Crystal Smith

From: Jeff Ciocco
Sent: Thursday, September 04, 2008 1:32 PM
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Cc: David Nold; Christopher Jackson; William Ward; Larry Burkhart; Crystal Smith
Subject: US-APWR Design Certification Application RAI 63-849
Attachments: US-APWR DC RAI 63 SPCV 849.pdf

MHI,

Attached please find the subject request for additional information (RAI). This RAI was sent to you in draft form. The schedule we established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs. Please submit you RAI response to the NRC Document Control Desk.

Thanks,

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REQUEST FOR ADDITIONAL INFORMATION NO. 63-849 REVISION 0

9/4/2008

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 09.04.01 - Control Room Area Ventilation System

Application Section: Tier 2 FSAR Section 9.4.1

SPCV Branch

QUESTIONS

09.04.01-1

RAI 9.4.1-1 US APWR DCD section 9.4.1 states that the MCR HVAC system complies with GDC 2. The review of DCD Section 9.4.1 could not find GDC 2 addressed completely or by reference. Provide additional information on where GDC 2 is addressed completely or by reference in DCD section 9.4.1.

RAI 9.4.1-2 US APWR DCD section 9.4.1 does not include Regulatory Guide (RG) 1.29 in the list of RGs that the MCR HVAC system must comply with. Under GDC 2, Regulatory Guide 1.29 provides the guidance for meeting control room protection requirements. Provide additional information on why RG 1.29 is not referenced on the list and addressed in sufficient detail for its application to the MCR HVAC system.

RAI 9.4.1-3 US APWR DCD section 9.4.1 does include RGs 1.78, 1.155, and 1.196 in the list of RGs that the MCR HVAC system complies with, but they were not clearly identified or addressed in section 9.4.1. Provide information and clarification on why RGs 1.78, 1.155, and 1.196 were not identified beyond the RG list or addressed completely by reference in section 9.4.1.

RAI 9.4.1-4 US APWR DCD section 9.4.1 states that the MCR HVAC system complies with GDC 3. The review of DCD section 9.4.1 could not find GDC 3 addressed completely or by reference. Per RG 1.196, as referenced in DCD section 9.4.1, provide additional information on where GDC 3 is addressed completely or by reference.

RAI 9.4.1-5 US APWR DCD section 9.4.1 states that the MCR HVAC system complies with GDC 4. The review of DCD section 9.4.1 could not find GDC 4 addressed completely or by reference. Provide additional information on where GDC 4 is addressed completely or by reference in DCD section 9.4.1.

RAI 9.4.1-6 US APWR DCD section 9.4.1 does not state compliance with GDC 60 in accordance with SRP acceptance criteria item 5. Provide information on

why compliance with GDC 60 was not addressed completely or by reference for the MCR HVAC system in accordance with SRP 9.4.1 position II.5 acceptance criteria.

RAI 9.4.1-7 US APWR DCD section 9.4.1.2.2.2 indicates this system has a smoke purge mode of operation. But this smoke mode is not shown in Table 9.4-1, sheet 1, as an abnormal condition like LOOP or SBO. SRP 9.4.1 section III.1 requires a review for normal and emergency operations, and the ambient temperature limits for the areas serviced. Clarify if Table 9.4-1, sheet 1, should include an additional smoke purge mode under abnormal conditions for the main control room area.

RAI 9.4.1-8 SRP 9.4.1 sections III.1, III.3 and III.4 make reference to use of a failure modes and effects analysis, as appropriate, to confirm that the essential safety-related portions of the system are capable of functioning in spite of the failure of any active component, in the event of an earthquake, during loss of offsite power, or a concurrent single active failure. DCD section 9.4.1 does not contain any references to or COL items for a failure modes and effects analysis for the MCR HVAC system. The staff requests the DC applicant provide detailed information about the failure modes and effects analysis for the MCR HVAC system.

