BellBendCOLPEm Resource

From: Canova, Michael
Sent: Wednesday, August 26, 2009 4:30 PM
To: Crane, Samantha
Cc: Peralta, Juan; Miernicki, Michael; BellBendCOL Resource
Subject: FW: Response to BBNPP RAI Set no 14
Attachments: BNP-2009-111.pdf

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Sent: Thursday, July 02, 2009 9:18 AM
To: Canova, Michael
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Subject: RAI Set no 14 response

Mike -

advance copy of our response to #14 for your use.

Rocky

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July 2, 2009

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BELL BEND NUCLEAR POWER PLANT
RESPONSE TO RAI SET NO.14
BNP-2009-111 Docket No. 52-039

References: 1) M. Canova (NRC) to R. Sgarro (PPL Bell Bend, LLC), Bell Bend COLA – Request for Information No. 14 (RAI No. 14) – CQVP-1904, email dated June 2, 2009

The purpose of this letter is to respond to the request for additional information (RAI) identified in the referenced NRC correspondence to PPL Bell Bend, LLC. This RAI addresses the Initial Plant Test Program, as discussed in Section 14.2 of the Final Safety Analysis Report (FSAR), as submitted in Part 2 of the Bell Bend Nuclear Power Plant Combined License Application (COLA).

The enclosure provides our response to RAI No. 14, Questions 14.02-3 through 14.02-10, which include revised COLA content. A Licensing Basis Document Change Request has been initiated to incorporate this change in a future revision of the COLA. This future revision of the COLA is the only new regulatory commitment.

The response to Question 14.02-3 is consistent with the R-COLA (CCNPP3) response to RAI 92 Question 14.02-35.

The response to Question 14.02-4 is consistent with the R-COLA (CCNPP3) response to RAI Question 14.02-3.

The response to Question 14.02-5 is consistent with the R-COLA (CCNPP3) response to RAI 26, Question 14.02-13.

The response to Question 14.02-6 is consistent with the R-COLA (CCNPP3) response to RAIs 14 and 15, Question 14.02-4.

The response to Question 14.02-7 is consistent with the R-COLA (CCNPP3) response to RAI 18, Question 14.02-3.

The response to Question 14.02-8 is consistent with the R-COLA (CCNPP3) response to RAI 28, Question 14.02-24.

The response to Question 14.02-9 is consistent with the R-COLA (CCNPP3) response to RAI 50, Question 14.02-26.

The response to Question 14.02-10 is consistent with the R-COLA (CCNPP3) response to RAI 26, Question 14.02-13.

If you have any questions, please contact the undersigned at 570-802-8102.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on July 2, 2009

Respectfully,

Rocco R. Sgarro

Enclosure: As stated

RRS/cw

cc: Mr. Samuel J. Collins
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Enclosure 1

Response to NRC Request for Additional Information Set No. 14
Bell Bend Nuclear Power Plant

RAI Set No. 14

Question 14.02-3

In an RAI to AREVA for the U.S. EPR FSAR, RAI 14.02-45, the staff recommended that AREVA remove the paragraph stating, "The first COL applicant that references the U.S. EPR certified design will commit to review results from European predecessors concerning the new, unique, or novel EPR features such as those previously noted and propose supplemental testing if necessary," from Section 14.2.8.1 of the U.S. EPR FSAR. The statement to commit only the first COL applicant to review the operating and testing experience is a redundant COL information item as this action item is already contained in the commitment in 14.2.8 which states that all plants will review all reactor operating and testing experiences. In response to the staff's request, AREVA deleted the paragraph and the associated COL Information Item from U.S EPR FSAR Tier 2, Table 1.8-2 - U.S. EPR Combined License Information Items.

Consistent with the U.S. EPR FSAR, the staff requests that PPL Bell Bend delete the following paragraphs from Section 14.2.8.1 of the BBNPP COLA:

"The U.S. EPR FSAR includes the following COL Item in Section 14.2.8.1:

The first COL applicant that references the U.S. EPR certified design will commit to review results from European predecessors concerning the new, unique, or novel EPR features such as those previously noted and propose supplemental testing if necessary.

This COL item is addressed as follows:

{Calvert Cliffs Nuclear Power Plant Unit 3 was the first COL applicant that references the U.S. EPR certified design. This COL Item is not applicable to BBNPP.}"

In addition, the staff requests that PPL Bell Bend remove the associated COL Information Item, COL Item 14.2-6, from Table 1.8-2—{FSAR Sections that Address COL Items} in Chapter 1 of the BBNPP COLA.

