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TOKYO, JAPAN

July 7, 2010

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Attention: Mr. Jeffrey A. Ciocco

Docket No. 52-021
MHI Ref: UAP-HF-10192

Subject: MHI's Response to US-APWR DCD RAI No. 591-4722 REVISION 0

Reference: 1) "Request for Additional Information 591-4722 Revision 0, SRP Section: 09.03.03 - Equipment and Floor Drainage System, Application Section: 9.3.3," dated June 8, 2010.

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") a document entitled "Response to Request for Additional Information No. 591-4722 Revision 0."

Enclosed is the response to the RAI contained within Reference 1.

Please contact Dr. C. Keith Paulson, Senior Technical Manager, Mitsubishi Nuclear Energy Systems, Inc. if the NRC has questions concerning any aspect of the submittals. His contact information is below.

Sincerely,

Y. Ogata

Yoshiki Ogata
General Manager- APWR Promoting Department
Mitsubishi Heavy Industries, LTD.

Enclosure:

1. Response to Request for Additional Information No. 591-4722 Revision 0

CC: J. A. Ciocco
C. K. Paulson

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Docket No. 52-021
MHI Ref: UAP-HF-10192

Enclosure 1

UAP-HF-10192
Docket Number 52-021

Response to Request for Additional Information
No. 591-4722 Revision 0

July 2010

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

7/7/2010

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:	**NO. 591-4722 REVISION 0**
SRP SECTION:	**09.03.03 – Equipment and Floor Drainage System**
APPLICATION SECTION:	**DCD TIER 2 SECTION 9.3.3**
DATE OF RAI ISSUE:	**6/8/2010**

QUESTION NO. : 09.03.03-18

In order to demonstrate compliance with GDC 4, the applicant must demonstrate the capability to withstand the effects of and to be compatible with the environmental conditions (flooding) of normal operation, maintenance, testing, and postulated accidents.

Initially, RAI 299-2036, question 9.3.3-4 was submitted to request additional details on isolation signals, instrumentation and inadvertent operation of the isolation valves. Upon review of the response to question 9.3.3-4, the staff submitted a supplementary RAI 426-3167, question 9.3.3-15 stating that all references to safety-related isolation valves should be clearly distinguished from non-safety related valves in the DCD Section 9.3.3 and Figure 9.3.3-1. In the response to question 9.3.3-15 (Open Item 01), the applicant proposed to include the equipment class break on Figure 9.3.3-1 to clearly define the isolation valves for the safeguard component areas as safety-related and MHI has updated Revision 2 of the DCD accordingly. Although the isolation valves (identified as EC3) are properly classified as safety-related on Figure 9.3.3-1, the staff is unable to determine whether the piping from these safety-related valves into the safeguard component area are similarly defined as safety-related.

Therefore, the applicant is asked to provide the classification for the piping in question or define any potential failure scenarios that could impact the room as a result of failure of the non-safety piping portions and update the DCD as necessary.

References:
MHI's Response to US-APWR DCD RAI No. 299-2036; UAP-HF-09242; dated May 14, 2009; ML091380158.
MHI's Response to US-APWR DCD RAI No. 426-3167; UAP-HF-09446; dated September 14, 2009; ML092600317.

ANSWER:

A portion of the drainage piping from the safeguard components areas is embedded into the basemat. The portion of piping beyond the basemat, up to and including the safety-related valves [i.e. the isolation valves (FDS-VLV-001A/B/C/D)] is fully supported and restrained to minimize the potential for breaking (please refer to the attached Figure 1 for design details). Hence the piping is non-safety and is class 6. Only the drain isolation valves (FDS-VLV-001A/B/C/D) are safety-related and Equipment Class 3.

Impact on DCD

There is no impact on the DCD

Impact on COLA

There is no impact on the COLA

Impact on PRA

There is no impact on the PRA

This completes MHI's response to the NRC's question.

