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Subject: **Response to Portion of NRC Request for Additional Information Letter No. 126 Related to ESBWR Design Certification Application, RAI Numbers 14.3-188, 14.3-207, and 14.3-304**

The purpose of this letter is to submit the GE Hitachi Nuclear Energy (GEH) response to the U.S. Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) sent by NRC letter dated December 20, 2007 (Reference 1). The GEH response to RAI Numbers 14.3-188, 14.3-207, and 14.3-304 is addressed in Enclosure 1.

Verified DCD changes associated with this RAI response are identified in the enclosed DCD markups by enclosing the text within a black box. The marked-up pages may contain unverified changes in addition to the verified changes resulting from this RAI response. Other changes shown in the markup(s) may not be fully developed and approved for inclusion in DCD Revision 5.

If you have any questions or require additional information regarding the information provided here, please contact me.

Sincerely,

James C. Kinsey

James C. Kinsey
Vice President, ESBWR Licensing

D068
NRO

Reference:

1. MFN 07-718, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 126 Related to ESBWR Design Certification Application,* December 20, 2007

Enclosure:

1. Response to Portion of NRC Request for Additional Information Letter No. 126 Related to ESBWR Design Certification Application, RAI Numbers 14.3-188, 14.3-207, and 14.3-304

cc:	AE Cubbage	USNRC (with enclosure)
	GB Stramback	GEH/San Jose (with enclosure)
	RE Brown	GEH/Wilmington (with enclosure)
	DH Hinds	GEH/Wilmington (with enclosure)
	eDRF	0000-0081-0586 – RAI 14.3-188
		0000-0080-4821 – RAI 14.3-207
		0000-0081-4166 – RAI 14.3-304

Enclosure 1

MFN 08-086, Supplement 15

***Response to Portion of NRC Request for**

Additional Information Letter No. 126

Related to ESBWR Design Certification Application

RAI Numbers 14.3-188, 14.3-207, and 14.3-304

*Verified DCD changes associated with this RAI response are identified in the enclosed DCD markups by enclosing the text within a black box. The marked-up pages may contain unverified changes in addition to the verified changes resulting from this RAI response. Other changes shown in the markup(s) may not be fully developed and approved for inclusion in DCD Revision 5.

NRC RAI 14.3-188

NRC Summary:

ADS Inhibit

NRC Full Text:

DCD Tier 1, Revision 3, Section 2.1.2 Nuclear Boiler System, Table 2.1.2-1 ITAAC 19, 20 and 21 for ADS auto-inhibit, manual inhibit and manual operation are deleted in DCD Revision 4. The list of DCD changes provided by GEH indicates that they are relocated to I&C ITAAC. Please provide specific reference.

GEH Response

ATWS/SLC ADS auto-inhibit from APRM ATWS permissive is defined in DCD Tier 1, Rev. 4, Table 2.2.14-2. The design commitment is addressed by ITAAC in DCD Tier 1, Rev. 4, Table 2.2.14-4, Item 2.

DPS ADS auto-inhibit from SRNM ATWS permissive will be added in the next revision to DCD Tier 1, Table 2.2.14-2. The design commitment is addressed by ITAAC in DCD Tier 1, Rev. 4, Table 2.2.14-4, Item 2.

Manual operation is defined in DCD Tier 1, Rev. 4, Table 2.2.14-3. The design commitment is addressed by ITAAC in DCD Tier 1, Rev. 4, Table 2.2.14-4, Item 3.

Manual inhibit will be added in the next revision to DCD Tier 1, Table 2.2.14-3. The design commitment is addressed by ITAAC in DCD Tier 1, Rev. 4, Table 2.2.14-4, Item 3.

The separate ADS inhibit functions of DPS and ATWS/SLC were not clearly defined in Rev. 4. The DPS diverse ADS function and the DPS inhibit of the diverse ADS function will be clarified in the next revision to DCD Tier 2, section 7.8.

DCD Impact

DCD Tier 1, Tables 2.2.14-2 and 2.2.14-3 will be revised as noted in the attached markup.

DCD Tier 2, Section 7.8 will be revised as noted in the attached markup.