RAI 9.4.1-9 Provide additional details for the following DCD section 9.4.1, Table 9.4-1, sheet 1 values for the control room area ventilation system calculation procedures and methods, including assumptions and margins. Identify any deviations from the recommended calculational procedures in SRP section 9.4.1, Revision 3, March 2007:

- Main control room area calculations supporting the normal and abnormal condition min max temperatures
- Main control room area calculations supporting the normal and abnormal condition min max relative humidity %

RAI 9.4.1-10 US APWR DCD section 9.4.1.4 invokes the use of Air Movement and Control Association standards, American Society of Heating, Refrigerating and Air Conditioning Engineers standards, Air Conditioning and Refrigeration Institute standards and Sheet Metal and Air Conditioning Contractors National Association standards for test purposes, but does not list the specific standards Section 9.4.8 "References" does not list these standards. Provide the specific standards for this testing and include them in the Reference section 9.4.8.

RAI 9.4.1-11 US APWR DCD section 9.4.1.1.2 discusses Station Blackout (SBO) for the electrical equipment areas in the MCR HVAC system. This condition is not listed in Table 9.4-1, sheet 3. SRP 9.4.1 section III.1 requires a review for normal and emergency operations, and the ambient temperature limits for the areas serviced. Provide information to clarify whether or not the SBO should also be listed in Table 9.4-1.

RAI 9.4.1-12 US APWR DCD section 9.4.1.1.2 reads that the MCR HVAC system can stop for one hour after SBO occurs until the alternate AC gas turbine generator restores power to the system. Provide additional details

RAI 9.4.1-18 The second paragraph of the #6 "Technical Rational" Section II "Acceptance Criteria" of SRP 9.4.1 reads: "*Regardless of the extent, if any, to which the CRAVS is expected to function to maintain suitable environmental conditions during a station blackout event, control room-area equipment necessary for core cooling, maintenance of appropriate containment integrity, and other functions for withstanding or coping with the event, should be able to function under the expected environmental conditions of the event. The reviewer therefore verifies that the station blackout analysis appropriately addresses the potential failures of equipment/systems during the event (e.g., loss or degraded operability of the CRAVS, as appropriate), the expected environmental conditions of the event, the operability and reliability of equipment necessary to cope with the event under the expected environmental conditions, and the habitability of plant areas requiring operator access during the event and recovery period.*"

The DC applicant takes credit for one-hour restoration of power via the AAC. Per Regulatory Guide 1.155 (i.e. criteria #5 of Section 3.3.5) to take credit for the one-hour alignment of the AAC, the reliability of the AAC power system should meet or exceed 95 percent as determined in accordance with NSAC-108 (Ref. 11) or equivalent methodology. To date, the DC applicant has not demonstrated this reliability. Neither Section 2.6.5 "Alternate AC (AAC) Power Source" nor its related Table 2.6.5-1 of Tier 1 ITAAC testing requirements, contains the acceptance criteria that guarantee this AAC reliability.

Without a guaranteed AAC reliability of ≥ 95%, the coping duration will become the basis for the environmental qualification of MCR electrical controls and instrumentation during the SBO event. To what worst case ambient conditions (i.e. temperature and humidity) are the instrumentation and controls within the MCRE qualified. What is the qualified life of the CRE instrumentation and controls for those conditions?

The maximum potential coping duration is established at 16 hours (last full paragraph reference page 1.155-2 of RG1.155). DCD Section 8.4.1.4 details an 8 hour coping duration.

The staff requests that the DC applicant provide further information as to how this 8 hour coping duration was established since the actual coping duration is site specific.

In addition, from the review of Table 8.3.1-6 "Electrical Load Distribution – AAC GTG Loading (SBO Condition)", it is not clear that the necessary components to maintain the MCRE within the "Abnormal Condition" the design temperature limits of Table 9.4-1 (Sheet 1 of 3) are powered by the AAC. The staff requests that the DC applicant provide additional information that confirms that all necessary controls, instrumentation and components of the MCR HVAC Air Handling units are powered from the AAC.

including calculations that establish the one hour delay basis with associated assumptions and margins and identify any deviations from the recommended calculational procedures in SRP Section 9.4.1, Revision 3, March 2007. Also provide information that verifies that the Table 9.4-1 MCR area normal and abnormal temperatures and humidity will be maintained within the established ranges for one hour after a SBO.

