-8110	CIRC WATER DISCH ACTIVITY
RT-8111	LIQUID RADWASTE EFFLUENT ACTIVITY
SI-2	TURBINE SPEED
TR-1051	TURBINE GENERATOR LUBE OIL TEMPS
TR-1054	FEEDWATER PUMPS BEARINGS AND WINDINGS
TR-IA16	REACTOR STEAM DRUM AND VESSEL TEMPERATURES
TR-IA66	RECIRC. PUMPS TEMPS.
TSR-7300	TURBINE SPEED AND VALVE POSITION
VM-102	GENERATOR VOLT METER
VM-103	13.8KV BUS VOLT METER
VM-104	STATION POWER TRANSFMR NO 1 VOLTS
VOT-RC-02	CRD POSITION PWR SUPPLY BREAKER
WM-100	GENERATOR WATTS

DEVICE LIST - PHASE II - RES 3: DYNAMIC SIMULATION - ACTUAL
DEVICE WITH FEEDBACK

<u>DEVICE NO</u>	<u>SERVICE DESCRIPTION</u>
WM-101	138KV LINE WATTMETER
WM-102	STATION PWR TRANSFORMER NO 1 WATT METER
WM-105	STATION PWR TRANSFORMER NO 22 WATT METER

SECTION 7

Dresden Simulator Evaluation

Section 7

Dresden Simulator Evaluation

The purpose of this section is to identify BRPs use of the Dresden Non Plant Reference Simulator (NPRS) if it is determined to be necessary following our final evaluation of the BRP-LSS capabilities during May, 1991. /

The NPRS provides full scope dynamics that can be utilized to demonstrate full crew interaction under maximum stress conditions. Although the plant parameters do not approximate the BRP expected transient response in magnitude they do follow the expected direction of transient response. This does afford the BRP operators the opportunity to demonstrate their ability to control the major plant parameters and bring the reactor plant to a safe condition while utilizing BRP procedures. /

BRP operators can be evaluated for three of the eight competencies of ES-301 Attachment 11. They include:

- Competency 2
Diagnosis of Events/Conditions Based on Signals/Readings
- Competency 6
Communications Crew Interactions
- Competency 7
Direct Shift Operations

The NPRS could be utilized to augment evaluation of these three competencies if the BRP-LSS were to remain in an interim period following completion of Phase I. A sufficient number of Phase II devices, however, are currently scheduled for tie-in to the RETACT Workstation in order to permit demonstration of operator performance without the need for the the Dresden facility. /

During Phase II, BRP will re-evaluate the need for the use of Dresden.

The BRP approach requires the impact of negative training on the NPRS to be evaluated and reduced to a minimum. This has been accomplished through the evaluation of our training program. Big Rock Point began using the Dresden simulator for operator training in 1973. During the 17 years of use, the simulator has proven to be an excellent tool for certification exams for new licenses as well as requalification training for licensed operators. While the use of the simulator in the early years concentrated on performing reactor startups and use of the equipment on the reactor control or "05" panel, the simulator training has evolved into using the majority of the simulator panels to run full Big Rock specific EOP scenarios.

Over this time period, our experience has been that if we concentrate the training on those simulator systems that functioned in a similar manner to those at BRP, it only took about one simulator shift (6 hours) for the operator to orient himself to the simulator control room. Following the orientation period, the system responses gave the operator the cues he needed to diagnose the event and it becomes a matter of locating the instruments and controls and taking action as prescribed by the BRP operating procedures.

The BRP simulator instructors have helped the operator by minimizing the simulator fidelity issue with a number of panel enhancements such as:

- * adding BRP specific scales to instrumentation
- * blanking out unnecessary instrumentation
- * covering up unnecessary controls
- * installing BRP specific annunciator tiles on the panels
- * emphasizing those instruments and controls that should be used during exercises

- * providing setpoint comparison charts for major parameters
- * using floorwalkers to assist the operator with operations that differ greatly from BRP

Along with the panel enhancements, the negative training aspect is minimized by placing the training emphasis on diagnosis and recognition of the proper operator response instead of completion of the operator response. By shifting this emphasis, the operator anxiety level is greatly reduced as the operator feels he is now being evaluated on his own plant by his own rules instead of Dresden's. It is our belief that this simulator experience gives confidence to each of the operators in their ability to recognize abnormal conditions and take proper corrective action.

Going beyond the training that the individual receives, the simulator has shown to be most valuable in the area of team training. The simulator allows us to train and evaluate our operating crews in the areas of crew interaction, communication skills, diagnosis of events, procedure execution and supervisory skills all under the stressful conditions generated by a real time scenario. The scenarios and the classroom training for each simulator session are designed to enhance each crew dimension and provide an opportunity to evaluate the crew performance. These crew performance skills transfer directly to their performance in the stress situations that they may encounter while on duty at Big Rock Point but are not given any other opportunity to experience. In addition, Operations Management uses the results of the team evaluations to make adjustments in the overall department shift alignment which results in increased performance from all shifts.