NRC RAI 14.3-207

NRC Summary:

Section 2.15.1 and Table 2.15.1-1 not revised as committed in the response to RAI

NRC Full Text:

In response to RAI 15.4-14 (MFN 07-199 dated May 2, 2007), GEH stated that:

"DCD, Tier 1, Revision 3, Subsection 2.15.1 and Table 2.15.1-1 will be revised to include an ITAAC item for exposed cable mass as indicated on the attached markups," and that "DCD, Tier 1, Subsection 2.15.1 and Table 2.15.1-1, Revision 4 will include an ITAAC item for exposed cable mass as indicated on the attached markup."

Contrary to this response, the staff finds that GEH did not revise DCD Tier 1, Section 2.15.1 and Table 2.15.1-1 in DCD as stated in the RAI response. Please revise DCD Tier 1 accordingly.

GEH Response to RAI 14.3-207

DCD Tier 1 Subsection 2.15.1and Table 2.15.1-2 are revised to add an ITAAC Item 12 for exposed cable mass as indicated on the attached markups

DCD Impact

The following DCD Tier 1 Section and Table will be revised as noted in the attached markup:

Section 2.15-1 (12)
Table 2.15.1-2 (Item 12)

NRC RAI 14.3-304

In ITAAC Table 2.1.2-3, for clarity in ITAAC #9, the staff requests that the applicant specify which valves are repositionable. The referenced table (2.1.2-2) does not provide this information. The staff also suggests the following rewording for clarity: "...Repositionable valves ....have an active safety-related function to..." In addition, the staff suggests revising the ITA to include "...valves designated in Table 2.1.2-2 as repositionable" and AC to include "...each valve designated in Table 2.1.2-2 as repositionable..."

Also, the staff requests the applicant to resolve the apparent inconsistency between the DC and ITA, where the DC refers to "design differential pressure, fluid flow, and temperature conditions" but the ITA refers to testing "under system preoperational differential pressure, fluid flow, and temperature conditions." It is not clear to the staff that system preoperational conditions will sufficiently verify functions at design conditions.

GEH Response

GEH agrees with the NRC that the wording is inconsistent and changes are made as described below.

ITAAC Number 9 of Section 2.1.2, in Design Control Document (DCD) Tier 1 applies to control valves designated as having an active safety function. This information is also shown as Number 9, in Table 2.1.2-3. The ITAAC is reflective of the example for motor-operated valves located in NUREG-0800, Rev. 4, Section 14.3. Because the ESBWR does not employ safety-related, motor-operated valves but does include control valves that may have a safety function to reposition; GEH replaced, "motor operated valves" with, "repositionable valves" to adjust the language in the ESBWR design.

In DCD Revision 4, Tier 1 (submitted September 28, 2007), GEH elected to voluntarily follow, to the extent practical, the guidance in NUREG-0800 Rev. 4, Section 14.3. GEH used the NUREG ITAAC example to develop a set of standard GEH ITAACs. This ITAAC is one of the standard GEH ITAACs. The word "design" as used in "design differential pressure," was an unintended addition to the standard language in this ITAAC. Therefore, the word "design" will be removed from the Design Description and Design Commitment for ITAAC 9. The suggested changes to Table 2.1.2-3 cannot be incorporated because changes to ITA "...valves designated in Table 2.1.2-2 as repositionable" and AC "...each valve designated in Table 2.1.2-2 as repositionable..."do not fit the standard GEH ITAAC.

The word "Repositional" will be corrected to "Repositionable." A clarification has been added stating the ITAAC does not apply to safety/relief valves, even though the SRVs have an active safety function. Refer to RAI 14.3-181 (MFN 08-086 Supplement 18, dated March 17, 2008) for a description of how the SRVs function. The wording "...valves) with operators designated...."

Will be added to clarify that the design commitment refers to the electrical equipment in Table 2.1.2-2. Also the words (squib activated valves) will be removed.

The Safety Valves (SV) row will be deleted from Table 2.1.2-2 because the valves have no electrical equipment, and provide only mechanical relief.

Because ITAAC testing must be completed before operation of the nuclear power plant, normal system conditions may not be achievable for many, if not most, systems with safety-related functions subject to ITAAC. Accordingly, preoperational tests are conducted at preoperational conditions. This is reflected in the NRC example ITAAC (NUREG-0800, Section 14.3-60):

Design Description	**Inspections, Tests, Analyses**	**Acceptance Criteria**
Motor-operated valves (MOVs) designated in Section __ as having an active safety-related function open, close, or both open and also close under differential pressure, fluid flow, and temperature conditions.	Tests of installed valves will be performed for opening, closing, or both opening and also closing under system preoperational differential pressure, fluid flow, and temperature conditions.	Upon receipt of the actuating signal, each MOV opens, closes, or both opens and also closes, depending upon the valve's safety function.