RAI 9.4.1-13 US APWR DCD section 9.4.1.2 reads that the MCR HVAC system has two redundant 100% filtration units, four 50% capacity air handling units, two redundant toilet/kitchen exhaust fan units, and one 100% smoke purge fan unit. Figure 9.4.1-1 shows redundant trains for the toilet/kitchen exhaust fan units. The smoke purge fan does not have a redundant fan unit shown. Provide additional information about the potential effects on operations with only a single smoke purge fan unit without redundant or backup capability for the purging of smoke from the MCR during a fire. Provide additional information and clarify why only one 100% smoke purge fan unit is adequate.

RAI 9.4.1-14 Provide additional details for the DCD section 9.4.1 calculations used to establish the equipment design data including: fan unit airflow, cooling coil, and heating coil capacities described in Table 9.4.1-1, including assumptions and margins. Provide sufficient calculations per SRP 9.4.1 Section IV.1.C to enable staff to support conclusions for the equipment design capacities listed above in Table 9.4.1-1.

RAI 9.4.1-15 US APWR DCD Tier 1 Figure 2.7.5.1-1 for the MCR HVAC system does not show the low and high efficiency filters in the air handling units that the US APWR DCD Tier 2 Section 9.4.1 Figure 9.4.1-1 shows for the same MCR HVAC system. Provide additional details on why the air handling unit filters are not shown in Figure 2.7.5.1-1.

RAI 9.4.1-16 The US APWR Table 9.4.1-1 Equipment Design Data does not list all of the components and corresponding data for the MCR Air Handling Units as shown in DCD Figure 9.4.1-1. For the MCR Air Handling Unit as listed in Table 9.4.1-1 there is no listing or data provided on the low efficiency prefilter and the high efficiency filter. These filters are discussed in the DCD section 9.4.1.2. Consistent with the guidance in RG 1.52 Rev. 3 position C.3.1 for ESF atmosphere cleanup systems, provide additional information on the low efficiency prefilters and high efficiency filters used in the MCR HVAC.

RAI 9.4.1-17 SRP section III.3.C & D address control room habitability in the event of the release of airborne contamination. If an essential chiller has a large release of refrigerant vapor from the chiller refrigerant pressure boundary in its location of operation, are there potential pathways where the refrigerant can enter the MCR envelope? The new HCFC and HFC refrigerants are of particular safety concern. Provide additional information on refrigerant vapor as a source of airborne contamination which could impact control room habitability per SRP 9.4.1 Section III.3.C&D.

RAI 9.4.1-19 An excerpt from SRP 9.4.1 Section III "Review Procedures" 2.A reads: "*Essential portions of the CRAVS are correctly identified and are isolable from nonessential portions of the system. The P&IDs are reviewed to verify that they clearly indicate the physical divisions between such portions and indicate design classification changes. System drawings are also reviewed to verify that they show the means for accomplishing isolation and the system description is reviewed to identify minimum performance requirements for the isolation dampers. ...*"

An excerpt from SRP 9.4.1 Section III "Review Procedures" 2.B reads: "*... SAR component and system descriptions of mechanical and performance characteristics are reviewed to verify that the classifications are included and that the P&IDs indicate any points of change in design classification.*"

The relevant DCD P&IDs (e.g. Figures 9.4.1-1, 6.4-2) fail to differentiate the essential portions of the CRAVS from nonessential portions of the system. The system description of DCD Section 9.4.1 does not identify minimum performance requirements for the isolation dampers. The staff requests that the DC applicant amend the DCD to eliminate these deficiencies.

