Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

John A. Scalice
Site Vice President, Watts Bar Nuclear Plant

JAN 2 9 1996

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555
Attention: Mr. S. D. Ebneter

Dear Mr. Ebneter:

In the Matter of the) Docket Nos. 50-390
Tennessee Valley Authority)

WATTS BAR NUCLEAR PLANT (WBN) - RADIATION MONITORING SYSTEM ASSESSMENT, SUPPLEMENTAL INFORMATION

In response to the NRC's letter of January 12, 1996, TVA provided an assessment of the Watts Bar Radiation Monitoring System (RMS) by letter dated January 22, 1996. Based on review of the RMS, including information regarding system performance since fuel load, TVA reaffirmed its conclusion that the system meets regulatory requirements and TVA commitments, and is ready to support full power operation of Unit 1.

In subsequent discussions, the NRC staff requested supplemental and detailed information supporting several of TVA's conclusions. The enclosures to this letter provide the requested information. Enclosure 1 discusses pre-fuel load activities associated with the RMS and addresses:

- Information regarding the specific monitors covered by the Radiation Monitoring Special Program (RMSP).
- The Regulatory Guides, including exceptions and clarifications, and deviations, and Industry Standards to which TVA is committed.

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- The key issues associated with the RMS and, on a monitor-by-monitor basis, a listing of deficiencies contained in corrective action documents and design change notices associated with the RMS.

- The results of assessments of the RMSP performed by TVA's Nuclear Assurance organization.

- The basis for resolution of the 20 open items, 58 team items, and 27 observations identified in the TVA Engineering Assessment report issued in April 1995.

Enclosure 2 addresses the post-fuel load activities and includes discussions of the following:

- The availability (time in-service) of the monitors since receipt of a low power license.

- The specific training that has been provided to help ensure the RMS is operated and maintained in accordance with TVA procedures and NRC regulations.

- The methods used to ensure conformance with Regulatory Guide 1.21.

- The program that supports the availability of spare parts to maintain the system.

Should there be any questions on this information, or if the staff should require any additional information to complete its review, please contact me at (423) 365-8767.

Sincerely,

J. A. Scalice
Enclosures

cc: See page 3

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cc (Enclosures):
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Enclosure 1
Watts Bar Nuclear Plant (WBN) Unit 1
Radiation Monitoring System (RMS) Assessment

Pre-fuel Load Activities

Information Requested:

State the impact of the activities performed under the Radiation Monitoring Special Program (RMSP) for those monitors which were not included within the scope of the RMSP.

Response:

The scope of the RMSP includes the monitors required for compliance with the Technical Specifications, the Offsite Dose Calculation Manual (ODCM), and Regulatory Guide (RG) 1.97 (Post Accident Monitoring).

However, the activities performed for the monitors included in the scope of the RMSP were also applied to permanently installed monitors not required by the Technical Specifications, ODCM, or RG 1.97. Therefore, there was no difference between activities performed for monitors within the scope of the RMSP and those outside of the program. Corrective actions, maintenance, modifications, calibration, and preoperational testing which applied to a particular type of monitor (i.e., area monitors) were performed for each appropriate monitor of that type.

The RMSP Closure Report identified the completion of 121 total design changes. Since closure of the RMSP, ten design changes associated with RMS have been issued and closed. However, none of the ten changes affected system compliance with regulatory requirements, commitments, or the design basis documents. Principally, the design changes were for correction of engineering documentation discrepancies and also correction of electronic or circuit noise problems discovered during integrated system operation.

One measure that provided added assurance that outstanding required design changes impacting the RMS, System 90, were complete prior to fuel load, was the System Preoperability Acceptance Evaluation (SPAE) process. This process was used by the Nuclear Engineering staff to assess the status of the system and to establish that the system was complete and ready for preoperational testing. The documentation developed as a package under the SPAE process established that all engineering work was either design complete or had been approved as a deferral or as an exception. Through this process, completion of design bases documents, control room drawings, system boundary reviews, calculations, and corrective action documents was assured. The final SPAE package for the RMS, System 90, was issued on October 24, 1995, and certified that engineering activities had been completed and documentation closed or partially closed as indicated in the Master Tracking System (MTS) Report attached to the SPAE

package. Punchlist items for previous System 90 SPAE packages were tracked by the MTS. Consequently, the final SPAE package addressed previous punchlisted items.

The final SPAE MTS report was reviewed and items were confirmed closed except for Nuclear Experience Review item SQN II-S-92-025. This item involves an issue identified at TVA's Sequoyah Nuclear Plant regarding the initiation of a containment ventilation isolation during post-maintenance testing. Final closure of this item will occur upon evaluation of WBN experience following initial power operation.

To assure that no issues had emerged since approval of the final SPAE package, Nuclear Engineering reviewed the final SPAE package, Design Change Notices (DCNs), Tracking (TROI) items, Significant Corrective Action Reports (SCARs), Problem Evaluation Reports (PERs), etc., issued subsequent to the final SPAE package. This established that the conclusions in the final SPAE package regarding completion of engineering activities remained valid.

Another program that provided assurance of the operability of the RMS as a whole, was the System Pre-Operability Checklist (SPOC) process. This process established the requirements for turnover of a system from the Startup and Test organization to plant Operations. Implementation of the SPOC process provided a systematic method to ensure that open work items and outstanding programmatic items affecting system operability or operational readiness of a system were completed or dispositioned before recommending a system was functionally ready to support Unit 1 fuel load.

The system turnover portion of the SPOC process was specifically developed to:

A. Verify completion of required testing,

B. Verify system and equipment readiness for jurisdictional control by Operations,

C. Identify and document any outstanding items (design, construction or modifications, licensing, testing, and physical work) against the system which was being turned over, and

D. Document the turnover and acceptance of systems, subsystems and components from Startup and Test to Operations.

As part of the system turnover process, a system walkdown was performed to assess the physical condition of the system. The walkdown was not performed until system testing and associated field work had been completed. Identified deficiencies from the walkdown were dispositioned using existing plant work documents and programs, (i.e., Work Requests, Work Orders, Design Change Notices, Workplans, Labeling Requests, Service Requests, Test Deficiencies, etc.).

Completion of the SPOC process ensured that open items and other issues which may have potentially affected system operation were either completed or reviewed, satisfactorily dispositioned and tracked. The MTS was used to track the status of open items. No special operating conditions were established at the completion of the SPOC turnover of any system. For the RMS, the SPOC process ensured that construction and testing were completed successfully and that the system was ready to be accepted by the plant staff for operations. The process did allow for a limited number of exceptions for open items not complete at turnover. These items are now complete.

Information Requested:

Identify the Regulatory Guides (RGs) and Industry Standards (ISs) to which TVA is committed for the RMS.

Response:

The requested information regarding commitments to RGs and ISs if provided below. Where appropriate, the exceptions, clarifications, and deviations to the RGs or ISs are listed.

Regulatory Guide 1.21, Revision 1 - "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents From Light-Water-Cooled Nuclear Power Plants."

Exceptions:

None

Clarification:

Subsequent to the issuance of Revision 1 of this RG, the NRC initiated effluent reporting using the Offsite Dose Calculation Manual (ODCM). In accordance with the ODCM approach, requirements for effluent monitors are captured in the Watts Bar ODCM as opposed to the plant technical specifications and the Effluent and Waste Disposal Report is made annually rather than to semiannually.

Regulatory Guide 1.45, Revision 0 - "Reactor Coolant Pressure Boundary Leakage Detection Systems"

Exceptions:

None

Regulatory Guide 1.97, Revision 2 - "Instrumentation for Light-Water-Cooled Nuclear Power Plant to Assess Plant and Environs Conditions During and Following an Accident."

Exceptions:

None

Approved Deviations:

1. RG 1.97 Guidance:
Monitor - Auxiliary Building Exhaust Vent Radiation Level - Noble Gas Release

Deviations:

The range recommended in RG 1.97, Revision 2, is 10^{-6} to 10^{3} microcuries/cubic centimeter (cc); the recommendation for WBN is 10^{-6} to 10^{-2} microcuries/cc.

The Auxiliary Building vent monitor is provided to continuously monitor the airborne radioactivity released through the Auxiliary Building exhaust vent. An accident causing the Auxiliary Building radiation level to be high will cause all ventilation paths exhausting into the Auxiliary Building vent duct to automatically close and the Auxiliary Building gas treatment system to be activated. Because the isolation function occurs before accident-range activity is reached, a normal-range monitor only is employed to monitor activity in the Auxiliary Building exhaust vent. Therefore, the recommended range of 10^{-6} to 10^{-2} microcuries/cc is adequate for detecting and measuring noble gas concentrations.

2. RG 1.97 Guidance:
Radiation Exposure Rate

Deviation:

RG 1.97, Revision 2, includes exposure rate monitors as Type E (Category 2) variables. These monitors are required to have a range of 1.0 E-1 Roentgen per hour (R/hr) to 1.0 E+4 R/hr and are to be located inside buildings or areas where access is required to service equipment important to safety. The area monitors are intended for use in detection of significant releases, release assessment, and long-term surveillance.

RG 1.97, Revision 2, also includes radiation exposure rate monitors, with ranges of 1.0 E-1 R/hr to 1.0 E+4 R/hr as Type C variables (these monitors were to be installed inside buildings or areas in direct contact with primary containment where penetrations and hatches were located). This variable was removed from RG 1.97 in Revision 3, and will not be addressed further.