The Initial Test Program (ITP) is described in Section 14.2 of DCD Tier 1 and discusses the preoperational test conditions for each system. NRC guidance regarding the ITP reflects the purpose of testing at preoperational conditions and explains the testing confirms, to the extent practicable, that the structures, systems, or components meet performance requirements and design criteria:

> "The ITP addresses the applicant's plan for preoperational and initial startup testing. The test program consists of preoperational and initial startup tests, as described in Regulatory Guide (RG) 1.68. Preoperational tests consist of those tests conducted following completion of construction and construction-related inspections and tests, but before fuel loading. *Such tests demonstrate, to the extent practicable, the capability of structures, systems, and components (SSCs) to meet performance requirements and design criteria.* Initial startup tests include those test activities scheduled to be performed during and following fuel activities. Testing activities include fuel loading, precritical tests, initial criticality, low-power tests, and power ascension tests that confirm the design bases and demonstrate, to the extent practicable, that the plant will operate in accordance with its design and is capable of responding as designed to anticipated transients and postulated accidents."

DCD Impact

DCD Tier 1, Section 2.1.2 as well as Table 2.1.2-2 and Table 2.1.2-3 will be updated as shown in the attached markup.

(7) Each mechanical train of safety-related NBS equipment located in the Reactor Building outside the drywell is physically separated from the other trains.

(8) Instrumentation and ControlIsolation Capability

a. The MSIVs close upon command

b. The FWIVs close upon command

a.c. NBS minimum inventory of alarms, displays, and status indications in the main control room are addressed in section 3.3Control Room alarms, displays, and/or controls provided for the NBS are defined in Table 2.1.2-2.

b.The MSIVs close upon any of the following conditions:

-Main Condenser Vacuum Low (Run mode)

-Turbine Area Ambient Temperature High

-MSL Tunnel Ambient Temperature High

-MSL Flow Rate High

-Turbine Inlet Pressure Low

-Reactor Water Level Low

(9) Repositional Repositionable valves (not including the DPVs (squib activiated valves) or safety/relief valves) with operators designated in Table 2.1.2-2 as having an active safety-related function open, close, or both open and also close under design differential pressure, fluid flow, and temperature conditions.

(10) The pneumatically operated valve(s) shown in Figure 2.1.2-2 closes (opens) if either electric power to the valve actuating solenoid is lost, or pneumatic pressure to the valve(s) is lost.Deleted

(11) Check valves designated in Table 2.1.2-1 as having an active safety-related function open, close, or both open and also close under design system pressure, fluid flow, and temperature conditions.

(12) The throat diameter of each MSL flow restrictor is sized for design choke flow requirements.

(13) Each MSL flow restrictor has taps for two instrument connections to be used for monitoring the flow through each its associated MSL.

(14) The combined steamline volume from the RPV to the main steam turbine stop valves and steam bypass valves is sufficient to meet the assumptions for AOOs and infrequent events.

(15) The MSIVs are capable of fast closing under design differential pressure, fluid flow and temperature conditions.

(16) When all four inboard or outboard MSIVs are stroked from a full-open to full-closed position by their actuatorsclosed by normal means, the combined leakage through the MSIVs for all four MSLs will be less than or equal to the design bases assumption value.