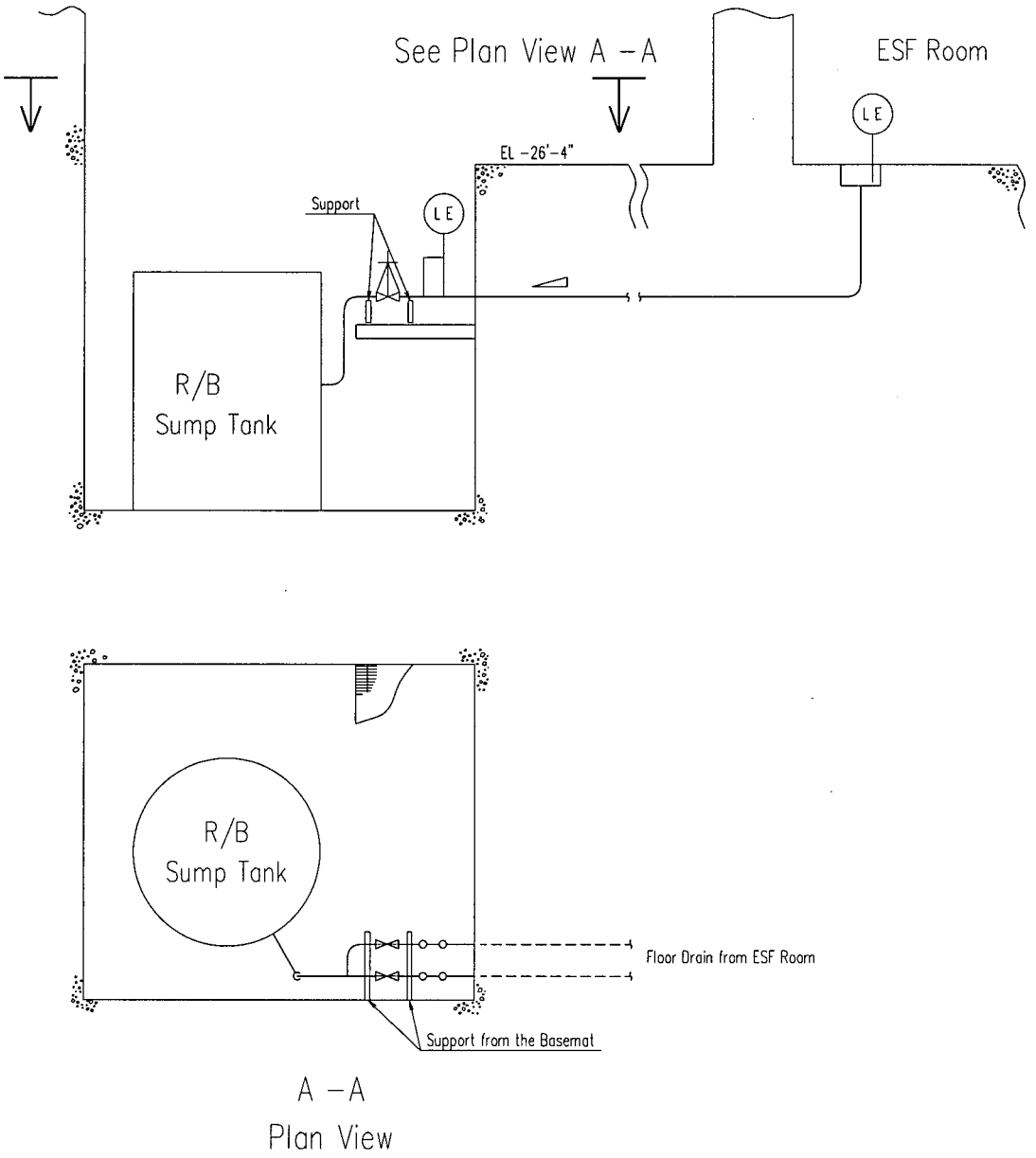


Figure 1 ESF Room Drain Pipe with Piping Support Detail

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

7/7/2010

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:	NO. 591-4722 REVISION 0
SRP SECTION:	09.03.03 – Equipment and Floor Drainage System
APPLICATION SECTION:	DCD TIER 2 SECTION 9.3.3
DATE OF RAI ISSUE:	6/8/2010

QUESTION NO. : 09.03.03-19

In order to demonstrate compliance with GDC 60, the applicant must show suitable control to avoid inadvertent transfer or [of] radioactive waste to non-radioactive waste portions of the system, including the environment. Upon review of the applicant's response to RAI 426-3167, question 9.3.3-15 (Open Item 01), the staff identified some additional concerns. As a result of the staffs review, the applicant is asked to address the following:

1) The proposed piping routing configuration in Figure 9.3.3-1 shows the T/B sump discharging into the A/B sump in Figure 9.3.3-1 and Section 9.3.3. However, this change is not properly reflected into Figure 11.2-1, which shows the T/B sump discharging directly into the waste holdup tanks. This results in an inconsistency between the figures.