WBN RG 1.97 monitoring instrumentation does not include installed high-range exposure rate monitors as Type E variables. The intended objectives of such instrumentation will be achieved in a different manner than that described in RG 1.97. The following paragraphs describe how WBN's program is designed to monitor radiation exposure rates.

A large number of useful missions outside the Main Control Room (MCR) during accident conditions may be postulated. These missions would be for activities that might enhance accident mitigation, such as equipment maintenance, grab sample acquisition, and laboratory analyses of grab samples. Exposure rates encountered on these missions would vary over a wide range. This variability arises from the fact that the greatest exposure outside the containment during accident conditions would be attributable to contained sources and, therefore, be strong functions of distance from the sources. Because of the wide exposure rate variability, the installation of even a large number of high-range exposure rate monitoring instruments at selected locations on projected mission routes might not contribute substantially, either to the planning of missions for accident mitigation purposes or to the minimization of dose equivalent to personnel performing the missions.

Based on the above considerations, the WBN radiation monitoring system design uses portable high-range exposure rate instruments in lieu of installed high-range exposure rate monitors. Crews attempting missions outside the MCR following an accident would include Radiological Control personnel provided with high-range exposure rate instrumentation. The range of the Type E portable instrumentation available for this purpose is 1.0 E-3 R/hr to 1.0 E+4 R/hr, which is consistent with the range required for area exposure rate monitoring.

Additionally, the TVA RMS presently includes normal-range area monitors, each with a range from 1.0 E-1 mR/hr to 1.0 E+4 mR/hr. These monitors are located throughout the plant in areas where personnel access is common. Area monitors are not required to be within the scope of the environmental qualification program and are not included in the Post Accident Monitoring (PAM) program. Monitors located outside the primary containment and other locations of high post-accident exposure rates can be expected to remain on scale and to continue to provide exposure rate indication with required accuracy during accident conditions. These monitors will provide useful input to MCR personnel for assessment of plant exposure rate levels during accident conditions. Based on this assessment and WBN Radiological Emergency Plan dose limitations, a decision will be made as to whether or not missions outside the MCR would be attempted.

In summary, the WBN position on high-range accident monitoring is that high-range exposure rate instrumentation will not be installed and that high-range monitoring will be provided by portable monitoring instrumentation that meets the range stated in RG 1.97.

3. RG 1.97 Guidance:
Containment Area Radiation, High-Range

Deviation:

Note 7 of RG 1.97, Revision 2, for the subject variable states, "...detectors should respond to gamma photons within any energy range from 60KeV to 3MeV with an energy response accuracy of 20% at any specific photon energy from 0.1 MeV to 1MeV. Overall system accuracy should be within a factor of 2 over the entire range." TVA meets the guidance of RG 1.97 Revision 3, Note 7 for the subject variable, which states, "Detectors should respond to gamma radiation photons within any range from 60KeV to 3MeV with a dose rate response accuracy within a factor of 2 over the entire range."

It is acceptable to meet the guidance of RG 1.97, Revision 3.

4. RG 1.97 Guidance:
Condenser Vacuum Pump Exhaust Vent (Noble Gas)

Deviation:

The RG 1.97, Revision 2, range for the condenser vacuum pump exhaust monitors is 1.0 E-6 to 1.0 E+5 µCi/cc .

TVA has determined the total gas required range of the condenser vacuum pump exhaust monitors to be less than the 1.0 E-6 value in RG for the low end of the range and 2.4 E+3 µCi/cc at the upper end of the range.

The steam generator tube rupture (SGTR) is the only credible accident monitored by the condenser vacuum pump exhaust monitor. NUREG-0800, Revision 2, provides that the SGTR accident be analyzed using the highest isotope concentrations allowed by the Watts Bar Technical Specifications. The specific activity of the reactor coolant is limited to:

a) Less than or equal to 1 microcurie per gram dose equivalent Iodine-131, and

b) Less than or equal to $100/\bar{E}$ µCi/gm

The dose equivalent of I-131 is greater than 4 times more restrictive than the $100/\bar{E}$ limit. The $100/\bar{E}$ is more conservative and is selected to demonstrate that the monitor will remain on scale during the most severe accident. The highest concentration of mixed noble gas isotopes that can be

present under the 100/E limit is 1.45 E+3 µCi/cc as determined in TVA calculation WBNAPS3-048. For the SGTR source spectrum, the maximum measurable concentration for the condenser vacuum pump exhaust monitors is 3.53 E+4 µCi/cc. Therefore, the Watts Bar required range for the condenser vacuum pump exhaust monitors meet the intent of RG 1.97, Revision 2, based on either the mixed gas or the SGTR specific source spectrum.

5. RG 1.97 Guidance:
Auxiliary Building Exhaust Vent Radiation Level - Particulates and Halogens

Deviation:

The range recommended in RG 1.97, Revision 2, is 1.0E-3 to 1.0 E+2 µCi/cc; WBN recommends 1.0 E-10 to 1.0 E-5 for particulates and 1.0 E-9 to 1.0 E-4 µCi/cc for halogens (iodine).

The Auxiliary Building vent monitor is provided to continuously monitor the radioiodine and particulate radioactivity released through the Auxiliary Building exhaust vent. A design basis fuel handling accident in the Auxiliary Building or a design basis LOCA in the Reactor Building will cause the ventilation paths exhausting into the Auxiliary Building vent duct to automatically close and the Auxiliary Building gas treatment system to be activated. Because the isolation function occurs before accident-range activity is reached, a normal-range monitor only is employed to monitor activity in the Auxiliary Building vent. Therefore, the recommended range of 1.0 E-10 to 1.0 E-5 µCi/cc for particulates and 1.0 E-9 to 1.0 E-4 µCi/cc for halogens (iodine) are adequate for detecting and measuring normal operation particulate and radioiodine concentrations. Laboratory analysis of collected samples allows measurement over a wide range.

The following ISs were used as reference guidance in designing and evaluating the radiation monitoring system:

ANS N13.1-1969 - "Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities"

ANSI/ANS-HPSSC-6.8.1-1981, "Location and Design Criteria for Area Radiation Monitoring Systems for Light Water Nuclear Plants"

Information Requested:

Define and quantify the key issues associated with the RMS.

Response:

Prior to turnover of the RMS to plant Operations, the issues which impacted the RMS could be grouped into the following four categories (corrective actions initiated to address the issues are cataloged on a monitor-by-monitor basis in Attachment 1 to this Enclosure):

1. Inconsistent documentation.

2. Noncompliance with design requirements.

3. Isokinetic sampling.

4. Maintenance or age related problems.

For the first category, inconsistencies existed in and among commitment documents (FSAR, responses to RGs, etc.), requirements documents (system design criteria), configuration control documents (drawings), and field installations. These inconsistencies involved sample line construction, equipment configuration, and system performance.

The primary corrective action document associated with this category was SCRWBNEEB8724SCA and its associated 10 CFR 50.55(e) report, CDR 390/86-49. Specific examples of inconsistencies included components which were not as specified on vendor drawings for the Shield Building, Auxiliary Building, and Service Building vent monitor isokinetic flow control stations; lack of location and mounting details for on-line area monitors; vendor change documents which were not incorporated into the vendor manuals; and discrepancies between vendor drawings and TVA drawings.

Also discussed in CDR 390/86-49 was WBP890386PER, which included deficiencies in the retrievability of QA records supporting radiation monitoring calibration transfer sources. The issue concerned the traceability to the primary calibration and to the National Bureau of Standards (NBS).

WBPER940601 documented discrepancies discovered during performance of the Engineering Assessment of the RMS, which included incorrect depiction of ball and plug valves on the control drawings, and inconsistencies between Equipment Management System (EMS) safety classifications for Class 1 sample line tubing and pressure boundary retention requirements.

Corrective actions for the documentation inconsistencies included sample line and equipment walkdowns and evaluation efforts. Sample line walkdowns and evaluations were documented in 1989 and 1995. Equipment walkdowns were completed in 1990. Equipment evaluations were performed in 1990 and 1995. DCN S-06973-A resolved documentation discrepancies associated with sample line configurations discovered during the 1989 walkdown and evaluation. DCN S-10604 resolved equipment documentation discrepancies discovered in the 1990 walkdowns and evaluations. DCNs S-36049 and S-37549 corrected the documentation discrepancies discovered during the 1995

evaluations. The validity of the corrective actions performed following the 1989 and 1990 evaluations were supported by the small number of discrepancies noted in the 1995 evaluations.

With regard to the Shield Building, Auxiliary Building, and Service Building vent isokinetic flow control station documentation discrepancies, the equipment was replaced or upgraded. In addition, new vendor documentation was received, reviewed, and approved by TVA. Revised TVA drawings were prepared for these components as part of DCNs M-03450, M-03451, and W-07445.

Discrepancies in vendor manuals were corrected under the Vendor Manual Upgrade Program as part of WBP870701SCA.

Location details for on-line area monitors were documented in DCNs W-23167, S-31335, and S-29173. Drawings controlling mounting details were verified to be available.

Records supporting the traceability of transfer calibration sources to the primary calibration and to NBS standards were located and retrievability was assured.

Recurrence control for this category of RMS issues included the revision and upgrade of design control procedures, which are specified in the report for CDR 390/86-49.