Table 2.1.2-2

Nuclear Boiler System Electrical Equipment

Equipment Name	Equipment ID on Figure 2.1.2-2	Control Q-DCIS/ DPS[1]	Safety-Related Electrical Equipment	Safety-Related Display	Active Safety Function	Seismic Category I	Remotely Operated	Containment Isolation Valve Actuator
Inboard Main steam isolation valves	V8 (Typ. of 4)	Yes	Yes	Yes	~~Yes~~Close	Yes	Yes	Yes
Outboard Main steam isolation valves	V9 (Typ. of 4)	Yes	Yes	Yes	~~Yes~~Close	Yes	Yes	Yes
Safety relief valves (SRV)	V6 (Typ. of 10)	Yes (ADS – See Section 2.2.16)	Yes	Yes	~~Yes~~Open	Yes	Yes	No
~~Safety valves (SV)~~	~~V7 (Typ. of 8)~~	~~No~~	~~Yes – Position Indicator Only~~	~~Yes~~	~~No~~	~~Yes~~	~~No~~	~~No~~
Depressurization valves	V5 (Typ. of 8 total)	Yes	Yes	Yes	~~Yes~~Open	Yes	Yes	No
Feedwater isolation valves	V14, V17	Yes	Yes	Yes	~~Yes~~Close	Yes	Yes	No
Feedwater outboard isolation check valves	V13, V16	Yes	Yes	Yes	~~Yes~~Close	Yes	Yes	Yes
Reactor Pressure Transmitters (1 each in 4 divisions)	-	Yes	Yes	Yes	Yes	Yes	-	-
Reactor water level transmitters (1 each in 4 divisions)	-	Yes	Yes	Yes	Yes	Yes	-	-

Table 2.1.2-3

ITAAC For The Nuclear Boiler System

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
~~b) The MSIVs close upon any of the following conditions:~~ ~~-Main Condenser Vacuum Low (Run mode)~~ ~~-Turbine Area Ambient Temperature High~~ ~~-MSL Tunnel Ambient Temperature High~~ ~~-MSL Flow Rate High~~ ~~-Turbine Inlet Pressure Low~~ ~~- Reactor Water Level Low~~	~~Valve closure tests will be performed on the as-built MSIVs using simulated signals.~~	~~Report(s) document that the MSIVs close upon generation of any of the following simulated signals:~~ ~~-Main Condenser Vacuum Low (Run mode)~~ ~~-Turbine Area Ambient Temperature High~~ ~~-MSL Tunnel Ambient Temperature High~~ ~~-MSL Flow Rate High~~ ~~-Turbine Inlet Pressure Low~~ ~~-Reactor Water Level Low~~
9. ~~Repositional~~ Repositionable valves (not including DPVs ~~(squib-activated valves)~~or safety/relief valves) with operators designated in Table 2.1.2-2 as having an active safety-related function to open, close, or both open and also close under ~~design~~ differential pressure, fluid flow, and temperature conditions.	Tests of installed valves will be performed for opening, closing, or both opening and also closing under system preoperational differential pressure, fluid flow, and temperature conditions.	Report(s) document that, upon receipt of the actuating signal, each valve opens, closes, or both opens and also closes, depending upon the valve's safety function.

Table 2.2.14-2

DICS Functions, Initiators, and Interfacing Systems

Function	Initiator	Interfacing System
SLC system initiation (ATWS/SLC)	RPV dome pressure high and Startup Range Neutron Monitor (SRNM) signal greater than ATWS setpoint (SRNM ATWS permissive) with time delay	NMS, NBS, SLC
	RPV water level low (Level 2) and SRNM ATWS permissive with time delay	NBS, NMS, SLC
	RPV water level low (Level 1)	NBS, SLC
FWRB (ATWS/SLC)	RPV dome pressure high and SRNM ATWS permissive	NBS, NMS, FWCS
ADS inhibit (ATWS/SLC)	RPV water level low (Level 2) and APRM ATWS permissive	NBS, NMS, SSLC/ESF
	RPV dome pressure high and APRM ATWS permissive with time delay	NBS, NMS, SSLC/ESF
ADS inhibit (DPS)	RPV water level low (Level 2) and SRNM ATWS permissive	NBS, NMS
	RPV dome pressure high and SRNM ATWS permissive with time delay	NBS, NMS
ATWS ARI and FMCRD motor run-in (DPS)	RPV dome pressure high	NBS, CRD, RC&IS
	RPV water level low (Level 2)	NBS, CRD, RC&IS
	Manual ATWS mitigation signal present	CRD, RC&IS
	~~RPS~~ DPS scram ~~signal~~ command	~~RPS~~CRD, RC&IS
	SCRRI/SRI signal and power levels remain elevated	~~RPS~~NMS, CRD, RC&IS
	~~Manual DPS scram signal~~	-