RAI 9.4.1-20 DCD Figure 6.4-2 "MCR HVAC System (Normal Operation Mode)" and Figure 9.4.1-1 "MCR HVAC System Flow Diagram" both display the areas of the MCRE. Both figures do not label the area below the "Corridor" area. Figure 6.4-1 "Main Control Room Envelope" displays this unlabeled area on the top middle center of the Figure, as well. The staff requests that the DC applicant provide additional information about the intended function of this unlabeled area and how this unlabeled area satisfies the criteria for inclusion in the MCRE per SRP 6.4 section III.1?

RAI 9.4.1-21 An excerpt from SRP 9.4.1 Section III "Review Procedures" 1 reads: " ... *The system performance requirements section is reviewed to determine that it describes allowable component operational degradation (e.g., loss of cooling function, damper leakage) and describes the procedures that will be followed to detect and correct these conditions. ...*"

While DCD Section 9.4.1.4 "Testing and Inspection Requirements" provides minimal information about the procedures that used to detect and correct these conditions it provides no information about allowable component degradation. The staff requests that the DC applicant provide additional information for both these system performance attributes.

RAI 9.4.1-22 Regulatory Guide 1.29 "Seismic Design Classification" Section C,3 reads: "*At the interface between Seismic Category I and non-Seismic Category I SSCs, the Seismic Category I dynamic analysis requirements should be extended to either the first anchor point in the non-seismic system or a sufficient distance into the non-Seismic Category I system so that the Seismic Category I analysis remains valid.*" (Also reference Acceptance Criteria 1 of SRP 9.4.1)

An excerpt from DCD Section 9.1.4.3 "Safety Evaluation reads" ... *All system equipment and components, with the exception of the toilet/kitchen exhaust and smoke purge fans and the in-duct heater electric heating coils, are classified as equipment class 3, seismic Category I.*"

Table 3.2-2 lists the toilet/kitchen exhaust and smoke purge fans as "NS" (i.e. DCD Section 3.2.1.1.3 Non Seismic). This Table does not differentiate the ductwork downstream (i.e. outside the MCRE) of the outermost safety-related seismic I isolation dampers associated with the toilet/kitchen exhaust and smoke purge fans. Is this ductwork seismic I as well? In addition, DCD Section 9.4.1 and Figures 9.4.1-1, 6.4-2, 6.4-3 & 6.4-4, fail to identify the destination of the exhaust flow from the toilet/kitchen exhaust and smoke purge fans.

Is any/or all of this ductwork classified as Seismic Category II in accordance with DCD Section 3.2.1.1.2?

The staff request additional information about the ductwork downstream (i.e. outside the MCRE) from the outermost safety-related seismic I isolation dampers associated with the toilet/kitchen exhaust and smoke purge fans to the final destination of these two exhaust flows. In particular, the staff request additional information of how the design of this ductwork satisfies the Regulatory Positions C.1, C.2 and C.3 of Regulatory Guide 1.29.

The same Figures listed above identify back draft dampers in the discharge ductwork of the two toilet/kitchen exhaust fans but not in the discharge ductwork from the smoke purge fans. Since DCD section 9.4.1 fails to identify the existence of and the purpose of back draft dampers in the MCR HVAC system, it is not clear whether a back draft damper should be installed in the discharge ductwork from the smoke purge fans to prevent to back flow of contaminants into the MCRE.

The staff requests additional information with respect to: (1) the ultimate destination of the discharge flow from the toilet/kitchen exhaust and smoke purge fans; (2) the purpose(s) of the back draft dampers; and (3) the reason for not addressing these dampers in Table 3.2-2. The staff requests that the DC applicant amend (as applicable) the DCD to reflect the additional information provided.

RAI 9.4.1-23 For the MCR Emergency Filtration Unit, DCD Table 6.4-1 has a specification listed for the HEPA particulate removal efficiency of 99%. DCD Table 9.4.1-1 "Equipment Design Data" list a HEPA Filter Efficiency of "99.97%, 0.30 micron particles". The staff requests that the DC applicant provide additional information that explains the discrepancy and any potential impact on Main Control Room Dose Calculations.