If deemed necessary in the May, 1991 revision to this Application, the continued /
use of the Dresden Simulator may be specified to practice the individual and /
team skills discussed above, during Phase I, and until such time as additional
dynamic instrument and controls are installed in the BRP LSS to accommodate
testing and evaluation of the operators to 10CFR55.45(a) and the ES-301
competencies. It is our intent, at that time, to eliminate further use of the /
Dresden Simulator when the Phase II level of dynamics is sufficient to
accommodate this program change. The need to train and evaluate under the
realistic conditions that a simulator provides has proven to be invaluable.

SECTION 8

Conduct of the Operating Test

SECTION 8

Conduct of the Operating Test

8.1 The purpose of this section of the application is to identify how BRP intends to conduct the operating test.

8.1.1 BRP will conduct the operating test in accordance with NUREG 1021, Licensing Examination Standards ES-301. BRP will demonstrate the competencies identified in Attachment 11 of ES-301 by:

1. Understanding/Interpretation of Annunciators/Alarms Signals.

BRP will use the LSS during performance of those procedures identified in Attachment 3-B Section 3 (Annunciators and Conditions) and the associated annunciator procedures as identified in the Procedure Performance Review sheets for each of those procedures identified for Phase I and Phase II. See Attachment 4-H, Procedure Performance Review sheets for annunciator lists. For those annunciators or alarms that are not incorporated in the LSS, JPM may be conducted during the plant walkthrough.

2. Diagnosis of Events/Conditions Based on Signals/Reading

BRP will use the LSS during performance of those procedures identified in Attachment 3-B during Phase I and Phase II. BRP may also utilize the non Plant Reference Simulator at Dresden as required during Phase I to broaden the scope of procedures that may be required. The plant may also be utilized through JPMs during the walkthrough portion of the exam.

3. Understanding of Plant/Systems Response

This competency can be evaluated through use of JPMs either in the LSS or the Plant. BRP will have increased number of JPMs available for evaluation. See Section 8.2 of this section for the number of JPMs.

4. Compliance/Use of Procedures and Technical Specifications

BRP will utilize the LSS during performance of those procedures identified in Attachment 3-B for Phase I or Phase II.

5. Control Board Operations

BRP will utilize the Limited Scope Simulator during performance of those procedures identified in Attachment 3-B, Section 6.3. For those controls and indicators that are not dynamically simulated, the expected student response to manipulation will be identified by the exam scenario exercise guide or the appropriate JPM. This competency may be also demonstrated through use of JPMs during plant walkthrough portions of the Operating Test either in the Plant or the Limited Scope Simulator.

6. Communication/Crew Interactions

BRP will utilize the LSS during performance of those procedures identified in Attachment 3-B. BRP may also utilize the NPRS at Dresden as required to demonstrate this competency or use of the BRP plant as requested during normal plant conditions, ie; plant startups or shutdown during Phase I. It is anticipated that the plant or the NPRS will not be required following Phase II to demonstrate this competency. The LSS will be utilized to demonstrate this competency after Phase II completion for performance of those procedures identified in Attachment 3-A.

7. Direct Shift Operations

Same comment as 6 (Communication/Crew Interaction) above.

8. Compliance/Use of Technical Specifications

Same comment as 4 above and/or of JPMs during plant walkthrough portion of operating test.

8.2 The Plant Walkthrough Testing at BRP will be in accordance with ES-301.

8.2.1 The total number of JPMs available to perform the walkthrough portion of the operating test will be ≥ 300 as of May 26, 1991. The total number of JPMs to be written is determined by the Control Manipulation Analysis and whether each control/instrument utilization can be demonstrated in the BRP Limited Scope Simulator. Earlier philosophy with a less dynamic simulator required an extensive JPM effort. Our original application committed >700 JPMs at the time of the projected first BRP exam date of April, 1992.

8.2.2 The number of JPMs now required to be developed by the NRCs guidance is 90 JPMs in 1990 and 105 JPMs in 1991 and shall increase by 15 JPMs each succeeding year. The number of JPMs to be evaluated during the walkthrough portion of the operating test is ten (10). BRP will have the capability to evaluate an expanded number of JPMs during the walkthrough portion of the test at the request of the examiners if it is felt that the required competencies cannot be evaluated during the simulator portion of the operating test on the BRP Limited Scope Simulator.