Table 2.2.14-3

DICS Controls, Interlocks and Bypasses

Control	Manual initiation of ADS- (DPS)[2]
	Manual initiation of ICS- (DPS)[2]
	Manual initiation of GDCS squib-initiated injection valves- (DPS)[2]
	Manual initiation of GDCS squib-initiated equalization valves (DPS)[2]
	Manual initiation of ATWS SLC- (ATWS/SLC)[2]
	Manual initiation of ATWS ARI (ATWS/SLC)[2]
	Manual initiation of ATWS FWRB- (ATWS/SLC)[2]
	Manual scram (DPS)[2]
	Manual MSIV isolation (DPS)[2]
	Manual inhibit of DPS ECCS functions under ATWS conditions[1] (DPS)[2]
	Manual inhibit of SSLC/ESF ECCS functions under ATWS conditions[1] (ATWS/SLC)[2]
	Manual SCRRI/SRI (DPS)[2]
Interlock	APRM ATWS Permissive (ATWS/SLC)[2]
	SRNM ATWS Permissive (DPS)[2]
	Reactor Mode (RPS, DPS)[2] ~~Switch position~~
	Time Delays
Bypass	Division of sensor bypass (ATWS/SLC)[2]
	Sensor channel bypass (DPS)[2]

[1]For applicable ATWS conditions, refer to Initiator column, Table 2.2.14-2, for the Functions "ADS inhibit (ATWS/SLC)" and "ADS inhibit (DPS)"

[2]Implementing system is shown in parentheses.

(9) The containment system provides the safety-related function of containment isolation for containment boundary integrity.

(10) Containment electrical penetration assemblies, whose maximum available fault current (including failure of upstream devices) is greater than the continuous rating of the penetration, are protected against currents that are greater than the continuous ratings.

(11) The minimum set of displays, alarms and controls, based on the emergency procedure guidelines and important operator actions, is available in the main control room

(12) The amount of chlorine bearing cable insulation exposed to the containment atmosphere is limited.

(13) The DW and WW volumes are adequately sized to accommodate the calculated maximum DW temperature and absolute pressure that are postulated to occur as a result of a design basis accident

(14) The water volume of the wetwell suppression pool is adequately sized to condense the steam that is forced into the wetwell from the drywell due to a postulated pipe break.

(15) Each vacuum breaker isolation valve automatically closes if the vacuum breaker does not fully close when required.

(16) Each vacuum breaker has proximity sensors to detect open/close position. This indication is available in the main control room.

(17) The containment penetration isolation design for each fluid piping system requiring isolation meets the single-failure criterion to ensure completion of penetration isolation.

(18) Drywell to wetwell bypass leakage is less than the assumed value used in the containment capability design basis containment response analysis.

(19) Total drywell to wetwell vacuum breaker bypass pathway leakage is less than the assumed value used in the containment capability design basis containment response analysis.

Inspections, Tests, Analyses and Acceptance Criteria

Table 2.15.1-2 provides a definition of the inspections, tests, and/or analyses, together with associated acceptance criteria for the Containment System.

Table 2.15.1-2

ITAAC For The Containment System

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
11. The minimum set of displays, alarms and controls, based on the emergency procedure guidelines and important operation actions, is available in the main control room.	Inspection of the as-built main control room will verify that the minimum set of displays, alarms and controls for the Containment System is available.	Inspection report(s) document that the minimum set of displays, alarms and controls for the Containment System, as defined by the emergency operating procedures and important operator actions exist in the as-built main control room.
12. The amount of chlorine bearing cable insulation exposed to the containment atmosphere is limited.	Analyses and inspection will be used to confirm the final exposed chlorine bearing cable insulation mass.	A report documents that the amount of chlorine bearing cable insulation exposed to the containment atmosphere (i.e. not within an enclosed cable tray, pipe, conduit, or metal cable jacketing) is $\leq$ 3400 kg.
13. The DW and WW volumes are adequately sized to accommodate the calculated maximum DW temperature and absolute pressure that are postulated to occur as a result of a design basis accident.	Using as-built dimensions, the DW and WW volumes will be calculated.	A report documents that the calculated as-built DW and WW volumes are greater than or equal to the design basis values.
14. The water volume of the wetwell suppression pool is adequately sized to condense the steam that is forced into the wetwell from the drywell due to a postulated design basis event.	Using as-built dimensions of the wetwell and a minimum measured suppression pool depth of 5.4 meters (213 inches), the volume of the suppression pool will be calculated.	A report demonstrates that the calculated suppression pool water volume is equal to or greater than the water volume assumed in the containment performance safety analysis.

the input voting logic changes from two-out-four to two-out-of-three. A manual bypass switch for this function is provided in the MCR.