2) Additionally, the applicant's response proposed to revise Section 9.3.3.2.3 to clarify that the normal flow from the T/B sump discharges into the waste water system (WWS) and automatically diverts flow to the liquid waste management system (LWMS) in response to a radiation signal. However, upon review of the response to RAI 299-2036, question 9.3.3-04, the process of rerouting flow is defined as a manual process. Further review of DCD Revision 2 in Tier 1 and Section 9.3.3.2.3 indicates that this process is defined as automatic, but Section 9.3.3.2.3 of DCD rev 2 states that operator initiation is needed. Therefore, this inconsistency needs to be clarified.

3) A third item of concern in the response is related to the normal discharge of the T/B sump to the WWS outside the turbine building. The staff is unable to locate any details of the WWS. Therefore, the staff asks the applicant to provide additional details and components included in the WWS or justify its exclusion from the DCD. If this item is considered outside the scope of the DCD, the applicant could include a COL item to define the WWS appropriately. The applicant should address the design and configuration of the plant waste water retention basins and associated discharge piping, including, basin transfer pump size, basin size, and location of the retention basins.

ANSWER:

1) Figure 11.2-1 will be revised as shown to illustrate that, when contaminated, the T/B sump is transferred to the A/B sump.

2) The diversion of flow from the T/B sump to the LWMS, instead of to the WWS, does require operator initiation, as stated in DCD Section 9.3.3.2.3. The response to RAI 299-2036, Question 9.3.3-10 describes the process of rerouting flow as "manual," since operator action is necessary.

   This is consistent with DCD Section 9.3.3.2.3.D, "However if liquid drainage should become contaminated, the radiation monitor will detect a concentration exceeding the predetermined setpoint which will activate an alarm in the MCR for operator actions and will also activate the closure of the transfer valves. Following operator initiation, the contaminated waste is then sent to the A/B floor drain sump to be transferred to the LWMS." The DCD states that the transfer valves close automatically; however, in order for the valves to be opened and liquid to be diverted, operator action is required.

3.) The discharge of the T/B sump to the WWS is through the same piping used for the discharge of the Steam Generator Blowdown System (SGBDS) to the WWS. The SGBDS discharge is discussed in DCD Section 10.4.8.1.2. The discharge of the SGBDS is specifically addressed in COL Item 10.4(2). Since the T/B sump discharge will follow the same discharge path as the SGBDS, there is no need for an additional COL Item to be added. Information on the fact that the T/B sump uses the same discharge path to the WWS as the SGBDS will be added to DCD Section 9.3.3.2.2 (6.) as shown below.

Impact on DCD

1) Figure 11.2-1 will be revised as shown in the attached figure.
2) No impact on DCD
3) DCD Section 9.3.3.2.2 (6.) will be revised to say:

   6. Turbine building equipment and floor drains. The non-radioactive liquid wastes generated in the T/B, including equipment and floor drains and leakages are generally collected in the non-radioactive drain sump in the T/B.

   Turbine building sump pumps discharge to the WWS prior to discharge to the environment. **This discharge is sent via the same discharge path used by the SGBDS (see Section 10.4.8).** When radioactive contamination in the discharge from the sump is detected and alarmed in the MCR, the transfer valve to the WWS is closed. Following operator initiation, the discharge from the sump is sent to the A/B floor drain sump from which it is transferred to the LWMS for processing prior to discharge to the environment.