- 8.2.3 BRP will also have the ability to use the RETACT workstation in conjunction with the Limited Scope Simulator to perform JPMs. The workstation may be used to indicate response to stated student actions on non-dynamic instruments and/or controls on the LSS. The method of JPM used will be indicated on the JPM cover sheet. (See Attachment 8-A JPM Coversheet.)
- 8.3 The Scope of the use of the Limited Scope Simulator will be determined by the dynamic instrument and control availability following the May 26, 1991 date and by the Procedure Cross Reference (Attachment 3-B) in Phase II.
- 8.3.1 Selection of the Limited Scope Simulator Scenarios will be in accordance with ES-301. The specific procedures available for scenario development in each Phase are identified in Attachment 3-B.
1. The Procedure Performance Reviews forms (Attachment 4-H) shall be used to develop the Simulator Exercise Guide to ensure that all instrument and controls are addressed. The Procedure Performance Review Scenario Stipulation sheet shall be used to ensure that all non-dynamic instruments and controls are addressed for controller and student actions.
 2. The Phase I and Phase II scenarios will be the same for all expected procedure performance. The Exercise Guide will vary in controller interaction and expected stated student response to control manipulation or indicator response as the number of non-dynamic devices decreases. All simulator scenarios will be initially developed assuming 100% dynamics on the simulator. At the time of selection for use in the operating test the Exercise Guide will be developed in accordance with the Procedure Performance Review sheets and tested for accuracy on the simulator prior to use.
- 8.3.2 The instructor workstation operation will be addressed by the Simulator Exercise Guide and will be developed for each operating test at the time of examination development. Those simulator responses that require initiation by the workstation operator shall be controlled by the Exercise Guide as to timing and shall follow as closely as possible the expected transient response time.
- 8.3.3 All plant responses required by the scenario that are either dynamic, but not controlled by software, or non-dynamic and require controller action will follow the timing as closely as possible to the expected plant response to the evolution or transient.
- 8.3.4 All controllers shall hold or have held a BRP SRO Certification or license. The controllers shall participate in the verification of the Exercise Guide prior to performance.

8.4

Use of Dresden Simulator will be required when it is determined by the examination development team that the use of the BRP Limited Scope Simulator and use of BRP Plant is not sufficient to meet the 13 criteria of 10CFR55.45(a) and ES-301 8 competencies. The Dresden Simulator may be used to evaluate teamwork, supervisory ability and use of BRP procedures to control major parameters and bring the plant to a safe condition. Task specific evaluation will not be performed on the Dresden Simulator.

SECTION 9

Performance Tests

9.1 Description of Steady State Operability Tests

The BRP will be tested for steady state performance at 25%, 75%, and 100% rated thermal power. Simulator stability will be verified at 100% rated thermal power for 60 minutes. Simulator output will be compared to available primary and secondary data. The pertinent applicable parameters will be recorded with a resolution of TBD seconds.

9.2 Description of Transient Performance Tests

From the following list, selected transients, operating events, and preoperational testing will be evaluated by the BRP LSS:

- Recirculation Pump Seizure
- Inadvertent Closure of the Main Steam Isolation Valve
- Turbine Trip without Bypass
- Control Rod Misoperation - Control Rod Withdrawal
- Loss of Coolant Accident with Loss of Offsite Power
- Inadvertent Opening of a Safety Relief Valve
- Loss of Normal Feedwater
- Selected Plant Trips
- Selected and Pertinent Plant Startup Data

These analyzed FHSR transients were selected based on the listed transients in Appendix B of ANSI/ANS-3.5. The pertinent applicable parameters will be recorded with a resolution of TBD seconds.

9.3 Test Program during the next 4-year Interval

The steady state and transient scenarios will be reevaluated as a result of physical design modifications and procedural changes. The frequency of the reevaluation will be determined according to the criteria established by the LSS configuration control guidelines based on ANSI/ANS-3.5.

9.4 Performance Test Results

10CFR55.45(b)(4)(c) requires this application to include:

"a description of the performance tests as part of the application, and the results of such tests."

By letter dated April 4, 1990, Consumers Power Company submitted an Exemption Request to delay submitting this section of the application until May 26, 1991. NRC approved and issued the Exemption by letter dated September 10, 1990. An update to this Application will be provided following completion of the performance testing program that will reflect the state of the LSS facility on May 26, 1991. /

SECTION 12

Operator Requalification and Hot License Program Revisions

SECTION 12

Operator Requalification and Hot License Program Revisions

The purpose of this section of the application is to identify the changes to the Operator training programs that will be required upon initiation of the Operating Test requirements of 10CFR55.45 May 26, 1991.

BRPs operator training programs will be revised to incorporate:

- a. Changes to the operator OJT program to include a requirement to complete OJT on those procedures that require use of resolution 1 or 5 devices. These OJT requirements to be accomplished once during the period of the requal cycle (2 years).
- b. Plant walkthrough portion of the Operating Test will be strengthened by the addition of the requirement to have available JPMs for all tasks that lend themselves to be evaluated through the JPM process.
- c. Use of the RETACT Instructor Workstation with the Limited Scope Simulator for JPM performance.
- d. One or two part simulator portions of the Operating Test to incorporate the use of the BRP Limited Scope Simulator and if determined as necessary, the Dresden Simulator. /
/
/
- Simulator Exercise Guides to incorporate direction for use of Resolution 3, 4 and 6 devices identified by the Procedure Performance Review sheets.

The revisions to the Big Rock Point Operator training program shall be submitted at the time those revisions go into effect (May 26, 1991). These revisions will be submitted with the final sections of the application.