For the second category, noncompliance with design requirements, the primary corrective action documents were WBP880409SCA and WBP890192PER. WBP880409SCA reported changes made by the field in an attempt to achieve operation of the Air Monitor isokinetic flow control stations for the Shield, Auxiliary, and Service Building vent monitors within acceptable error tolerances. WBPER890192PER reported undocumented changes made to radiation monitoring ratemeters and to detector preamplifier boards. The ratemeter changes were made to add a trip-inhibit feature on the model RP-1 and RP-30 radiation analyzers. The changes to the detector preamplifier boards were made to achieve higher gain and overcome inadequate photomultiplier tube performance.

To address these issues, the affected portion of the instrumentation for the Shield Building, Auxiliary Building, and Service Building vent monitors was replaced or upgraded. These modifications resulted in the equipment being supported by a new set of vendor supplied and TVA approved as-built documentation. This was accomplished by DCNs M-03450, M-03451, and W-07445 and resolved the undocumented changes reported in WBP880409SCA.

Radiation monitoring ratemeters Models RP-1, RP-2, and RP-30 were replaced with new models RP-1AM, RP-2AM, and RP-30AM for WBP890192PER. This was accomplished under DCN W-06378. The new model ratemeters incorporate the trip inhibit feature, which was desirable. A new set of documentation was supplied with the equipment so that configuration control was regained. The safety-related preamplifier boards were returned to the vendor for refurbishment. Nonsafety-related preamplifier boards were returned

to documented configuration by Instrument Maintenance. This was accomplished by DCNs W-09308, W-09309, M-09378, and M-09786.

Recurrence control included the issuance of revised and upgraded plant modification procedures specified in the 10CFR50.55(e) report, CDR 390/86-49.

Isokinetic sampling issues, the third category listed above, involved both sample line construction and equipment design. The corrective action documents associated with this category were SCRWBNEEB8724SCA, WBP880409SCA, and WBPER940423. SCRWBNEEB8724SCA described problems with sample lines which may degrade representative sample capability, including long line lengths, excessive numbers of bends, inappropriate bend radii, and lack of heat tracing and insulation for processes susceptible to moisture condensation. WBPER940423 included additional examples of sample line deficiencies. WBP880409SCA reported problems with maintaining isokinetic flow control for the Shield Building, Auxiliary Building, and Service Building ventilation monitors with the Air Monitor equipment; and additionally reported that the subsamples to the radiation monitors were not isokinetic after leaving the primary sample line.

As stated previously, to determine the condition of sample lines and to determine corrective action, walkdowns and evaluations of the sample lines were performed in 1989 and again in 1995.

The problems with the isokinetic sampling stations were resolved by revision to the design criteria where requirements were overly restrictive, physical changes to the sample lines to bring them into compliance with the revised criteria, and the development of calculations to determine particle loss in the sample lines so that effluent reports would be conservative.

Sample line configuration and the lack of isokinetic subsamples on the Auxiliary Building and Service Building vents were resolved by completion of particle loss calculation WBNTSR-060. This calculation provided transmission factors to be used to assess the actual particulate concentration in the effluent release path based on activity on the filter and sample line losses. For the Shield Building, the issue of non-isokinetic subsamples is no longer valid, since the radiation monitor subsample is also controlled based on flow rate in the duct.

Recurrence control for this category included the development and issuance of an adequate design criteria as described in the final report for CDR 390/86-49.

Regarding the fourth category, one of the more effective activities which addressed age-related problems was the replacement of the RP-1, RP-2, and RP-30 ratemeters. This replacement was performed as part of WBP890192PER under Design Change Notice (DCN) W-06378.

Additional examples of the resolution of age-related problems are:

- The implementation of DCNs W-09308, W-09309, M-09378, and M-09786 for the rebuilding of detectors.

- The refurbishment of preamplifiers by the vendor or TVA to support the corrective action for WBP890192PER.

State-of-the-art digital flow control systems were provided for the Shield Building, Auxiliary Building, and Service Building vent isokinetic flow control equipment. The upgrading was completed as part of the corrective action for WBP880409SCA by DCNs M-03450, M-03451, and W-07445.

Heat trace and insulation added for the prevention of moisture condensation by DCNs W-33688 and W-35465 will aid in decreasing maintenance activities caused by humidity and water problems. The heat trace and insulation was part of the corrective action required for resolution of WBPER940423.

The need for decontamination maintenance of the RMS was further decreased by the addition of purge valves as part of the corrective action for SCRWBNEEB8724SCA. The addition of these valves decreases the maintenance time required to decontaminate the monitor sample chambers.

Additional information regarding the corrective actions implemented for each monitor is contained in Attachment 1.

Information Requested:

Describe the results of assessments performed by TVA's Nuclear Assurance organization on the RMSP.

Response:

The closure verification activities associated with the RMSP performed by TVA's Nuclear Assurance organization was comprised of assessments performed at various stages of the RMSP effort. These assessments were performed in the February 94 to December 95 timeframe. The scope of these assessments included engineering, design changes, field walkdowns, open item closures, setpoint and scaling documents, testing, transfer of calibration data, and control of check sources. The following issues resulted from these assessments:

1. Duplicate design exception numbers were used on two different exceptions.

2. FSAR seismic classification was not consistent with Q-List or design criteria.

3. Radiation monitor 1-R-90-140 (non-technical specification) was discussed in the design criteria but not in the FSAR.

4. The design criteria were inconsistent with certain calculations regarding the safety-related classification of radiation monitors.

5. Walkdowns identified slope problems on three non-technical specification radiation monitors.

6. Non-technical specification radiation monitor 1-RE-90-124 would not function as designed.

7. The non-retrievability of some calibration records was noted; this had been previously identified and documented in WBP890396PER.

8. Differences between DCAs and the plant (e.g., dimensional errors).

9. Slope deviations, mistagged equipment, and loose hardware.

10. A missing tag on 1-HTR-234-0460 and incorrect nomenclature on 1-RE-090-0131A.

The final Nuclear Assurance verification of the RMSP was completed on October 26, 1995. This assessment verified that issues from prior assessments were satisfactorily corrected and 74 of 108 open items were closed. (These open items were subsequently verified as satisfactorily closed by Nuclear Assurance as part of the open item closure reviews performed prior to fuel load.)

In January 1996 an assessment was performed by Nuclear Assurance to evaluate the effectiveness of training of operations and maintenance personnel in the area of radiation monitor maintenance and operation. Each department's classroom training course was evaluated. Personnel were questioned to ascertain their level of knowledge after attending the training. No deficiencies were found. Additionally, the trending of equipment failures by Technical Support was reviewed for radiation monitoring equipment and was found to be acceptable. Nuclear Assurance concluded that maintenance and operations personnel have the appropriate knowledge level to maintain and operate the radiation monitoring system and that equipment failure analysis evaluations were satisfactory.

Information Requested:

The TVA Engineering Assessment report issued in April 1995 identified 20 open items, 58 team items, and 27 observations. Provide the basis for resolution of each of the items.

Response:

The assessment report issued in April 1995 documented a monitor-by-monitor review of the radiation monitors in System 90 to assess the

system's ability to perform its intended functions, to determine if the system met regulatory requirements, and to identify and correct inconsistencies in design documentation. Each monitor in the system was evaluated against criteria such as range, sensitivity, accuracy, background accounted for, safety classification, redundancy, location of and type of readouts, electrical and mechanical requirements, and environmental requirements. The requirements for these attributes were established from the design criteria and TVA licensing commitments. The review examined whether the hardware and associated documentation met the established requirements. It also examined whether inconsistencies existed between the design criteria and licensing commitments.

During the review 20 open items, 58 team items, and 27 observations were identified. The open items were issues that required correction and were determined to be outside of the scope of the team's charter to correct and thus were added as specific corrective actions in WBNPER940601 to document and track resolution of the conditions. A description of each open item, which monitor it related to, and how the item was resolved is provided in Table 1 of Attachment 2.

The 58 team items were issues for which it was determined that the Radiation Monitoring System Design Criteria, FSAR sections on radiation monitoring, or calculations needed to be revised to correct inconsistencies, errors, or provide clarification. The 58 team items shown in Table 2 of Attachment 2 were addressed by revisions to the documents listed above. These actions were completed prior to September 1995. The specific documents changed and the date of the change are also shown in the table.

The 27 observations were items that the team documented for information in the tables attached to the April 28, 1995, report. The items reflected work being tracked by open corrective action documents, items related to work in progress, practices used at other utilities, or informational comments. None of these items required new actions on the part of TVA to meet design requirements or regulatory commitments. Table 3 of Attachment 2 provides a listing of the observations and shows how they were dispositioned. All of the observations were evaluated and closed.