Response

As described in AREVA's response to RAI 98 for the U.S. EPR Design Certification Application, submitted on November 14, 2008, the COL item committing the first COL applicant to review results from European predecessors will be removed. The BBNPP COLA content will be revised to incorporate this change after release of the U.S. EPR Design Certification Application revision.

COLA Impact

The BBNPP FSAR Section 14.2.8.1 and Table 1.8-2 will be updated as follows in a future COLA revision:

~~**14.2.8.1 First-of-a-Kind Testing**~~

~~The U.S. EPR FSAR includes the following COL Item in Section 14.2.8.1:~~

> ~~The first COL applicant that references the U.S. EPR certified design will commit to review results from European predecessors concerning the new, unique, or novel EPR features such as those previously noted and propose supplemental testing if necessary.~~

~~This COL Item is addressed as follows:~~

~~{Calvert Cliffs Nuclear Power Plant Unit 3 was the first COL applicant that references the U.S. EPR certified design. This COL Item is not applicable to BBNPP.}~~

Table 1.8-2 FSAR Sections that Address COL Items

14.2-5	A COL applicant that references the U.S. EPR design certification will provide site-specific test information for the circulating water system.	14.2.12
~~14.2-6~~	~~The first COL applicant that references the U.S. EPR certified design will commit to review results from European predecessors concerning the new, unique, or novel EPR features (such as reactor internals (vibration measurement), natural circulation of the reactor coolant system, reactor coolant pump stand still seal, pressurizer surge line (thermal stratification)) and propose supplemental testing if necessary.~~	~~14.2.8.1~~
14.2-6	Reserved	Not Applicable
14.2-7	A COL applicant that references the U.S. EPR design certification will provide site-specific test information for the cooling tower.	14.2.12

Question 14.02-4

Table 14.2-1 of the U.S. EPR Design Certification application identifies testing of the Raw Water Supply System as a COL test. Please revise section 14.2.14 of the BBNPP COLA to include a test abstract for the Raw Water Supply System or justify its exclusion.

Response

FSAR Section 14.2.14 will be revised by adding requirements for a Raw Water Supply System test.

COLA Impact

The BBNPP FSAR Section 14.2.14 will be updated as follows in a future COLA revision:

14.2.14.8 Raw Water Supply System

1. OBJECTIVE
    a. To demonstrate the ability of the Raw Water Supply System (RWSS) to provide a reliable supply of raw water drawn from the Susquehanna River for the floor wash header, plant demineralized water, essential service water, and fire protection systems, under normal plant operating conditions.
2. PREREQUISITES
   Raw Water Supply System testing shall be completed during the preoperational testing phase. The following prerequisites shall be met:
    a. Construction activities on the Raw Water Supply System (RWSS) have been completed.
    b. RWSS instrumentation has been calibrated and is functional for performance of the following test.
    c. Support system required for operation of the RWSS is complete and functional.
    d. The RWSS intake is at the water level specified in the design documents.
    e. The RWSS flow balance has been performed.
    f. Test instrumentation is available and calibrated.
3. TEST METHOD
    a. Verify RWSS component manual control from all locations is per design requirements.
    b. Verify automatic controls function at design setpoints.
    c. Verify RWSS pumps and components meet individual design requirements.
    d. Verify system flow meets design specifications.
4. DATA REQUIRED
    a. Pump operating data.
    b. Setpoints at which alarms and interlocks occur.
5. ACCEPTANCE CRITERIA
    a. The automatic controls function such that system performance meets or exceeds the design requirements
    b. The individual design requirements for the RWSS have been met.
    c. The RWSS design specifications for system flow have been met.
    d. The RWSS operates as described in Section 9.2.9.

Question 14.02-5

Regulatory Guide 1.68, Appendix A, Section 1.k.2, states that "[a]ppropriate tests should be conducted to demonstrate the proper operation of the following types of systems and components used to monitor or measure radiation levels, provide for personnel protection, or control or limit the release of radioactivity: ...(3) laboratory equipment used to analyze or measure radiation levels and radioactivity concentrations," which is one of the system types that should receive preoperational testing to demonstrate proper operation. As this equipment is used to ensure that the specified design conditions of the facility are not exceeded during any condition of normal operation, including anticipated operational occurrences, or as a result of postulated accident conditions, please include site-specific preoperational tests for laboratory equipment in FSAR Section 14.2.14, or justify the absence of such testing.