RAI 9.4.1-24 DCD Section 9.4.1.4 "Testing and Inspection Requirements" (second paragraph) reads: "*Preoperational testing of the MCR HVAC system is*

performed as described in Chapter 14, Verification Programs, to verify that system is installed in accordance with plans and specifications. The air handling units airflows are balanced to provided proper air mixing and uniform temperature throughout the MCR envelope."

The DCD does not contain the design basis flow rates to the particular areas of the control room envelope that: (1) ensures positive pressures (i.e. ≥ 0.125" w.g. relative to all adjacent areas outside the MCRE); and (2) ensures proper air mixing and (3) ensures uniform temperatures throughout the MCR envelope.

An example that further illustrates this deficiency is the Normal Operation Mode of the MCR HVAC System. The fourth bulleted item of DCD Section 9.4.1.2.1 reads "*During the normal operation mode, the selected air handling units run on a fixed outside airflow sufficient to provide make-up to maintain MCR envelope at a slightly positive pressure with regard to the adjacent area.*"

The staff requests that the DC applicant provide a design based value for this "slightly positive pressure" during the Normal Operation Mode that precludes un-monitored radioactive contamination (i.e. by bypassing the fresh air intakes) from infiltrating the Control Room Envelope.

RAI 9.4.1-25 DCD Table 9.4.1-1 "Equipment Design Data" indicates that the design supply air flow rates to the CRE from two MCR Air Handling Units equals 20,000 cfm. This same Table indicates that operation of one of the MCR Toilette/Kitchen Exhaust fans will remove1800cfm from the CRE. Beyond this information, the COL applicant has no supply and exhaust flow information available in the DCD to flow balance the HVAC system to maintain normal area temperatures and a slightly positive pressure within the CRE.

DCD Section 9.4.1.4 "Testing and Inspection Requirements" (second paragraph) reads: "*Preoperational testing of the MCR HVAC system is performed as described in Chapter 14, Verification Programs, to verify that system is installed in accordance with plans and specifications. The air handling units airflows are balanced to provided proper air mixing and uniform temperature throughout the MCR envelope.*"

There is nothing within DCD Section 14.2.12.1.101 "MCR HVAC System Preoperational Test" that reflects the above passage during Preoperational Testing" (i.e. provided proper air mixing and uniform temperature throughout the MCR envelope). DCD Section 9.4.1.2.2.1 "Pressurization Mode" fails to list a design based pressurization value (i.e. ≥ 0.125" w.g.) for the Main Control Room Envelope. The staff requests that the DC applicant amend DCD Sections 9.4.1.2.2.1 and 14.2.12.1.101 to address these deficiencies.

The staff requests that the DC applicant amend DCD Section 9.4.1 to include the design basis flow rates for all four modes of system operation to the particular areas of the control room envelope.

RAI 9.4.1-26 The first paragraph of DCD Section 9.4.1.2.3 "Smoke Purge Operation mode" reads: "*If the smoke detectors located in the supply and return air ducts and the area smoke detectors in the MCR envelope detect the presence of smoke, the air handling units automatically shut down and an alarm is annunciated in the MCR.*"

The fourth paragraph on page 9.4-7 of DCD Section 9.4.1.3 "Safety Evaluation" reads: "*In the event of fire and smoke presence in the MCR envelope, smoke detectors will alarm in the MCR. If required, the operator can initiate the smoke purge mode when the emergency mode is not in effect.*"

There are no area smoke detectors displayed within the CRE in any of the Figures related to DCD Sections 9.4.1 and 6.4 "Habitability Systems". There are no words about MCRE area smoke detectors contained in Section 6.4. Similarly, the staff could not fine in DCD Chapter 7 "Instrumentation and Controls" any information about the MCRE area smoke detectors and MCR alarms.

The staff requests that the DC applicant include the details of these MCRE area smoke detectors and MCR alarms in the relevant subsections of DCD Chapter 7 and Sections 9.4.1 and 6.4. In addition, the staff requests that the DC applicant add a figure displaying the "Smoke Purge Operation mode" to Section 6.4.