Impact on COLA

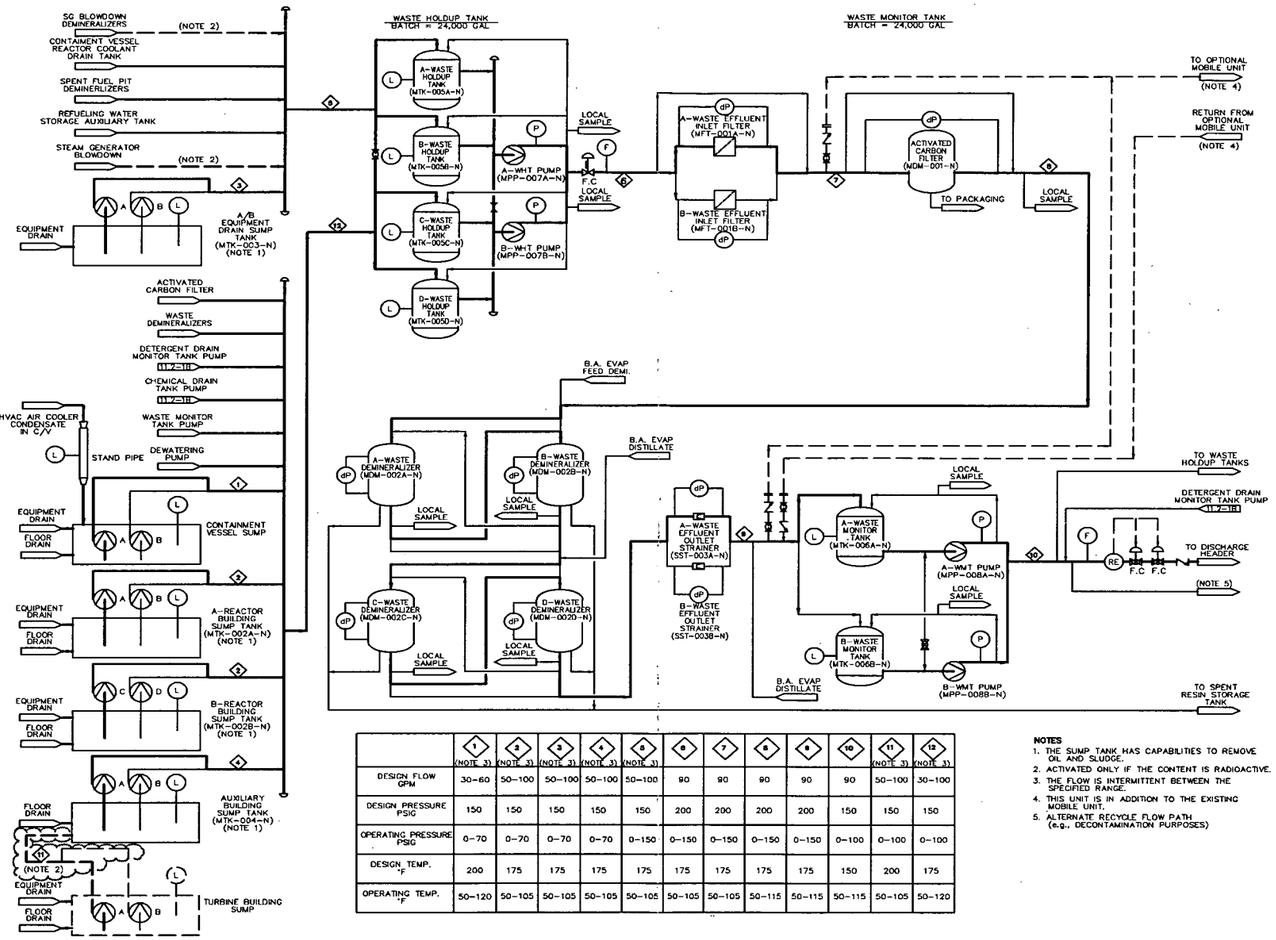
There is no impact on the COLA

Impact on PRA

There is no impact on the PRA

This completes MHI's response to the NRC's question.

Attachment to RAI 591-4722



	1 (NOTE 3)	2 (NOTE 3)	3 (NOTE 3)	4 (NOTE 3)	5 (NOTE 3)	6	7	8	9	10	11 (NOTE 3)	12 (NOTE 3)
DESIGN FLOW GPM	30-60	50-100	50-100	50-100	50-100	90	90	90	90	90	50-100	30-100
DESIGN PRESSURE PSIG	150	150	150	150	150	200	200	200	200	150	150	150
OPERATING PRESSURE PSIG	0-70	0-70	0-70	0-70	0-150	0-150	0-150	0-150	0-150	0-100	0-100	0-100
DESIGN TEMP. °F	200	175	175	175	175	175	175	175	175	150	200	175
OPERATING TEMP. °F	50-120	50-105	50-105	50-105	50-105	50-105	50-105	50-115	50-115	50-115	50-105	50-120

NOTES
1. THE SUMP TANK HAS CAPABILITIES TO REMOVE OIL AND SLUDGE.
2. ACTIVATED ONLY IF THE CONTENT IS RADIOACTIVE.
3. THE FLOW IS INTERMITTENT BETWEEN THE SPECIFIED RANGE.
4. THIS UNIT IS IN ADDITION TO THE EXISTING MOBILE UNIT.
5. ALTERNATE RECYCLE FLOW PATH (e.g., DECONTAMINATION PURPOSES)

Figure 11.2-1 Liquid Waste Processing System Process Flow Diagram (Sheet 1 of 3)