Response

FSAR Section 14.2.14 will be revised by adding requirements for a plant laboratory equipment test.

COLA Impact

FSAR Section 14.2.14 will be updated as follows in a future COLA revision:

14.2.14.9 Plant Laboratory Equipment

1. OBJECTIVE
   a. To demonstrate proper operation of laboratory equipment used to analyze or measure radiation levels.
   b. To ensure proper operation of laboratory equipment used to analyze or measure isotopic concentrations (such as a mass spectrometer) of radioactive samples.

2. PREREQUISITES

   Plant Laboratory Equipment testing shall be completed during the preoperational testing phase. The following prerequisites shall be met:
   a. Construction activities on laboratory equipment support systems used to analyze or measure radiation levels are complete.
   b. Construction activities on laboratory equipment support systems used to analyze or measure isotopic concentrations of radioactive samples are complete.
   c. Construction activities related to the installation of vendor supplied laboratory equipment used to analyze or measure radiation levels are complete. The laboratory equipment has been installed per manufacturer recommendations.
   d. Construction activities related to the installation of vendor supplied laboratory equipment used to analyze or measure isotopic concentrations of radioactive samples are complete. The laboratory equipment has been installed per manufacturer recommendations.
   e. The laboratory equipment area radiological controls (such as postings, shielding, radioactive work permits) have been implemented or are capable of being implemented.

3. TEST METHOD
   a. Ensure that drains from laboratory equipment that analyze or measure radiation levels are routed correctly and verifying that drains discharge as designed. This could be performed

by pouring a liquid down the drain colored with food dye or by some other suitable means and ensure the presence of the food dye in the receiving tank.

b. Ensure that drains from laboratory equipment that analyze or measure isotopic concentrations of radioactive samples are routed correctly and verifying that drains discharge as designed. This could be performed by pouring a liquid down the drain colored with food dye or by some other suitable means and ensure the presence of the food dye in the receiving tank.

c. Ensure that ventilation hoods and other engineered radioactive containment devices are vented as designed. This could be accomplished by a tracer gas or some other suitable means.

d. Measure discharge flow rates for the ventilation hoods and other engineered radioactive containment devices.

e. Perform vendor supplied startup checks and calibrations for laboratory equipment that analyze or measure radiation levels.

f. Perform vendor supplied startup checks and calibrations for laboratory equipment that analyze or measure isotopic concentrations of radioactive samples.

4. DATA REQUIRED

a. Inspection report from verification of laboratory equipment drains.

b. Inspection report from verification of ventilation hood flow and routing.

c. Completed vendor specified laboratory equipment startup procedures.

5. ACCEPTANCE CRITERIA

a. The laboratory equipment drain interface with the plant systems performs as designed.

b. The laboratory equipment ventilation hood interface with the plant systems performs as designed.

c. The results of the vendor supplied startup checks and calibration procedures verify tested laboratory equipment meets design requirements.

Question 14.02-6

As stated in Regulatory Guide (RG) 1.68, testing should include verification of redundancy and electrical independence. Appendix A to RG 1.68 provides a representative list of SSCs that should undergo preoperational testing. For many systems including but not limited to the circulating water system, cooling towers, cooling water systems, raw water system and service water system, and fire protection systems Appendix A to RG 1.68 states that tests should be conducted to verify redundancy and electrical independence of these SSCs.
Consistent with this guidance, the staff requests that PPL Bell Bend LLC revise the applicable test abstracts under Section 14.2.14 to include verification of redundancy and electrical independence of affected SSCs or explain why such verification is not necessary.

Response:

The U.S. EPR FSAR Section 14.2.12.12.17 is the Integrated Engineered Safety Features/Loss of Power (Test # 153). This test has been incorporated by reference in the BBNPP COLA. This test includes acceptance criteria that states, "Electrical redundancy, independence, and load group assignments are as designed." This test will ensure the electrical redundancy, independence, and load group assignments of the SSCs covered within the scope of the US EPR and BBNPP site specific SSCs including the ESWEMS (BBNPP FSAR 14.2.14.1), and ESWEMS Pumphouse HVAC System (BBNPP FSAR 14.2.14.6). The Raw Water Supply System (BBNPP FSAR Section 14.2.14.8), Essential Service Water Blowdown System (BBNPP FSAR Section 14.2.14.2), Essential Service Water Chemical Treatment System (BBNPP FSAR Section 14.2.14.3), Fire Water Supply (BBNPP FSAR Section 14.2.14.4), the Circulating Water Supply System (BBNPP FSAR Section 14.2.14.5), Cooling Tower Acceptance (BBNPP FSAR Section 14.2.14.7), Plant Laboratory Equipment (BBNPP FSAR Section 14.2.14.9), and Portable Personnel Monitors and Radiation Survey Instruments (BBNPP FSAR Section 14.2.14.10) are not safety related and therefore are not included in the redundancy and electrical independence verifications.