Attachment 1

Deficiencies Impacting the RMS

Watts [redacted]clear Plant
Radiation M[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-003	Area	No	No	No	No

Monitor Description: Waste Package Area Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

Watts [redacted]clear Plant
Radiation M[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-004	Area	No	No	No	No

Monitor Description: Decontamination Room Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	*Delete loops 235 & 236*
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

Watts [redacted]uclear Plant
Radiation M[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-005	Area	No	No	No	No

Monitor Description: Spent Fuel Pool Pumps Area Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	*Delete loops 235 & 236*
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	*Add keep alive source for 1-RE-90-2*

Watts B[redacted]clear Plant
Radiation M[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-009	Area	No	No	No	No

Monitor Description: Waste Evaporator Condensate Tank Area Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

Watts B[redacted]clear Plant
Radiation M[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-011	Area	No	No	No	No

Monitor Description: Containment Spray & RHR Pump Area Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

Watts B[redacted]clear Plant
Radiation M[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification: Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-012	Particulate	No	No	No	No

Monitor Description: Spent Fuel Pool Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation inconsistencies
WBP890192	Undocumented changes to ratemeters
WBP880318	*Noise causes spurious* actuations
WBP890396	Calibration documentation missing
WBP890422	Ratemeter cable damage on rough cable entry
WBNEEB8553	Lack of load data
WBPER940670	Degraded wiring from 10CFM moving filter to electronics box

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03001	N/A	Installs multiplexer so particular CAM unit in alarm can be determined from recorder
06378	WBP890192	Install new ratemeters and power supply
07064	WBP890422	Add grommet to prevent wire damage
09786	WBP880318	Add noise suppression across three relay coils and buzzer; correct ground for single point ground
09786	WBNEEB8724 R3	Condition A8, rebuild detectors; correct preamp board to as documented condition; make all wiring consistent and as documented; delete isolation transformer (doc only, except 1-RE-90-62) add diode across flow alarm relay in 1-RE-90-62
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation corrections
33714	WBPER940670	Corrects degraded wiring, 10CFM moving filter to electronics box (except loops 2-14)

Watts B[redacted]clear Plant
Radiation M[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification: Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-013	Particulate	No	No	No	No

Monitor Description: Shipping Bay Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation inconsistencies
WBP890192	Undocumented changes to ratemeters
WBP880318	Noise causes spurious actuations
WBP890396	Calibration documentation missing
WBP890422	Ratemeter cable damage on rough cable entry
WBNEEB8553	Lack of load data
31105-WBN-06	Various ALARA concerns (applicable to 0-RE-90-13 only)
WBPER940423	General sample line deficiencies
WBPER940670	Degraded wiring from 10CFM moving filter to electronics box

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03001	N/A	Installs multiplexer so particular CAM unit in alarm can be determined from recorder
06378	WBP890192	Install new ratemeters and power supply
06973	WBNEEB8724 R3	Condition A2 of WBNEEB8724, as constructed sample lines
07064	WBP890422	Add grommet to prevent wire damage
09786	WBP880318	Add noise suppression across three relay coils and buzzer; correct ground for single point ground
09786	WBNEEB8724 R3	Condition A8, rebuild detectors; correct preamp board to as documented condition; make all wiring consistent and as documented; delete isolation transformer (doc only, except 1-RE-90-62) add diode across flow alarm relay in 1-RE-90-62
09786	31105-WBN-06	Move 0-RE-90-13 and add sample line
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation corrections
33714	WBPER940670	Corrects degraded wiring, 10CFM moving filter to electronics box (except loops 2-14)

Watts [redacted]clear Plant
Radiation M[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification: Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-015	Particulate	No	No	No	No

Monitor Description: Holdup Valve Gallery Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation inconsistencies
WBP890192	Undocumented changes to ratemeters
WBP880318	Noise causes spurious actuations
WBP890396	Calibration documentation missing
WBP890422	Ratemeter cable damage on rough cable entry
WBNEEB8553	Lack of load data
WBPER940423	General sample line deficiencies
WBPER940670	Degraded wiring from 10CFM moving filter to electronics box

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03001	N/A	Installs multiplexer so particular CAM unit in alarm can be determined from recorder
06378	WBP890192	Install new ratemeters and power supply
06973	WBNEEB8724 R3	Condition A2 of WBNEEB8724, as constructed sample lines
07064	WBP890422	Add grommet to prevent wire damage
09786	WBP880318	Add noise suppression across three relay coils and buzzer; correct ground for single point ground
09786	WBNEEB8724 R3	Condition A8, rebuild detectors; correct preamp board to as documented condition; make all wiring consistent and as documented; delete isolation transformer (doc only, except 1-RE-90-62) add diode across flow alarm relay in 1-RE-90-62
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation corrections
94-22034-01	N/A	Replace defective cable ratemeter to detector for 0-RE-90-15
33714	WBPER940670	Corrects degraded wiring, 10CFM moving filter to electronics box (except loops 2-14)
35152	N/A	Add sample line lengths for 15, 17, 105, and 138
	WBPER940423	Resolve or incorporate exceptions to design criteria WB-DC-40-24 R4

Watts [redacted]clear Plant
Radiation M[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-016	Particulate	No	No	No	No

Monitor Description: Decontamination Room Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724 R3	Condition A2 of WBNEEB8724, General sample line routing problems (applicable to 0-RE-90-16 only)
SCRWBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation inconsistencies
WBP890192	Undocumented changes to ratemeters
WBP880318	Noise causes spurious actuations
WBP890396	Calibration documentation missing
WBP890422	Ratemeter cable damage on rough cable entry
WBNEEB8553	Lack of load data
WBPER940423	General sample line deficiencies
WBPER940670	Degraded wiring from 10CFM moving filter to electronics box

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03001	N/A	Installs multiplexer so particular CAM unit in alarm can be determined from recorder
06378	WBP890192	Install new ratemeters and power supply
06973	WBNEEB8724 R3	Condition A2 of WBNEEB8724, as constructed sample lines
07064	WBP890422	Add grommet to prevent wire damage
09786	WBP880318	Add noise suppression across three relay coils and buzzer; correct ground for single point ground
09786	WBNEEB8724 R3	Condition A8, rebuild detectors; correct preamp board to as documented condition; make all wiring consistent and as documented; delete isolation transformer (doc only, except 1-RE-90-62) add diode across flow alarm relay in 1-RE-90-62
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation corrections
WR-C297138	N/A	Replace recorder ground strap for 0-RE-90-16, 0-RE-90-17, and 1-RE-90-62
33714	WBPER940670	Corrects degraded wiring, 10CFM moving filter to electronics box (except loops 2-14)
36188	N/A	Provide local room alarm for loop 16
S-37549	WBPER940423 WBPER940601	Resolve or incorporate exceptions to design criteria WB-DC-40-24 R4 Revise WB-DC-40-24 to allow 1L(G) classification for 0-RE-90-16

Watts B[redacted]uclear Plant
Radiation M[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-017	Particulate	No	No	No	No

Monitor Description: Safety Injection Pump Area Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation inconsistencies
WBP890192	Undocumented changes to ratemeters
WBP880318	Noise causes spurious actuations
WBP890396	Calibration documentation missing
WBP890422	Ratemeter cable damage on rough cable entry
WBNEEB8553	Lack of load data
WBPER940423	General sample line deficiencies
WBPER940670	Degraded wiring from 10CFM moving filter to electronics box

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03001	N/A	Installs multiplexer so particular CAM unit in alarm can be determined from recorder
06378	WBP890192	Install new ratemeters and power supply
06973	WBNEEB8724 R3	Condition A2 of WBNEEB8724, as constructed sample lines
07064	WBP890422	Add grommet to prevent wire damage
09786	WBP880318	Add noise suppression across three relay coils and buzzer; correct ground for single point ground
09786	WBNEEB8724 R3	Condition A8, rebuild detectors; correct preamp board to as documented condition; make all wiring consistent and as documented; delete isolation transformer (doc only, except 1-RE-90-62) add diode across flow alarm relay in 1-RE-90-62
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation corrections
WR-C297138	N/A	Replace recorder ground strap for 0-RE-90-16, 0-RE-90-17, and 1-RE-90-62
33714	WBPER940670	Corrects degraded wiring, 10CFM moving filter to electronics box (except loops 2-14)
35152	N/A	Add sample line lengths for 15, 17, 105, and 138
	WBPER940423	Resolve or incorporate exceptions to design criteria WB-DC-40-24 R4

Watts B[redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-101 0-LPF-90-300	Particulate, Iodine & Gas (PIG)	No	Yes	Yes	No

Monitor Description: Aux Building Ventilation Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A1 of WBNEEB8724, Non-isokinetic sample
WBNEEB8724 R3	Condition A2 of WBNEEB8724, General sample line routing problems
WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation inconsistencies
WBNEEB8724 R3	Condition D of WBNEEB8724, Non-seismically qualified test and isolation valves
WBPER940601	DOE errors
WBP870728	Missing pipe tubing caps
WBP880197	Lack of mounting details for flow elements
WBP880318	Noise causes spurious actuations
WBP880409	Air monitor isokinetic sampling system problems
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
W-272-P	Iodine lo flow switches don't work in application
W-466-P	Tube insulation not per NE output
WBNEEB8553	Lack of load data
WBNNEB8709	Particulate plateout concerns
CRDR HED 89/HEC 5240	Recorder Scales
WBPER940423	General sample line deficiencies vs. design criteria
WBPER940670	Degraded wiring from 10CFM moving filter to electronics box
WBSCA940032	Coax to single conductor transitions
WBPER950650	Grab sample valves inappropriate for application - vacuum pulls diaphragm down and sample cannot be taken
CRDR HED 109	Radiation analyzer indicator light labels

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02243	WBP880197	Document flow element mounting
03445	WBP870728	Install pipe tubing caps
06378	WBP890192	Install new ratemeters and power supply
06378	CRDR HED 109	Install new ratemeters and power supply
06808	WBNEEB8724 R3	Condition A2 of WBNEEB8724, General sample line upgrades: correct code class; slope exception
06973	WBNEEB8724 R3	Condition A8 of WBNEEB8724, sample line documentation correction
07445	WBNEEB8724 R3	Condition A1 of WBNEEB8724, upgrade Air Monitor sampling system
07445	WBP880409	Upgrade Air Monitor sampling system
09378	WBP880318	Add noise suppression networks, correct detector loop grounds
09378	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Rebuild detectors, standardize internal wiring
09378	WBP890192	Return defective preamp boards to documented configuration
25193, 36511	WBP880409	Add auxiliary bldg flow rate to list of PAM variables monitored on ERFDS
10604	WBNEEN8724 R3	Condition A8 of WBNEEB8724, Documentation corrections only
10425	WBNEEB8724 R3	Condition A2 of WBNEEB8724, Correct valve classification
10425	WBNEEB8724 R3	Condition D of WBNEEB8724, Correct valve classification
36049	WBPER940601	Correct valve depiction
34195	N/A	Replace quick disconnects
23237	W-272-P	Replace iodine low flow switch
23237	WBP880318	Wrap internal detector cables with EMI tape
23237	CRDR HED 89/HEC 5240	Correct recorder scales
21861	WBP880318	Delete auto ABI
33714	WBPER940670	Corrects degraded wiring from 10CFM moving filter to electronics box
23167	WBSCA940032	Provide materials and instructions for coax to single conductor transition
	WBPER940423	Resolves or incorporates sample line exceptions
27485	N/A	SSDs
36528	N/A	Air Monitor SSDs
S-37549	WBPER940601	Revise WB-DC-40-24 to permit 1(L)B qualification of radiation detection and flow monitoring skid; also revise HVAC D.C. for function
S-37910	WBPER940601	Lower flow limits
W-37566	N/A	Resolve ground loops (shield ties)
S-38326	N/A	Correct control drawings

Watts B[redacted]iclear Plant
Radiation M[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-102	Shine	Yes	No	No	Yes

Monitor Description: Fuel Pool Area Accident Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A6 of SCRWBNEEB8724, geometry documentation missing
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP890192	Unauthorized, undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBP890473P	Unauthorized "keep alive" source in RD-1
WBP910053	Vendor change to RD-1 electronics card is bad fit
WBNEEB8553	Load data missing
WBPER940279	MCR recorders not isolated
CDR HED 109	Radiation analyzer indicator light labels
WBSCA940032	Transitions from coax to TSP, triax or single conductor; connector termination to WWK at penetration.
CRDR HED 89/HEC 5252	Recorder scales
WBPER940072	RT-10, RT-11 transfer data; SE calibration methods
WBP890586	E-MAX rack power supplies not qualified
WBPER930482	Supply breakers to aux bldg exhaust fans not single failure proof

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
06378	WBP890192	Install new ratemeters and power supply
06378	CRDR HED 109	Install new ratemeters and power supply
10604	WBNEEB8724	Condition A8 to SCRWBNEEB8724, documentation only corrections
11304	WBP890586	Replace power supplies in R-163,164
23167	WBNEEB8724 R3	Condition A4 of WBNEEB8724, Documentation: Location, mounting
23167	CRDR HED 89/HEC 5252	Correct recorder scales
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductor or TSP in MCB
31640	WBPER940279	Use of separated, dedicated recorders for each loop for devices tied to 1E outputs
S-32449		Test requirements
23409	N/A	Issue SSDs
31335		Corrects location of 102, 103 (23167 is predecessor)
R01014511	WBPER940072	New RT-10 calibrator
W-35389	N/A	Computer signals can be adjusted in the field to corrective equipment inaccuracies.
S-37518	WBPER940279	Add notes to I-tabs, special requirements, based on seismic test contract 141254 for recorders
M-29141	WBPER930482	Upgrade aux bldg & fuel handling circuits.
34421	N/A	Preop test criteria

Watts B[redacted]clear Plant
Radiation M[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-103	Shine	Yes	No	No	Yes

Monitor Description: Fuel Pool Area Accident Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A6 of SCRWBNEEB8724, location mounting, geometry documentation missing
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP890192	Unauthorized, undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBP890473P	Unauthorized "keep alive" source in RD-1
WBP910053	Vendor change to RD-1 electronics card is bad fit
WBNEEB8553	Load data missing
WBPER940279	MCR recorders not isolated
CDR HED 109	Radiation analyzer indicator light labels
WBSCA940032	Transitions from coax to TSP, triax or single conductor; connector termination to WWK at penetration.
CRDR HED 89/HEC 5252	Recorder scales
WBPER940072	RT-10, RT-11 transfer data; SE calibration methods
WBP890586	E-MAX rack power supplies not qualified
WBPER930482	Supply breakers to aux bldg exhaust fan not single failure proof.

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
06378	WBP890192	Install new ratemeters and power supply
06378	CRDR HED 109	Install new ratemeters and power supply
10604	WBNEEB8724	Condition A8 to SCRWBNEEB8724, documentation only corrections
11304	WBP890586	Replace power supplies in R-163,164
23167	WBNEEB8724 R3	Condition A4 of WBBEEB8724, Documentation: Location, mounting
23167	CRDR HED 89/HEC 5252	Correct recorder scales
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductor or TSP in MCB
31640	WBPER940279	Use of separated, dedicated recorders for each loop for devices tied to 1E outputs
S-32449		Test requirements
23409	N/A	Issue SSDs
31335	WBNEEB8724	Corrects location of 102, 103 (23167 is predecessor)
RD1014511	WBPER940072	New RT-10 calibrator
W-35389	N/A	Computer signals can be adjusted in field to correct equipment inaccuracies.
S-37518	WBPER940279	Add notes to I-tabs, special requirements, based on seismic test contract 141254 for recorders
M-29141	WBPER930482	Upgrade aux bldg and fuel handling circuits.
34421	N/A	prop test criteria

Watts B[redacted]clear Plant
Radiation M[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-118	Gas	No	Yes	No	No

Monitor Description: Waste Disposal System Gas Effluent Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation inconsistencies
WBNEEB8724 R3	Condition G of WBNEEB3724, temperatures exceeding detector limits
WBP870728	Missing pipe tubing caps
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBNEEB8553	Lack of load data
PIRWBNNEB8705	Specific documentation discrepancies
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED/89/HEC 5252	Recorder scales
WBSCA940032	Coax to single conductor transitions
WBP880318	Noise Problems

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03445	WBP870728	Add pipe tubing caps
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
09309	WBP880318	Correct detector loop grounds
09309	WBNEEB8724 R3	Condition A8 of WBNEEB8724, rebuild detectors
09309	WBP890192	Return defective preamp boards to documented configuration
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation corrections only
10604	WBNNEB8705	Documentation corrections only
23236	CRDR HED 89/HEC 5252	Correct recorder scales
23167	WBSCA940032	Provide materials/instructions for coax to single conductor transition
27485	N/A	SSDs
S37549	WBPER940601	Correct Q-List classification of RE to 1(C)A
W37566	N/A	Resolve ground loops(shield ties)

Watts B[redacted]clear Plant
Radiation M[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-122	Liquid	No	Yes	No	No

Monitor Description: Waste Disposal System Liquid Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A2 of WBNEEB8724, General sample line routing problems
WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation inconsistencies
WBNEEB8724 R3	Condition G of WBNEEB8724, Temperatures and pressures above detector limits
WBPER940601	Doc errors
WBP870728	Missing pipe tubing caps
WBP880272	Non-seismically qualified flow switch
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBNEEB 8553	Lack of load data
CRDR HED 40	Nuisance alarms
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5252	Recorder Scales
WBPER940423	General sample line deficiencies
WBSCA940032	Coax to single conductor transition
WBP880318	Noise problems
WBPER930420	Installation of sample line not in accordance with requirements

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
WO	WBPER930420	Correct sample line installation as necessary
06378	WBP890192	Install new ratemeters and power supply
06378	CRDR HED 109	Install new ratemeters and power supply
06797	WBNEEB8724 R3	Condition A2 of WBNEEB8724, Replace inlet & outlet root & isol valves; replace elbows with less severe bends where possible; replace inlet purge valve, install outlet purge valve
06973	WBNEEB8724 R3	Condition A8 of WBNEEB8724, sample line as-constructed
09308	WBNEEB8724 , WBP880318	Condition A8, Correct loop grounding for single point ground, assure preamp board per drawing configuration, rebuild detectors
10604	WBNEEB8724 R3	Condition A8, Documentation corrections
15423	WBP880272	Resolves non-seismic flow switch (documentation)
23235	N/A	Correct vendor manual to reflect optical grease
23235	CRDR HED 89/HEC 5252	Correct recorder scales
23167	WBSCA940032	Provide materials, instructions for coax to single conductor transition
	WBPER940423	Resolve or incorporate exceptions in R4 of design criteria, WB-DC-40-24
34183	CRDR HED 40	Block alarm when monitor not in use
35985		SSDs
W-37566	N/A	Ground loops- shielded ties
S-36049	WBPER940601	Show valves correctly

Watts B[redacted]clear Plant
Radiation M[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-123	Liquid	No	No	No	No

Monitor Description: Component Cooling System Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A2 of WBNEEB8724, General sample line routing problems
WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation inconsistencies
WBPER940601	Doc Errors
WBP880272	Non-seismically qualified flow switch (0, 1-123)
WBP880273	Non-seismically qualified flow switch (2-123)
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBNEEB8553	Lack of load data
CRDR HED 40	Nuisance alarm
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5252	Recorder Scales
WBPER940423	General sample line deficiencies
WBSCA940032	Coax to single conductor transition
WBP880318	Noise problems

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
06378	WBP890192	Install new ratemeters and power supply
06378	CRDR HED 109	Install new ratemeters and power supply
06801	WBNEEB8724 R3	Condition A2 to WBNEEB8724, replace inlet and outlet isolation valves w/ss globe; add recirc purge/test valves; take exception for carbon steel root valves
06973	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Sample line as constructed
09308	WBNEEB8724 , WBP880318	Condition A8 of WBNEEB8724, Correct loop grounding for single point ground, assure preamp board per drawing configuration, rebuild detectors
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation corrections resolves non-seismic flow switch (documentation)
15423	WBP880272	Resolves non-seismic flow switch (documentation)
15423	WBP880273	Documentation corrections resolves non-seismic flow switch (documentation)
23235	N/A	Correct vendor manual to reflect optical grease
23235	CRDR HED 89/HEC 5252	Correct recorder scales
23167	WBSCA940032	Provide materials, instructions for coax to single conductor transition
33686	CRDR HED 40	Block alarm when monitor not in use
	WBPER940423	Resolve or incorporate exceptions in R4 of design criteria, WB-DC-40-24
W-37566	N/A	Ground loops - shield ties (1-123 only)
S-36049	WBPER940601	Show valves correctly, EMS corrections

Watts B[redacted]uclear Plant
Radiation M[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-125	Gas	Yes	No	No	Yes

Monitor Description: Main Control Room Normal Air Intake Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation discrepancies
SCRWBNEEB8724 R3	Condition A2 of SCRWBNEEB8724, general sample line routing problems
WBP870728	Missing pipe tubing caps
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBNEEB8553	Lack of load data
WBP880318	Noise produces spurious actuations
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5252	Recorder scales
WBSCA940032	Coax to single conductor transitions
WBP890586	E-MAX power supplies not qualified
WBP900107	Non-radioactive check source
WBPER940601	Documentation errors
WBPER940279	Recorders tied directly to ratemeters with no isolator
WBPER940423	General sample line deficiencies with respect to design criteria requirements

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03445	WBP870728	Add pipe tubing caps
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
09309	WBP880318	Add noise suppression networks, correct detector loop grounds
09309	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, rebuild detectors, standardize internal wiring
09309	WBP890396	Replace scintillator if required
10604	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation corrections only
36049	WBPER940601	Depict valves correctly
06795	WBNEEB8724 R3	Condition A2 of SCRWBNEEB8724, gen smpl line upgrades: delete outlet rt vlve, add outlet isol vlve; slope exception
06973	WBNEEB8724 R3	Condition A8, of SCRWBNEEB8724, sample line as-constructed
11304	WBP890586	Replace power supply in R-163, 164
34421	N/A	Preoperational test criteria
23236	WBP880318	Wrap detector cbls inside mon. w/EMI tape; reroute signal cbls from ratemeter to detector in cond. for 0-RE-90-125, 126
W37677	N/A	Resolve shield tie ground loops and isolator ground problem
31640	WBPER940279	Verify wiring correct in M-12 and test recorders for interface with Class 1E ratemeters
23167	WBSCA940032	Provide materials and instructions for coax to single conductor transition
	WBPER940423	R4 of design criteria, WB-DC-40-24 R4, resolved field deficiencies or incorporated exceptions
27485	N/A	SSDs
W37518	WBPER940279	Add notes to Instrument Tabs - special reqmts for recorders based on seismic test, contract 141254
S32449		Test requirements
W38500		Install noise suppression on LED check sources card
09309	WBP890192	Return defective preamp boards to documented configuration

Watts B[redacted]lear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-126	Gas	Yes	No	No	Yes

Monitor Description: Main Control Room Normal Air Intake Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation discrepancies
SCRWBNEEB8724 R3	Condition A2 of SCRWBNEEB8724, general sample line routing problems
WBP870728	Missing pipe tubing caps
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBNEEB8553	Lack of load data
WBP880318	Noise produces spurious actuations
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED/89/HEC 5252	Recorder scales
WBSCA940032	Coax to single conductor transitions
WBP890586	E-MAX power supplies not qualified
WBP900107	Non-radioactive check source
WBPER940601	Documentation errors
WBPER940279	Recorders tied directly to ratemeters with no isolator
WBPER940423	General sample line deficiencies with respect to design criteria requirements

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03445	WBP870728	Add pipe tubing caps
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
09309	WBP880318	Add noise suppression networks, correct detector loop grounds
09309	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, rebuild detectors, standardize internal wiring
09309	WBP890396	Replace scintillator if required
10604	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation corrections only
36049	WBPER940601	Correct valve depiction
06795	WBNEEB8724 R3	Condition A2 of SCRWBNEEB8724, gen smpl line upgrades: delete outlet rt vlve, add outlet isol vlve; slope exception
06973	WBNEEB8724 R3	Condition A8, of SCRWBNEEB8724, sample line as-constructed
11304	WBP890586	Replace power supply in R-163, 164
34421	N/A	Preoperational test criteria
23236	WBP880318	Wrap detector cbls inside mon. w/EMI tape; reroute signal cbls from ratemeter to detector in cond. for 0-RE-90-125, 126
W37677	N/A	Resolve shield tie ground loops and isolator ground problem
31640	WBPER940279	Verify wiring correct in M-12 and test recorders for interface with Class 1E ratemeters
23167	WBSCA940032	Provide materials and instructions for coax to single conductor transition
	WBPER940423	R4 of design criteria, WB-DC-40-24 R4, resolved field deficiencies or incorporated exceptions
27485	N/A	SSDs
W37518	WBPER940279	Add notes to Instrument Tabs - special reqmts for recorders based on seismic test, contract 141254
S32449		Test requirements
W38500		Install noise suppression on LED check sources card
09309	WBP890192	Return defective preamp boards to documented configuration

Watts B[redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-132	Particulate, Iodine & Gas (PIG)	No	Yes	No	No

Monitor Description: Service Building Ventilation Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A1 of WBNEEB8724, non-isokinetic sample
WBNEEB8724 R3	Condition A2 of WBNEEB8724, general sample line routing problems
WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation inconsistencies
WBP870069	Particulate filter failure due to non-metallic parts
WBP870074	ALARA concern, sample chamber contamination
WBP870728	Missing pipe tubing caps
WBP880197	Lack of mounting details for flow elements
WBP880318	Noise causes spurious actuations
WBP880409	Air Monitor isokinetic sampling system problems
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBP900159	Non-monitored potentially radioactive release path
NCR W-272-P	Iodine lo flow switches don't work in application
WBNEEB8553	Lack of load data
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5240	Recorder scales
WBSCA940032	Coax to single conductor transition
WBPER940423	General sample line deficiencies based on the design criteria
WBPER940670	Degraded wiring from the 10CFM filters to the electronics box
WBPER950650	Difficulty in obtaining sample through grab sample valves

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02243	WBP880197	Document flow element mounting
03445	WBP870728	Install pipe tubing caps
04192	WBNEEB8724 R3	Condition A2 of WBNEEB8724, piping classification documentation correction
06378	WBP890192	Install new ratemeters and power supply
06378	CRDR HED 109	Install new ratemeters and power supply
06973	WBNEEB8724 R3	Condition A8 of WBNEEB8724, sample line documentation correction
07445	WBNEEB8724 R3	Condition A1 of WBNEEB8724, upgrade air monitor sampling system
07445	WBP880409	Upgrade air monitor sampling system
09378	WBP880318	Add noise suppression networks, correct detector loop grounds
09378	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Rebuild detectors, standardize internal wiring, delete requirement for local alarm from design criteria
09378	WBP890192	Return defective preamp boards to documented configuration
09378	WBP870069	Assure that metallic parts will be supplied as necessary for part filter drive
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation only corrections
23237	NCR W-272-P	Replace iodine low flow switch
23237	WBP880318	Wrap internal detector cables with EMI tape
23237	CRDR HED 89/HEC 5240	Correct recorder scales
09378	N/A	Replace yellowed NaI crystal
33714	WBPER940670	Corrects degraded wiring 10 CFR filter to electronics box
23167	WBSCA940032	Provide materials and instructions for coax to single conductor transition
	WBPER940423	Resolves or incorporates exceptions in design criteria WB-DC-40-24 R4
36528		Air monitor SSDs
S-37910	WBPER940601	Lower flow limits
W-37566		Resolve ground loops - shield ties
S-38326		Correct control drawings

Watts B[redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-132, 0-LPF-90-320	Particulate, Iodine & Gas (PIG)	No	Yes	No	No

Monitor Description: Service Building Ventilation Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A1 of WBNEEB8724, Non-isokinetic sample
WBNEEB8724 R3	Condition A2 of WBNEEB8724, General sample line routing problems
WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation inconsistencies
WBPER940601	Doc errors, missing design output
PIRWBNNEB8667	Service Bldg piping class
WBP870728	Missing pipe tubing caps
WBP880197	Lack of mounting details for flow elements
WBP880318	Noise causes spurious actuations
WBP880409	Air Monitor isokinetic sampling system problems
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBP900159	Non-monitored potentially radioactive release path
W-272-P	Iodine lo flow switches don't work in application
WBNEEB8553	Lack of load data
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5240	Recorder Scales
WBSCA940032	Coax to single conductor transition
WBPER940423	General sample line deficiencies based on the design criteria
WBPER940670	Degraded wiring from the 10CFM filters to the electronics box
WBPER950650	Difficulty in obtaining sample through grab sample valves

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02243	WBP880197	Document flow element mounting
03445	WBP870728	Install pipe tubing caps
04192	PIRWBNNEB8667	Piping classification documentation correction
06378	WBP890192	Install new ratemeters and power supply
06378	CRDR HED 109	Install new ratemeters and power supply
06973	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Sample line documentation correction
07445	WBNEEB8724 R3	Condition A1 of WBNEEB8724, Upgrade Air Monitor sampling system
07445	WBP880409	Upgrade Air Monitor sampling system
09378	WBP880318	Add noise suppression networks, correct detector loop grounds
09378	WBNEEB8724 R3	Condition A8 of WBNEEB8724, rebuild detectors, standardize internal wiring, delete rqmt for local alarm from design criteria
09378	WBP890192	Return defective preamp boards to documented configuration
36049	WBPER940601	Correct valve depiction
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation corrections only
23237	W-272-P	Replace iodine low flow switch
23237	WBP880318	Wrap internal detector cables with EMI tape
23237	CRDR HED 89/HEC 5240	Correct recorder scales
09378	N/A	Replace yellowed NaI crystal
33714	WBPER940670	Corrects degraded wiring 10 CFM filter to electronics box
23167	WBSCA940032	Provide materials and instructions for coax to single conductor transition
	WBPER940423	Resolves or incorporates exceptions in design criteria WB-DC-40-24, R4
36528	N/A	Air monitor SSDs
S-37910	WBPER940601	Lower flow limits
W-37566	N/A	Resolve ground loops - shield ties
S-38326	N/A	Correct control drawings
37132	N/A	Revise particulate motors
34195	N/A	Replace quick disconnect

Watts B[redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-133	Liquid	No	Yes	Yes	Yes

Monitor Description: Essential Raw Cooling Water Effluent Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A2 of WBNEEB8724, general sample line routing problems
WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation inconsistencies
WBNEEB8724 R3	Condition D of WBNEEB8724, test and isolation valves not class C
WBNEEB8724 R3	Condition G of WBNEEB8724, Temperatures above detector limits
WBPER940601	Doc errors
WBP870728	Missing pipe tubing caps
WBP880271	Non-qualified flow switch
WBP880318	Noise problems
WBP880531	Carbon steel pipe not replaced by construction
WBP890192	Undocumented changes to ratemeters
WBP890206, WBP890561SCA	Temperatures above detector limits
WBP890396	Calibration documentation missing
WBP890586	E-MAX isolator power supplies not qualified
WBPER910387	Detector sensitivity will not meet range requirements
WBNEEB8553	Lack of load data
WBNEEB8572	Thermal effects on piping not considered
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5252	Recorder scales
WBPER940279	Non-qualified recorders tied directly to Class 1E ratemeters
WBPER940423	General sample line deficiencies
WBSCA940032	Coax to single conductor transition
WBFIR940028	Inconsistencies in FSAR, Q-List, design criteria

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03445	WBP870728	Install missing pipe tubing caps
04337	WBP880531	Replace root valves w/ss globes
06378	WBP890192	Install new ratemeters and power supply
06378	CRDR HED 109	Install new ratemeters and power supply
06800	WBNEEB8724 R3	Condition A2 of WBNEEB8724, Exception not required (WB-DC-40-24 R4)
06973	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Sample line as constructed
07104	WBNEEB8724 R3	Condition A2 of WBNEEB8724, slope/globe valve exception to ER Spec
09308	WBNEEB8724 , WBP880318	Condition A8 of WBNEEB8724, correct loop grounding for single point ground, assure preamp board per drawing configuration, rebuild detectors
10425	WBNEEB8724 R3	Condition D of WBNEEB8724, replace purge/test valves with qualified valves
30312	N/A	PAM upgrades
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation corrections
11304	WBP890586	Install qualified power supplies in R-163, 164 (E-MAX)
17010	WBP880271	Take credit for existing electrical isolation for flow switch
23235	N/A	Correct vendor manual to reflect optical grease
23235	CRDR HED 89/HEC 5252	Correct recorder scales
09308	WBP890396	Order and install correct crystal size of 0-RE-90-140
30248	WBP880271, WBFIR940028	Correct classification in Q-List for FS-90-133, 134, 140, 141, to 1(L)A
23167	WBSCA940032	Provide materials, instructions for coax to single conductor transition
PR-W-8375	WBPER940279	Test recorders for interface with Class 1E ratemeters
	WBPER940423	Resolve or incorporate exceptions to design criteria WB-DC-40-24 R4
27485	N/A	SSDs
36031		Downgrade pumps
W-37518	WBPER940279	Add notes to Isolation tabs, special requirements for recorders based on seismic test, contract 141254
W-37677	N/A	Ground loops - shielded ties and isolator grounds
S-36049	WBPER940601	Correct depiction of valves
W-37566		Ground loops - Shield ties

Watts B[redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-134	Liquid	No	Yes	Yes	Yes

Monitor Description: Essential Raw Cooling Water Effluent Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A2 of WBNEEB8724, general sample line routing problems
WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation inconsistencies
WBNEEB8724 R3	Condition D of WBNEEB8724, test and isolation valves not class C
WBNEEB8724 R3	Condition G of WBNEEB8724, Temperatures above detector limits
WBPER940601	DOC ERRORS
WBP870728	Missing pipe tubing caps
WBP880271	Non-qualified flow switch
WBP880318	Noise problems
WBP880531	Carbon steel pipe not replaced by construction
WBP890192	Undocumented changes to ratemeters
WBP890206	Temperatures above detector limits
WBP890396	Calibration documentation missing
WBP890586	E-MAX isolator power supplies not qualified
WBP910387	Detector sensitivity will not meet range requirements
WBNEEB8553	Lack of load data
WBNEEB8572	Thermal effects on piping not considered
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5252	Recorder scales
WBPER940279	Non-qualified recorders tied directly to Class 1E ratemeters
WBPER940423	General sample line deficiencies
WBSCA940032	Coax to single conductor transition
WBFIR940028	Inconsistencies in Q-list, FSAR, design criteria

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03445	WBP870728	Install missing pipe tubing caps
04337	WBP880531	Replace root valves w/ss globes
06378	WBP890192	Install new ratemeters and power supply
06378	CRDR HED 109	Install new ratemeters and power supply
06800	WBNEEB8724 R3	Condition A2 of WBNEEB8724, Exception not required (WB-DC-40-24 R4)
06973	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Sample line as constructed
07104	WBNEEB8724 R3	Condition A2 of WBNEEB8724, slope/globe valve exception to ER Spec
09308	WBNEEB8724 , WBP880318	Condition A8 of WBNEEB8724, correct loop grounding for single point ground, assure preamp board per drawing configuration, rebuild detectors
	WBNEEB8724 R3	Condition D of WBNEEB8724, replace purge/test valves with qualified valves
10425		
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation corrections
11304	WBP890586	Install qualified power supplies in R-163, 164 (E-MAX)
17010	WBP880271, WBFIR940028	Take credit for existing electrical isolation for flow switch
23235	N/A	Correct vendor manual to reflect optical grease
23235	CRDR HED 89/HEC 5252	Correct recorder scales
09308	WBP890396	Order and install correct crystal size of 0-RE-90-140
30248	WBP880271	Correct classification in Q-List for FS-90-133, 134, 140, 141, to 1(L)A
23167	WBSCA940032	Provide materials, instructions for coax to single conductor transition
PR-W-8375	WBPER940279	Test recorders for interface with Class 1E ratemeters
	WBPER940423	Resolve or incorporate exceptions to design criteria WB-DC-40-24 R4
27485	N/A	SSDs
36031		Downgrade pumps
W-37518	WBPER940279	Add notes to Isolation tabs, special requirements for recorders based on seismic test, contract 141254
W-37677		Ground loops - shielded ties and isolator grounds
S-36049	WBPER940601	Correct depiction of valves
30312	N/A	Pam upgrade
W-37566		Ground loop-shield ties

Watts B[redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-135	Area	No	No	Yes	No

Monitor Description: Main Control Room Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2
30312	N/A	PAM upgrade

Watts B[redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification: Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-138	Particulate	No	No	No	No

Monitor Description: Waste Packaging Room Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation inconsistencies
WBP890192	Undocumented changes to ratemeters
WBP880318	Noise causes spurious actuations
WBP890396	Calibration documentation missing
WBP890422	Ratemeter cable damage on rough cable entry
WBNEEB8553	Lack of load data
WBPER940423	General sample line deficiencies
WBPER940670	Degraded wiring from 10CFM moving filter to electronics box
WBPER950553	Unanalyzed elbow in particulate line

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03001	N/A	Installs multiplexer so particular CAM unit in alarm can be determined from recorder
06378	WBP890192	Install new ratemeters and power supply
06973	WBNEEB8724 R3	Condition A2 of WBNEEB8724, as constructed sample lines
07064	WBP890422	Add grommet to prevent wire damage
09786	WBP880318	Add noise suppression across three relay coils and buzzer; correct ground for single point ground
09786	WBNEEB8724 R3	Condition A8, rebuild detectors; correct preamp board to as documented condition; make all wiring consistent and as documented; delete isolation transformer (doc only, except 1-RE-90-62) add diode across flow alarm relay in 1-RE-90-62
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation corrections
33714	WBPER940670	Corrects degraded wiring, 10CFM moving filter to electronics box (except loops 2-14)
35152	N/A	Add sample line lengths for 15, 17, 105, and 138 Resolve or incorporate exceptions to design criteria WB-DC-40-24 R4

