Enclosure 2

MFN 15-051

GEH Response to Item #10 – Gas Accumulation Locations

ABWR DCD DRAFT Revision 6 Markups

Table 2.6.1 Reactor Water Cleanup System (Continued)

Inspections, Tests, Analyses and Acceptance Criteria		
Design Commitments	**Inspections, Tests, Analyses**	**Acceptance Criteria**
5.	5.	5.
a. MOVs designated in Section 2.6.1 as having an active safety- related function close under differential pressure and fluid flow and temperature conditions.	a. Tests of installed valves for closing will be conducted under preoperational differential pressure, fluid flow, and temperature conditions.	a. Upon receipt of the actuation signal each MOV closes. The following valves close in the following time limits: Valve — Time (s) Suction line inboard containment isolation valve — ≤30 Close Suction line outboard containment isolation valve — ≤30 Close
b. CVs designated in Section 2.6.1 as having an active safety-related function close under system pressure, fluid flow, and temperature conditions.	b. Tests of installed valves for closing will be conducted under system pre-operational pressure, fluid flow, and temperature conditions.	b. Each CV closes.
6. Maximum throat diameter of the CUW suction line flow restrictor is 135 mm.	6. Inspections will be performed on the CUW suction line flow restrictor throat diameter.	6. Maximum throat diameter of the CUW suction line flow restrictor is 135 mm.
7. RPV Head Spray line will have a high point vent line with the proper slope to prevent buildup of Hydrogen Gas during operation.	7. Inspections will be performed on the as built CUW piping to confirm proper elevation and slope.	7. RPV Head Spray line will have a high point vent line with the proper slope to prevent buildup of Hydrogen Gas during operation.

5.11	Program for Surveillance and Venting of Accumulated Gases	5.4.15.5

Table 1.9-1 Summary of ABWR Standard Plant COL License Information (Continued)

Item No.	Subject	Subsection
5.10	RIP Installation and Verification During Maintenance	5.4.15.4
6.1	Protection Coatings and Organic Materials	6.1.3.1
6.2	Alternate Hydrogen Control	6.2.7.1
6.3	Administrative Control Maintaining Containment Isolation	6.2.7.2
6.4	Suppression Pool Cleanliness	6.2.7.3
6.5	Wetwell-to-Drywell Vacuum Breaker Protection	6.2.7.4
6.5a	Containment Penetration Leakage Test (Type B)	6.2.7.5
6.6	ECCS Performance Results	6.3.6.1
6.7	ECCS Testing Requirements	6.3.6.2
6.7a	Limiting Break Results	6.3.6.3
6.8	Toxic Gases	6.4.7.1
6.9	SGTS Performance	6.5.5.1
6.9a	SGTS Exceeding 90 Hours of Operation per Year	6.5.5.2
6.10	PSI and ISI Program Plans	6.6.9.1
6.11	Access Requirement	6.6.9.2
7.1	Cooling Temperature Profiles for Class 1E Digital Equipment	7.3.3.1
7.2	APRM Oscillation Monitoring Logic	7.6.3.1
7.3	Effects of Station Blackout on HVAC	7.8.1
7.4	Electrostatic Discharge on Exposed Equipment Components	7.8.2
7.5	Localized High Heat Spots in Semiconductor Material for Computing Devices	7.8.3
8.1	Diesel Generator Reliability	8.1.4.1
8.2	Periodic Testing of Offsite Equipment	8.2.4.1
8.3	Procedures When a Reserve or Unit Auxiliary Transformer is Out of Service	8.2.4.2
8.4	Offsite Power Systems Design Bases	8.2.4.3
8.5	Offsite Power Systems Scope Split	8.2.4.4
8.6	Capacity of Auxiliary Transformers	8.2.4.5
8.7	Not Used	8.3.4.1
8.8	Diesel Generator Design Details	8.3.4.2
8.9	Not Used	8.3.4.3
8.10	Protective Devices for Electrical Penetration Assemblies	8.3.4.4

reduced slightly to compensate for the loss of cooling flow through the RPV return side of the RHX.

The CUW System is classified as a non-safety system. The RCPB isolation valves are classified as safety-related. System piping and components within the drywell, up to and including the outboard containment isolation valves, and interconnecting piping assembly, are Seismic Category I, Quality Group A. All other non-safety equipment is designed as Nonseismic, Quality Group C. Low pressure piping in the backwash and precoat area downstream of the high pressure block valves is designed to Quality Group D.

The carbon steel portion of the CUW piping will be CS-SA-333-Grade 6 material. This material is subject to ASME Code requirements and the material will be tested for nil ductility to -10°C. Refer also to Subsection 5.2.3.3.1 for fracture toughness testing requirements.

The CUW System containment isolation valves will be designed and tested to meet closure requirements under full flow, maximum blowdown differential pressure break configuration and flow instability conditions.

The manufacturer will be required to conduct factory or valve test lab demonstration test prior to their use in the plant.

The CUW System valving configurations between the system pump discharge piping and connections to the feedwater system will be designed and installed for various break locations. Specifically, breaks in the MS tunnel or in the system equipment compartment coincident with single active component failures (e.g. check valve failures) will not result in feedwater reverse flow into the CUW System compartments.

The CUW containment isolation valves power supplies are listed in Table 6.2-7. Each of the two CUW pumps receives its power from separate plant investment protection (PIP) buses, as depicted in Figure 8.3-1. Power to the CUW differential sensors is addressed in Section 7.3.1.1.2. All other CUW components receive power from their respective non-Class 1E load groups (i.e., from bus A or Bus B as appropriate).

A tabulation of CUW System equipment data, including temperature pressure and flow capacity, is provided in Table 5.4-6.

The CUW containment isolation valves power supplies are listed in Table 6.2-7. Each of the two CUW pumps receives its power from separate plant investment protection (PIP) buses, as depicted in Figure 8.3-1. Power to the CUW differential sensors is addressed in Section 7.3.1.1.2. All other CUW components receive power from their respective non-Class 1E load groups (i.e., from Bus A or Bus B as appropriate).

A vent line down to the main steam line is provided at the high point of the RPV head spray line in order to avoid accumulation of hydrogen generated by radiolysis of reactor water during normal reactor operation.

5.4.15.4 RIP Installation and Verification During Maintenance

The COL applicant shall develop procedures to ensure appropriate installation and verification of motor bottom cover, as well as visual monitoring of the potential leakage during impeller-shaft and maintenance plug removal have been considered. In addition, the COL applicant shall develop a contingency plan (e.g., close personnel access hatch, safety injection) which assures that core and spent fuel cooling can be provided in the event that a loss of coolant occurs during RIP maintenance.

5.4.16 References

5.4-1 "Design and Performance of General Electric Boiling Water Reactor Main Steamline Isolation Valves", General Electric Co., Atomic Power Equipment Department, March 1969 (APED-5750).

5.4.15.5 Program for Surveillance and Venting of Accumulated Gases

The COL applicant shall develop periodic (monthly) surveillance procedures to ensure the Main Steam Equalizing Valve and the Main Steam Drain Valve are opened for short durations to vent any potential accumulation of hydrogen in the main steam vent and equalizing lines.