COLA Impact

No changes to the BBNPP COLA are required.

Question 14.02-7

SRP 14.2.II.SRP Acceptance Criteria.5.B states that test abstracts for the initial test program should include acceptance criteria in sufficient detail to establish the functional adequacy of the SSCs and design features tested. SRP 14.2, "Technical Rationale," further states that an objective of the ITP is to verify that SSCs are capable of performing their safety functions as specified in the design and as assumed/credited in safety analyses. RG 1.68 C.4., "Procedures", states that each test procedure should include acceptance criteria that account for the uncertainties used in transient and accident analysis.

In its review of Subsection 14.2.14 of the BBNPP COL, the staff noted that Section 3, "Test Method," of each test abstract includes a list of activities that are needed to ensure functional adequacy of SSCs under test. The staff also noted that Section 5, "Acceptance Criteria," of each test abstract contains pointers to design information in other FSAR chapters.

The staff requests that PPL Bell Bend revise the acceptance criteria section of the test abstracts in Section 14.2.14 to include sufficient detail (explicit values, prescribed limits, or measurable parameters) to establish the functional adequacy of the SSCs.

Response:

The test abstracts in Section 14.2.14 have been reviewed to ensure that test method and acceptance criteria information are included in the appropriate sections. The acceptance criteria section of the test abstracts will be revised to include sufficient detail to establish the functional adequacy of the SSCs.

COLA Impact

FSAR Section 14.2.14 will be updated as follows in a future COLA revision:

14.2.14.1 {Essential Service Water Emergency Makeup System (ESWEMS)

5. ACCEPTANCE CRITERIA
   a. Each ESWEMS division can be operated, as designed, from the main control room and the remote shutdown panel.
   b. The safety-related automatic valves (MOVs, SOVs, AOVs) respond to the designated accident signal as designed.
   c. The valve position indications properly indicate actual valve position.
   d. The position response of valves to loss of motive power is correct.
   e. The discharge strainers perform as designed.
   f. The alarms, interlocks, display instrumentation, and status lights function as designed.
   g. The head versus flow characteristics for each ESWEMS pump at design conditions has been met.
   h. The valves meet performance data where required.
   i. The ESWEMS operates per design and as described in Section 9.2.5.
      ~~a. The ESWEMS operates per design and as described in Section 9.2.1~~

14.2.14.2 Essential Service Water Blowdown System

5. ACCEPTANCE CRITERIA

a. Each ESW blowdown system division can be operated. as designed, from the main control room and the remote shutdown panel.
b. Each ESW blowdown system division's MOVs close automatically in response to an emergency signal.
c. The ESW blowdown system operates at the rated flow and design conditions.
d. The alarms, interlocks, display instrumentation, and status lights function as designed.
e. The valves meet performance data where required.
f. The valve position indications properly indicate actual valve position.
g. The ESW blowdown system operates per design and as described in Section 9.2.5.
~~a. The ESVV blowdown system operates per design and as described in Section 9.2.1.~~

14.2.14.3 Essential Service Water Chemical Treatment System

5. ACCEPTANCE CRITERIA

a. Each ESW division's chemical treatment system can be operated, as designed, from the main control room and or locally as designed .
b. The safety-related automatic valves (MOVs, SOVs, AOVs) respond to designated accident signal, as designed.
c. The alarms, interlocks, display instrumentation, and status lights function as designed.
d. The valve position indications properly indicate actual valve position.
e. The position response of valves to loss of motive power is per design.
f. Each ESW division's chemical treatment system provides the required chemistry conditions at the emergency makeup pump inlet, in the emergency makeup line, and in the ESW cooling tower, over the full range of operating variables.
g. The valves meet performance data where required.
h. The ESW chemical treatment system operates per design and as described in Section 9.2.5
~~a. The ESW Chemical treatment system operates per design and as described in Section 9.2.1.~~