7.8.1.1.1.2 ATWS Mitigation Logic to Inhibit the ADS

~~For ATWS mitigation, the ADS, which is part of the Nuclear Boiler System (NBS), is inhibited automatically.~~ Automatic initiation of the Automatic Depressurization System (ADS) by SSLC/ESF is inhibited by the ATWS/SLC system logic using the following signals.~~:~~

- A coincident low RPV water level (Level 2) signal and Average Power Range Monitor (APRM) ATWS permissive signal (i.e., an APRM signal that is above a specified setpoint from the NMS).
- A coincident high RPV pressure and APRM ATWS permissive signal that persists for 60 seconds.

MCR ~~switches~~ controls manually inhibit the ADS under ATWS conditions. The same inhibit conditions apply~~ies~~ to the GDCS function.

7.8.1.1.2 DPS ARI ATWS Mitigation Logic

The ARI function of the ATWS mitigation logic is implemented as nonsafety-related logic that is processed by the DPS. The DPS generates the signal to open the ARI air header dump valves in the CRD system based on any of the following command signals:

- High RPV dome pressure signal, a low RPV water level signal (Level 2), or a manual ATWS mitigation (ARI/SLC/FWRB initiation) signal;
- D~~R~~PS scram command;
- SCRRI/SRI command and power levels remaining elevated;
- Manual DPS scram signal;
- On receipt of signals initiating ARI, described above, the DPS generates an additional signal to the Rod Control and Information System (RC&IS) to initiate electrical insertion (that is, FMCRD Run-~~I~~in) of all operable control; and
- A safety-related manual ATWS mitigation signal initiates the SLC system, ARI and FWCS runback of feedwater flow. It is sent to the nonsafety-related portions of the ATWS mitigation logic through qualified isolation devices.

The ARI and FMCRD Run-~~I~~in logic resides in the DPS, which is totally separate and independent from the Q-DCIS with diverse hardware and software. The RPV pressure and level input sensors for the ARI logic are independent and separate from the sensors used in the Q-DCIS.

The logic application to the SLC system squib valves from the SSLC/ESF and from the DPS is similar to that of the DPV logic application described above, except that there is a dual instead of a triple logic path. However, the SLC system squib valves are actuated by two independent safety-related divisions with one valve per loop that is also actuated by the DPS. This configuration allows the flow path of both SLC system loops to be available through activation from the DPS and from any safety-related division (Refer to Subsection 7.4.1 for a description of the SLC system).

The ICS logic is configured to allow the availability of each ICS loop flow path from the four safety-related divisions and the DPS.

7.8.1.2.3 ATWS Mitigation Logic to Inhibit Initiation by DPS

Automatic initiation of the ADS by DPS is inhibited by the following signals.

- A coincident low RPV water level (Level 2) signal and SRNM ATWS permissive signal (i.e., an SRNM signal from the NMS that is above a specified setpoint).
- A coincident high RPV pressure and SRNM ATWS permissive signal that persists for 60 seconds.

MCR controls manually inhibit the ADS under ATWS conditions. The same inhibit conditions apply to the GDCS function.

7.8.1.2.4 Diverse Isolation Logic by DPS

The DPS also provides the following major isolations using two-out-of-four sensor logic and two-out-of-three processing logic. The isolation functions performed as part of the diverse ESF are "energize to actuate."

- Closure of the MSIVs on detection of high steam flow, low RPV pressure, or low RPV water level (Level 2). The isolation function is performed by contacts in the 120 VAC MSIV solenoid return circuit. The logic is enabled when the reactor is in Run mode.;
- Closure of the ICS isolation valves on high steam flow or excessive condensate flow.;
- Closure of the Reactor Water Cleanup and Shutdown Cooling (RWCU/SDC) isolation valves on high differential flow.; and
- Isolation of the FWCS on a feedwater line break inside containment. The line break is sensed by differential pressure between feedwater lines coincident with high drywell pressure. The DPS trips the main feedwater pump adjustable speed drive motor circuit breakers and closes the feedwater containment isolation valves.

7.8.1.2.5 Additional Functions of DPS

The following additional functions are performed by the DPS.: