REVISED RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

APR1400 Design Certification

Korea Electric Power Corporation / Korea Hydro & Nuclear Power Co., LTD

Docket No. 52-046

RAI No.:	**192-8180**
SRP Section:	**14.02 – Initial Plant Test Program - Design Certification and New License Applicants**
Application Section:	**14.2**
Date of RAI Issue:	**09/01/2015**

Question No. 14.02-15

10 CFR 50 Appendix I as it relates to the effluent releases to a member of the public, in being able to monitor and control effluent releases.

10 CFR 20 Appendix B as it relates to monitoring and complying with the effluent concentration limits specified and Criterion XI, “Test Control.”

Staff review of DCD Tier 2, Revision 0, Sections 11.3, “Gaseous Waste Management System,” (GWMS) and 14.2.12.1.105, “Gaseous Waste Management System Test,” found that information on the Test Method and Acceptance Criteria for the GWMS was not fully described. Section 11.3 describes verification of manual and automatic system controls on key system alarms such as high-level alarms associated with the gaseous waste system simultaneously activated in the MCR, and verification of other alarms such as radiation monitor and isolation valves to monitor and control effluent discharge to the environment and other indications; however, verification of manual and automatic response to normal control, alarms, and indications are not identified in Section 14.2.12.1.105 Acceptance Criteria. Please revise the DCD to include this information and provide a markup.

Response – (Rev. 1)

The manual and automatic response to the system normal control, alarms, and indications will be verified by identifying that overall system operation including valve operation, alarms, indication, and status lights are functional as designed. Section 14.2.12.1.105 was recently expanded to include additional test method and acceptance criteria that were not in the original ITP (Reference KHNP submittal MKD/NW-16-0156L, dated February 24, 2016). These additional test method and acceptance criteria address the issue identified, (the attached markup corrects the numbering). However, an additional objective will be added that corresponds to the recently upgraded test method and acceptance criteria.

Two of the proposed test methods, 3.4 and 3.5, will be modified. The automatic valve operation upon the receipt of a high-high oxygen concentration signal and high radiation signal described in DCD Tier 2, Table 11.3-8 will be verified.

The verification for radiation and oxygen concentration alarm actuation including associated monitoring is conducted with the Process and Effluent Radiological Monitoring System, as described in Section 14.2.12.1.106, and the Process and Primary Sampling System, as described in Section 14.2.12.1.83, respectively.

Test method, 3.4, will also be modified to verify automatic valve operation upon the receipt of a low flow signal from the Gaseous Radwaste System (GRS) discharge line.

The proposed test method, 3.5, will also be modified to verify automatic valve operation upon the receipt of low-low ACU (Air Cleaning Unit) exhaust flow signal. The verification for the ACU exhaust flow low-low alarm actuation and associated monitoring is conducted with the Compound Building HVAC System test as described in Section 14.2.12.1.99.

As stated in Section 11.3.2.1.3 of the DCD, the drain on the GRS header drain tank closes on a low tank level and opens on a high tank level. Therefore, a new test method for the verification of automatic drain valve operation upon the receipt of low and high GRS header drain tank level signals will be added.

The associated acceptance criteria for the revised and added test methods described above will be added.

Impact on DCD

DCD Tier 2, Section 14.2.12.1.105 will be revised as indicated in the Attachment. The changes that were proposed in the original response to this RAI have been incorporated into Revision 1 of the DCD; therefore, only the pages containing proposed changes as a result of Revision 1 of this response are included in the Attachment.

Impact on PRA

There is no impact on the PRA.

Impact on Technical Specifications

There is no impact on the Technical Specifications.

Impact on Technical/Topical/Environmental Reports

There is no impact on any Technical, Topical, or Environmental Report.

initial loading to ensure that the gaseous releases are within the regulatory limits.

2.3 GRS instrumentation has been calibrated.

2.4 Support systems required for operation of the GRS are completed and operational.

2.5 Test instrumentation is available and calibrated.

3.0 TEST METHOD

3.1 Operate control valves from all appropriate control positions. Observe valve operation and position indication.

3.2 Verify that alarms, indicating instruments, and status lights are functional.

3.3 Verify that operations of equipment in gaseous radwaste system package are functional.

3.4 The automatic nitrogen injection operation upon the receipt of a high-high oxygen concentration signal is verified.

, and low flow signal at the GRS discharge line

deleted

3.5 The automatic discharge isolation valve operation upon the receipt of high radiation signal is verified.

and low-low ACU exhaust flow signal

3.6 The automatic drain isolation valve operation upon the receipt of low and high GRS header drain tank level signal is verified.

3.7

~~3.6~~ The test for the containment isolation valves in the GRS is conducted as described in Subsection 14.2.12.1.129.

4.0 DATA REQUIRED

4.1 The properties and verification data for loaded charcoal in charcoal beds.

4.2 Setpoints of alarms, interlocks, and controls

4.3 Gaseous radwaste system package design data

5.0 ACCEPTANCE CRITERIA

5.1 The GRS operates as described in Section 11.3.

5.2 GRS valves are opened and closed by their respective handswitches and by each setpoint as designed.

5.3 The GRS alarms, indicating instruments, and status lights are functional as designed.

and low-low ACU exhaust flow signal

is

5.4 The GRS discharge valves ~~are~~ closed automatically upon receipt of high radiation signal. The verification for high radiation alarm actuation, including monitoring and indication, in main control room is conducted as described in Subsection 14.2.12.1.106.

The verification for low-low ACU exhaust flow alarm actuation, including monitoring and indication, in radwaste control room is conducted as described in Subsection 14.2.12.1.99.

5.6 The GRS header drain tank drain isolation valve is closed and opened automatically upon receipt of low and high GRS header drain tank level signal.

5.5 The nitrogen injection valves are opened automatically upon receipt of a high-high oxygen concentration signal. The verification for a high-high oxygen concentration alarm actuation, including monitoring and indication, in main control room is conducted as described in Subsection 14.2.12.1.83.

, and low flow signal at the GRS discharge line

14.2.12.1.106 Process and Effluent Radiological Monitoring System Test

The COL applicant is to perform the appropriate interface testing of the gaseous PERMSS monitors with ERDS (COL 14.2(14)).

1.0 OBJECTIVES

1.1 To verify that the PERMS can detect and record specific radiation levels, and to verify all alarms and interlocks

1.2 To verify the power status of RMS computer, SRDC, Local units

1.3 To verify the Rate-meter Communication conditions

1.4 To verify the operation of parameter adjustment & control from OIU

1.5 To verify the alarm detection & display function

1.6 To verify the local SKID control function

1.7 To verify the MMIS communication