14.2.14.4 Fire Water Supply

5. ACCEPTANCE CRITERIA

a. The ability to manually control Fire Water Supply system components from various locations is as designed.
b. The Fire Water Supply system pump and system flow meet design specifications.
c. The head and flow characteristics of the fire water pumps, and the operation of all auxiliaries are per design.
d. The system control logic functions per design.
e. The automatic operation of pre-action valves is per system design.
f. The Fire Water Supply system provides design rated flow to all discharge points.
g. The Fire Water Supply system jockey pump starts on low (lower setpoint) discharge header pressure.
h. The Fire Water Supply system jockey pump stops on normal (upper setpoint) discharge header pressure.
i. The Fire Water Supply system electric motor driven pump starts on low discharge header pressure.

j. The Standby Fire Water Supply system diesel engine pump 1 starts on discharge header low pressure, or trip or failure to start of the running pump.
k. The Standby Fire Water Supply system diesel engine pump 2 starts on discharge header low pressure, or trip or failure to start of the running pump.
l. The alarms, indicating instruments, and status lights function as designed.

~~a. The Fire Water Supply system operates per design requirements and as described in Section 9.5.1.~~

14.2.14.5 Circulating Water Supply System

5. ACCEPTANCE CRITERIA

a. ~~The Circulating Water System operates as described in Section 10.4.5.~~

14.2.14.6 ESWEMS Pumphouse HVAC System

3. TEST METHOD

d. Verify operation of the ~~exhaust~~ fan units and dampers per design requirements.

5. ACCEPTANCE CRITERIA

a. The control logic and interlocks function per design.
b. The alarms, displays, indications and status lights, both locally and in the main control room, for each division operate as designed.
c. The operation of dampers and damper controls are as per design requirements.
d. The operation of the fan units and dampers are as per the design requirements.
e. Each division's air flow (both heating and cooling) meet design specifications.
f. The room temperatures in the pump room in each division can be maintained within the design range of 41°F and < 104°F under design ambient (heating load and cooling load) conditions.
g. The ESWEMS Pumphouse HVAC System operates per design requirements and as described in Section 9.4.15.

~~a. The UHS Makeup Water Intake Structure Ventilation System operates per design requirements and as described in Section 9.4.11.~~

Question 14.02-8

Regulatory Guide 1.68, Appendix A discusses the five phases of the initial test program: (1) preoperational testing, (2) initial fuel loading and pre-criticality testing, (3) initial criticality testing, (4) low-power testing, and (5) power ascension testing. Each phase has distinct objectives and prerequisites. The NRC staff requests that the applicant revise the test abstracts in Section 14.2.14 to identify the phase in which each test will be performed, or to justify an alternative.

Response

Tests described in Section 14.2.14 will be revised to indicate the applicable phase(s) in which testing will occur.

This response is consistent with the CCNPP3 response to their RAI 28, Question 14.02-24.

COLA Impact

FSAR Section 14.2.14 will be updated as follows in a future COLA revision:

14.2.14.1 {Essential Service Water Emergency Makeup System (ESWEMS)

2. PREREQUISITES

ESWEMS testing shall be completed during the preoperational testing phase. The following prerequisites shall be met:

a. Construction activities on the ESWEMS, including the test bypass line, have been completed and the system is functional.

14.2.14.2 Essential Service Water Blowdown System

2. PREREQUISITES

Essential Service Water Blowdown System testing shall be completed during the preoperational testing phase. The following prerequisites shall be met:

a. Construction activities on the ESW blowdown system have been completed and the system is functional.

14.2.14.3 Essential Service Water Chemical Treatment System

2. PREREQUISITES

Essential Service Water Chemical Treatment System shall be completed during the preoperational testing phase. The following prerequisites shall be met:

a. Construction activities on the ESW chemical treatment system have been completed and the system is functional.

14.2.14.4 Fire Water Supply

2. PREREQUISITES

Fire Water Supply System testing shall be completed during the preoperational testing phase. The following prerequisites shall be met:

a. Construction activities on the Fire Water Supply system have been completed.

14.2.14.5 Circulating Water Supply System

2. PREREQUISITES

Circulating Water Supply System testing shall be completed during the preoperational testing phase. The following prerequisites shall be met:

a. Construction activities on the Circulating Water System have been completed.

~~n. Cooling tower performance testing requirements comply with Cooling Tower Institute (CTI) standards.~~

14.2.14.6 ESWEMS Pumphouse HVAC System

2. PREREQUISITES

ESWEMS Pumphouse HVAC System testing shall be completed during the preoperational testing phase. The following prerequisites shall be met:

a. Construction activities on the ESWEMS Pumphouse HVAC System have been completed.