RAI 9.4.1-27 DCD Section 9.4.1.4 "Testing and Inspection Requirements" indicates that the standby air handling units are periodically tested for operability. Surveillance Requirement SR 3.7.10.5 of Technical Specification 3.7.10 "Main Control Room HVAC System (MCRVS)" reads "*Verify two MCRATCS trains have the capacity to remove the assumed heat load*". The "assumed heat load" of SR 3.7.10.5 will be based on the extremes in local weather conditions at the site. There is no "Combined License Information" item in DCD Sections 9.4.7 or 16.2 that highlights the need for each COL applicant to develop an assumed heat load calculation that will provide the basis for the surveillance requirement acceptance criteria.

The staff requests that the DC applicant add a COL item to both DCD Sections 9.4.7 or 16.2 that captures this need.

In addition, the way the current SR reads is open to interpretation. Succinctly, the SR needs to demonstrate that each of the four AHU trains remove ≥ 50% of the "assumed heat load" on 24 month basis.

The staff requests that the DC applicant revise the wording of SR 3.7.10.5 to remove the ambiguity.

RAI 9.4.1-28 The third paragraph on page 9.4-7 of DCD Section 9.4.1.3 "Safety Evaluation" reads: "*Redundant safety-related Class 1E radiation monitors are located in the outside air intake duct to automatically switch the MCR HVAC system from the normal operation mode to the emergency*

pressurization mode upon detection of a radiological level higher than a predetermined value."

DCD Section 7.3.1.5.7 "*MCR Isolation" reads "High MCR outside air intake radiation: There are six MCR outside air intake radiation monitors interfaced separately to RPS trains A and D (two gas monitors, two iodine monitors, and two particulate monitors).*"

DCD Figures 9.4.1-1, 6.4-2, 6.4-3 and 6.4-4 display two radiation monitors in a location that appears to be sensing radiation from both outside-fresh-air intake lines simultaneously. Does the line that the radiation monitors are connected to in these Figures, represent a cross-connect between the two ESF filter trains? If this is not the case, then the following passage from the sixth paragraph of DCD Section 6.4.2 contains an error. It reads: "For automatic initiation in emergency pressurization mode, a portion of the return air flow is directed into the emergency filtration units. Outside air is drawn in through **either** of the two tornado-generated missile protection grids and the tornado depressurization protection dampers, and is directed to both 100% capacity MCR emergency filtration units and all 50% capacity MCR air handling units."

Should it be changed to read: "For automatic initiation in emergency pressurization mode, a portion of the return air flow is directed into the emergency filtration units. Outside air is drawn in through **both** of the two tornado-generated missile protection grids and the tornado depressurization protection dampers, and is directed to both 100% capacity MCR emergency filtration units and all 50% capacity MCR air handling units."?

The staff requests that the DC applicant provide additional information about this instrumentation configuration with respect to: (1) the number of monitors shown (i.e. two) on the listed Figures versus the six monitors described in DCD Section 7.3.1.5.7. (2) the implications of safety related divisional separation for these SR monitors since both shown monitors appear to be tied to both divisional trains of the ESF filter trains. (3) the physical location (i.e. distance from) of the radiation monitors with respect to the missile shields (i.e. air inlet of Figure 6.4-5); to the ESF filter trains and to the redundant safety related leak-tight dampers VRS-MOD-101A, VRS-MOD-102A, VRS-MOD-101B and VRS-MOD-102B.

RAI 9.4.1-29 An excerpt from DCD Section 6.4 reads "*Actual MCR floor elevation is26 ft. - 11 in. to accommodate the cable spreading area under the floor. The CRE is served by the MCR HVAC system, which maintains the habitability of the MCR.*"

DCD Table 9.5-2 "*US-APWR Fire Protection Program Conformance with NFPA 804 (Sheet 41 of 56)" indicates conformance with the sixth Standard Requirement of which reads: "Area automatic fire suppression shall be provided for under floor and ceiling spaces if used for cable runs unless all cable is run in 4 in. (101.6 mm) or smaller steel conduit or*

cables are in fully enclosed raceways internally protected by automatic fire suppression."

The staff found insufficient evidence to conclude that the DC applicant considered fire suppression in the design of the CRE Habitability System and the Main Control Room HVAC System. The staff requests that the DC applicant provide additional ITAAC to ensure all the applicable requirements can be verified.

RAI 9.4.1-30 The last paragraph of DCD Section 9.4.1.2 "System Description" reads: "*All duct penetrations in fire walls are protected by fire dampers to prevent the spread of fire from an affected area to the adjacent redundant component areas.*" GDC 3 (i.e. Fire Protection)

DCD Section 9.5.1.2.7 reads "*Ventilation system fire dampers close automatically against full airflow, if required, on high temperature to limit the spread of fire and combustion products. Fire dampers serving certain safety-related, smoke-sensitive areas are also closed in response to an initiation signal from the fire detection system. In selected areas, the fire alarm system will provide interface with the HVAC systems such as to shut down HVAC operation upon a fire alarm signal. Where continued HVAC system operation is deemed necessary for radiological control, the HVAC system incorporates design features to allow operation under fire conditions.*"

The staff requests that the DC applicant provide additional information about what generic HVAC system attributes contained in the passage from DCD Section 9.5.1.2.7 are applicable to the operation of the MCR HVAC system.

RAI 9.4.1-31 Acceptance Criteria 5 of SR 9.4.1 reads: "*Control of Releases of Radioactive Material to the Environment. Information that addresses the requirements of GDC 60 regarding the suitable control of the release of gaseous radioactive effluents to the environment will be considered acceptable if the guidance of RGs 1.52 and 1.140 as related to design, inspection, testing, and maintenance criteria for post-accident and normal atmosphere cleanup systems, ventilation exhaust systems, air filtration, and adsorption units of light-water-cooled nuclear power plants are appropriately addressed. For RG 1.52 rev 2, the applicable regulatory position is C.2. For RG 1.52 rev 3, the applicable regulatory position is C.3. ...*"

The staff could find no reference to the replacement of filters used during plant/system construction in DCD Section 9.4.1. Regulatory Guide 1.52 "Design, Inspection, And Testing Criteria For Air Filtration And Adsorption Units Of Post-Accident Engineered-Safety-Feature Atmosphere Cleanup Systems In Light-Water-Cooled Nuclear Power Plants" position C 5.2 reads "*The cleanup components (i.e., HEPA filters, prefilters, and adsorbers) that are used during construction of the ventilation systems should be replaced before the system is declared operable.*"

The staff requests that the DC applicant amend DCD Section 9.4.1 to reflect this requirement.

RAI 9.4.1-32 Acceptance Criteria 5 invokes regulatory position C.3 "*System Design Criteria" of Regulatory Guide 1.52. Section 3.11 reads: "Outdoor air intake openings should be equipped with louvers, grills, screens, or similar protective devices to minimize the effects of high winds, rain, snow, ice, trash, and other contaminants on the operation of the system. The outdoor air intake openings should be located to minimize the effects of possible onsite plant contaminants, such as the diesel generator exhaust. If the atmosphere surrounding the plant could contain significant environmental contaminants, such as dusts and residues from smoke cleanup systems from adjacent coal-burning power plants or industry, or is a salty environment near an ocean, the design of the system should consider these contaminants and prevent them from affecting the operation of any ESF atmosphere cleanup system.*"

The staff requests that the DC applicant provide additional information about the location of the ESF Filter train fresh air intakes with respect to **known** on-site fresh air contaminants such as diesel fumes, chemical storage tanks etc. Since the siting of power plant could impact the positioning of the fresh air intakes due local industry (e.g. coal-burning power plants) the wording of COL 9.4.1 appears to be too limiting.