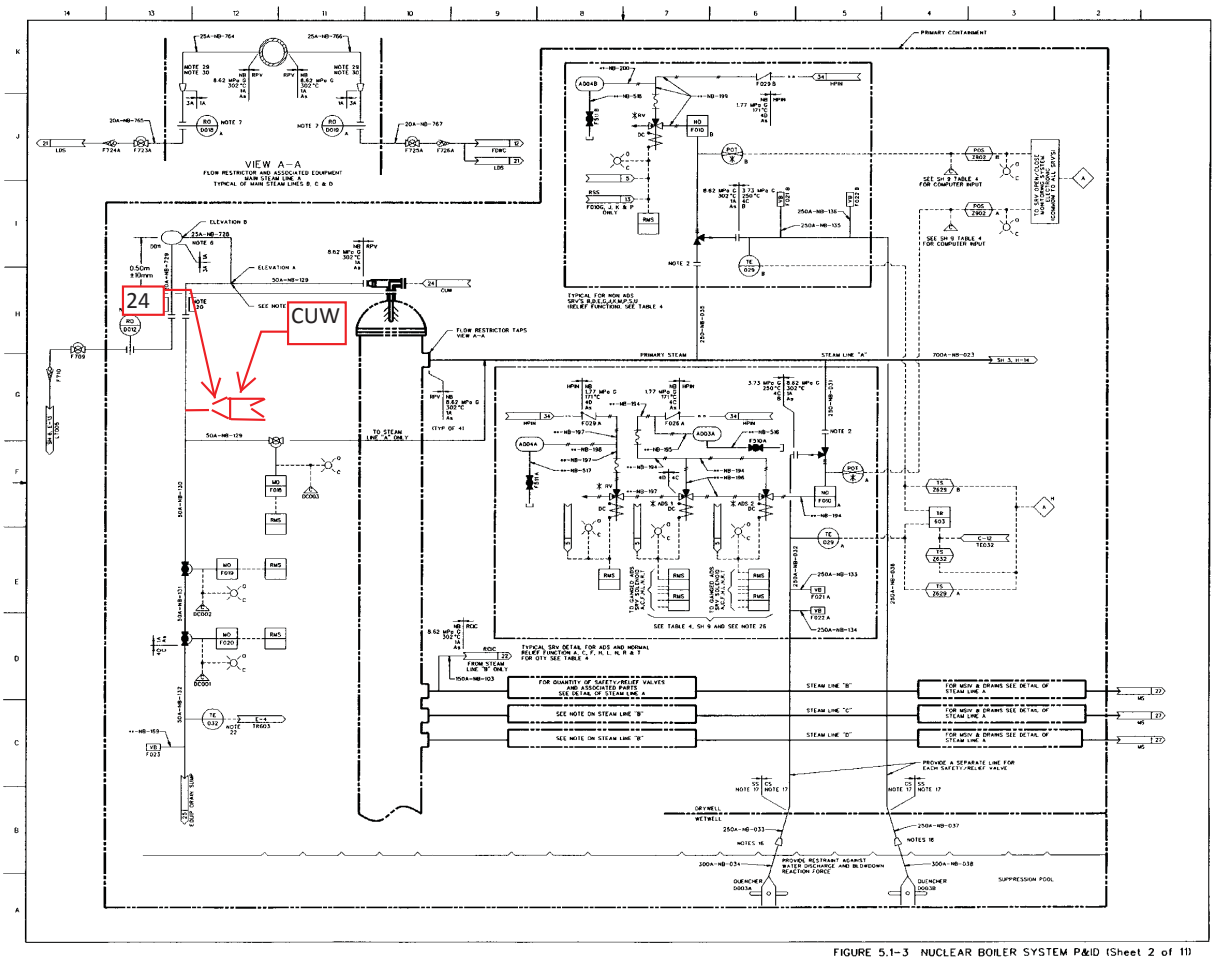

FIGURE 5.1-3 NUCLEAR BOILER SYSTEM P&ID (Sheet 2 of 11)

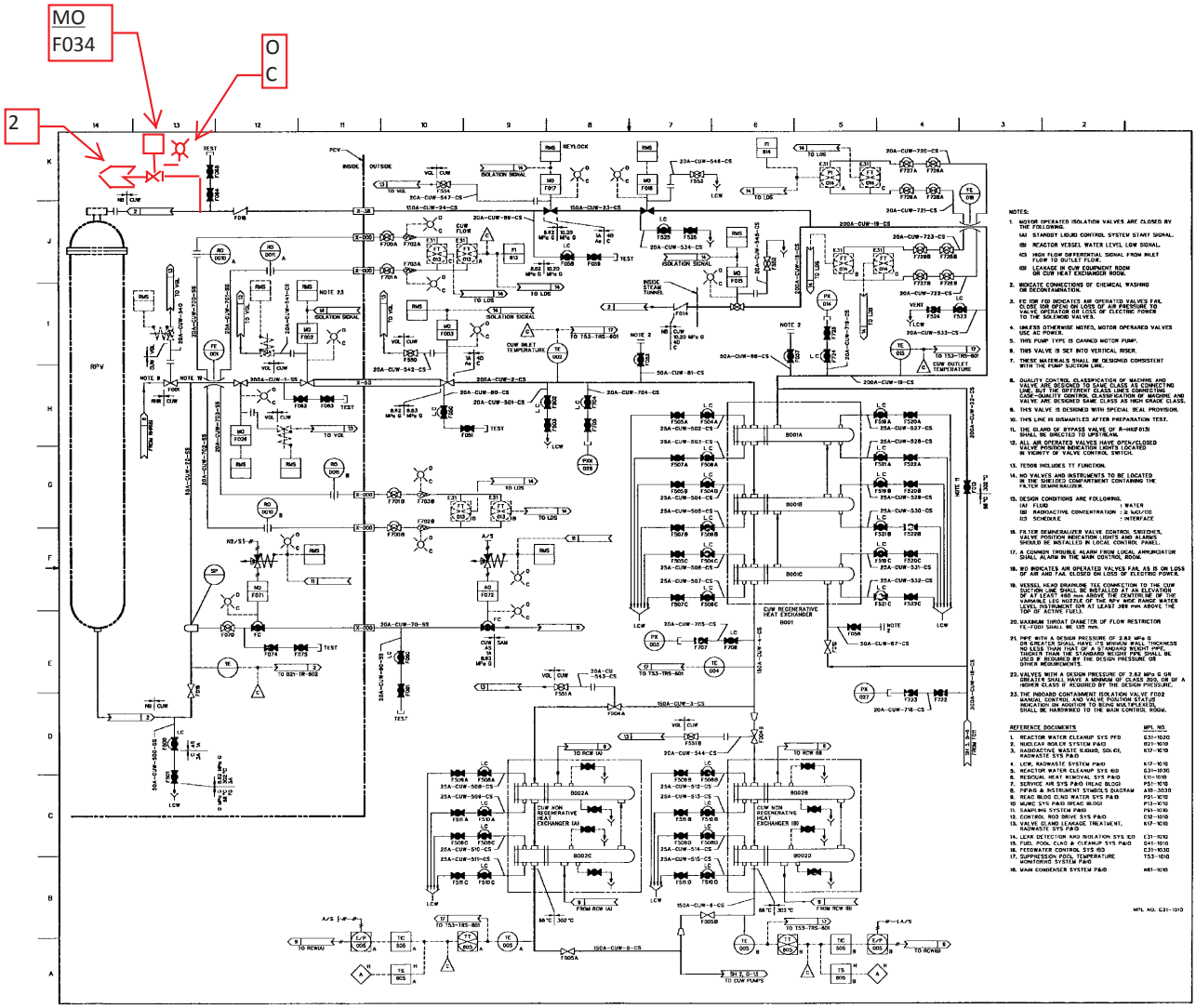

FIGURE 5.4–12 REACTOR WATER CLEANUP SYSTEM P&ID (Sheet 1 of 4)