14.2.14.7 Cooling Tower Acceptance

2. PREREQUISITES

Cooling Tower acceptance testing shall be performed during the power ascension phase. The following prerequisites shall be met:

a. Construction activities are complete.

Question 14.02-9

RG 1.206 Section C.I.14.2.12, in part, states that the abstracts should specify the prerequisites and major plant operating conditions necessary for each test (such as power level and mode of operation of major control systems). The abstracts should also contain sufficient information to justify the specified test method if such method does not subject the SSC under test to representative design operating conditions. In addition, the abstracts should identify pertinent precautions for individual tests, as necessary (e.g., minimum flow requirements or reactor power level that must be maintained).

The NRC staff requests that PPL Bell Bend LLC revise the test abstracts in Section 14.2.14 of the BBNPP COLA to include the major plant operating conditions necessary for each test, sufficient information to justify the specified test method if such method does not subject the SSC under test to representative design operating conditions, and pertinent precautions for individual tests, as necessary.

Response:

Major plant operating conditions necessary for each test and pertinent precautions for individual tests are identified in the responses to questions 7 and 8 above.

The test methods specified in those responses subject Systems, Structures and Components to representative operating design conditions. These test methods will verify major components of a particular system function properly and that the overall system functions as described in their respective sections of the FSAR.

FSAR Section 14.2.14.7 (added in response to BBNPP RAI 9) will be revised to indicate the specific power level prerequisite for performing cooling tower acceptance testing.

This response is consistent with the CCNPP3 response to their RAI 50, Question 14.02-26.

COLA Impact:

FSAR Section 14.2.14.7 will be updated as follows in a future revision of the COLA:

14.2.14.7 Cooling Tower Acceptance

1. OBJECTIVES
    a. To demonstrate the Cooling Tower is capable of rejecting the design heat load.
2. PREREQUISITES

Cooling Tower acceptance testing shall be performed during Phase IV power ascension testing. The test shall be performed at > 98 percent reactor power.

Question 14.02-10

Regulatory Guide 1.68, Appendix A, Section 1.k.2, states that "[a]ppropriate tests should be conducted to demonstrate the proper operation of the following types of systems and components used to monitor or measure radiation levels, provide for personnel protection, or control or limit the release of radioactivity: . . . (2) personnel monitors and radiation survey instruments."

The NRC staff requests that the applicant amend Section 14.2.14 to include the testing of personnel monitors and radiation survey equipment, or to justify why such tests are not required.

Response

Section 14.2.14.10 will be added to the FSAR as shown below to include testing of personnel monitors and radiation survey instruments.

This response is consistent with the CCNPP3 response to their RAI 26, Question 14.02-13.

COLA Impact

FSAR Section 14.2.14.10 will be updated as follows in a future revision of the COLA:

14.2.14.10 Portable Personnel Monitors and Radiation Survey Instruments

1. OBJECTIVES
   a. To demonstrate the ability of the Portable Personnel Monitors and Radiation Survey Instruments to monitor radiation levels.
   b. Provide local and remote indications, if applicable, to alert personnel of potential releases.
2. PREREQUISITES

   Portable Personnel Monitor and Radiation Survey Instrument testing shall be completed during the preoperational testing phase. The following prerequisites shall be met:
   a. Construction activities on the Portable Personnel Monitors and Radiation Survey Instruments have been completed.
   b. Area ventilation systems in the area where the Portable Personnel Monitors and Radiation Survey Instruments are installed are functional.
   c. Plant ventilation systems in the areas where plant personnel are working are complete and functional.
   d. The plant access control has been established (doors and access points installed and wall, ceiling, and floor penetrations in their design condition). This prerequisite ensures that personnel exit routes that do not pass through the Portable Personnel Monitors and Radiation Survey Instruments have been eliminated.
   e. Test instrumentation available and calibrated.
   f. Support systems (120 volt AC, purge gas, etc.) are available.
3. TEST METHOD
   a. Verify alarms, displays, indications and status lights both locally and in the plant access control area are functional.
   b. Verify that background levels have been established.

c. Verify that alarms and displays are capable of detecting activity levels that are above the acceptance levels.

4. DATA REQUIRED
   a. Background level settings.
   b. Setpoints at which alarms and status light displays occur.
5. ACCEPTANCE CRITERIA
   a. Alarms, displays, and status lights indicate locally and in the plant access control area.
   b. The background radiation level from radon and other sources doesn't reduce the ability to detect radiation releases.
   c. The Portable Personnel Monitors and Radiation Survey Instruments are capable of detecting test sources.