Watts B[redacted]uclear Plant
Radiation M[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-140	Liquid	No	Yes	Yes	Yes

Monitor Description: Essential Raw Cooling Water Effluent Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A2 of WBNEEB8724, general sample line routing problems
WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation inconsistencies
WBNEEB8724 R3	Condition D of WBNEEB8724, test and isolation valves not class C
WBNEEB8724 R3	Condition G of WBNEEB8724, Temperatures above detector limits
WBPER940601	Doc errors
WBP870728	Missing pipe tubing caps
WBP880271	Non-qualified flow switch
WBP880318	Noise problems
WBP880531	Carbon steel pipe not replaced by construction
WBP890192	Undocumented changes to ratemeters
WBP890206	Temperatures above detector limits
WBP890396	Calibration documentation missing
WBP890586	E-MAX isolator power supplies not qualified
WBP910387	Detector sensitivity will not meet range requirements
WBNEEB8553	Lack of load data
WBNEEB8572	Thermal effects on piping not considered
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5252	Recorder scales
WBPER940279	Non-qualified recorders tied directly to Class 1E ratemeters
WBPER940423	General sample line deficiencies
WBSCA940032	Coax to single conductor transition
WBFIR940028	Inconsistencies between Q-list, FSAR, and design criteria

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03445	WBP870728	Install missing pipe tubing caps
04337	WBP880531	Replace root valves w/ss globes
06378	WBP890192	Install new ratemeters and power supply
06378	CRDR HED 109	Install new ratemeters and power supply
06800	WBNEEB8724 R3	Condition A2 of WBNEEB8724, Exception not required (WB-DC-40-24 R4)
06973	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Sample line as constructed
30312	N/A	Pam upgrade
09308	WBNEEB8724 , WBP880318	Condition A8 of WBNEEB8724, correct loop grounding for single point ground, assure preamp board per drawing configuration, rebuild detectors
10425	WBNEEB8724 R3	Condition D of WBNEEB8724, replace purge/test valves with qualified valves
W-37566		Ground loop-shield ties
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation corrections
11304	WBP890586	Install qualified power supplies in R-163, 164 (E-MAX)
17010	WBP880271, WBFIR940028	Take credit for existing electrical isolation for flow switch
23235	N/A	Correct vendor manual to reflect optical grease
23235	CRDR HED 89/HEC 5252	Correct recorder scales
09308	WBP890396	Order and install correct crystal size of 0-RE-90-140
30248	WBP880271	Correct classification in Q-List for FS-90-133, 134, 140, 141, to 1(L)A
23167	WBSCA940032	Provide materials, instructions for coax to single conductor transition
PR-W-8375	WBPER940279	Test recorders for interface with Class 1E ratemeters
	WBPER940423	Resolve or incorporate exceptions to design criteria WB-DC-40-24 R4
27485	N/A	SSDs
36031		Downgrade pumps
W-37518	WBPER940279	Add notes to Isolation tabs, special requirements for recorders based on seismic test, contract 141254
W-37677	N/A	Ground loops - shielded ties and isolator grounds
S-36049	WBPER940601	Correct depiction of valves

Watts B[redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-141	Liquid	No	Yes	Yes	Yes

Monitor Description: Essential Raw Cooling Water Effluent Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A2 of WBNEEB8724, general sample line routing problems
WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation inconsistencies
WBNEEB8724 R3	Condition D of WBNEEB8724, test and isolation valves not class C
WBNEEB8724 R3	Condition G of WBNEEB8724, Temperatures above detector limits
WBPER940601	Doc errors
WBP870728	Missing pipe tubing caps
WBP880271	Non-qualified flow switch
WBP880318	Noise problems
WBP880531	Carbon steel pipe not replaced by construction
WBP890192	Undocumented changes to ratemeters
WBP890206	Temperatures above detector limits
WBP890396	Calibration documentation missing
WBP890586	E-MAX isolator power supplies not qualified
WBP910387	Detector sensitivity will not meet range requirements
WBNEEB8553	Lack of load data
WBNEEB8572	Thermal effects on piping not considered
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5252	Recorder scales
WBPER940279	Non-qualified recorders tied directly to Class 1E ratemeters
WBPER940423	General sample line deficiencies
WBSCA940032	Coax to single conductor transition
WBFIR940028	Inconsistencies between FSAR, Q-list, design criteria

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03445	WBP870728	Install missing pipe tubing caps
04337	WBP880531	Replace root valves w/ss globes
06378	WBP890192	Install new ratemeters and power supply
06378	CRDR HED 109	Install new ratemeters and power supply
06800	WBNEEB8724 R3	Condition A2 of WBNEEB8724, Exception not required (WB-DC-40-24 R4)
06973	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Sample line as constructed
30312	N/A	Pam upgrade
09308	WBNEEB8724 , WBP880318	Condition A8 of WBNEEB8724, correct loop grounding for single point ground, assure preamp board per drawing configuration, rebuild detectors
10425	WBNEEB8724 R3	Condition D of WBNEEB8724, replace purge/test valves with qualified valves
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation corrections
11304	WBP890586	Install qualified power supplies in R-163, 164 (E-MAX)
17010	WBP880271, WBFIR940028	Take credit for existing electrical isolation for flow switch
23235	N/A	Correct vendor manual to reflect optical grease
23235	CRDR HED 89/HEC 5252	Correct recorder scales
09308	WBP890396	Order and install correct crystal size of 0-RE-90-140
30248	WBP880271	Correct classification in Q-List for FS-90-133, 134, 140, 141, to 1(L)A
23167	WBSCA940032	Provide materials, instructions for coax to single conductor transition
PR-W-8375	WBPER940279	Test recorders for interface with Class 1E ratemeters
	WBPER940423	Resolve or incorporate exceptions to design criteria WB-DC-40-24 R4
27485	N/A	SSDs
36031		Downgrade pumps
W-37518	WBPER940279	Add notes to Isolation tabs, special requirements for recorders based on seismic test, contract 141254
W-37677	N/A	Ground loops - shielded ties and isolator grounds
S-36049	WBPER940601	Correct depiction of valves
W-37566		Ground loop - shield ties

Watts B[redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-205	Gas	No	No	No	Yes

Monitor Description: Main Control Room Emergency Air Intake Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation discrepancies
SCRWBNEEB8724 R3	Condition A2 of SCRWBNEEB8724, general sample line routing problems
WBP870728	Missing pipe tubing caps
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBNEEB8553	Lack of load data
WBP880318	Noise produces spurious actuations
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED/89/HEC 5252	Recorder scales
WBSCA940032	Coax to single conductor transitions
WBP890586	E-MAX power supplies not qualified
WBP900107	Non-radioactive check source
WBP900190	Incorrect sample withdrawal point (loops 205, 206)
WBPER940279	Recorders tied directly to ratemeters with no isolator
WBPER940423	General sample line deficiencies with respect to design criteria requirements
WBPER940601	Doumentation errors

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03445	WBP870728	Add pipe tubing caps
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
09309	WBP880318	Add noise suppression networks, correct detector loop grounds
09309	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, rebuild detectors, standardize internal wiring
09309	WBP890396	Replace scintillator if required
10604	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation corrections only
10443	WBP900190	Reroute 205, 206 sample line
06795	WBNEEB8724 R3	Condition A2 of SCRWBNEEB8724, gen smpl line upgrades: delete outlet rt vlve, add outlet isol vlve; slope exception
06973	WBNEEB8724 R3	Condition A8, of SCRWBNEEB8724, sample line as-constructed
11304	WBP890586	Replace power supply in R-163, 164
11831	WBNEEB8724 R3	Condition A2 of SCRWBNEEB8724, documentation: slope exception
23236	WBP880318	Wrap detector cbls inside mon. w/EMI tape; reroute signal cbls from ratemeter to detector in cond. for 0-RE-90-125, 126
W37677	N/A	Resolve shield tie ground loops and isolator ground problem
31640	WBPER940279	Verify wiring correct in M-12 and test recorders for interface with Class 1E ratemeters
23167	WBSCA940032	Provide materials and instructions for coax to single conductor transition
	WBPER940423	R4 of design criteria, WB-DC-40-24 R4, resolved field deficiencies or incorporated exceptions
27485	N/A	SSDs
W37518	WBPER940279	Add notes to Instrument Tabs - special reqmts for recorders based on seismic test, contract 141254
S32449		Test requirements
W38500		Install noise suppression on LED check sources card
09309	WBP890192	Return defective preamp boards to documented configuration
30649	WBPER940601	Depict valves correctly
34228	N/A	Change rotometer
34421	N/A	Preoperational test criteria

Watts B[redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-206	Gas	No	No	No	Yes

Monitor Description: Main Control Room Emergency Air Intake Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation discrepancies
SCRWBNEEB8724 R3	Condition A2 of SCRWBNEEB8724, general sample line routing problems
WBP870728	Missing pipe tubing caps
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBNEEB8553	Lack of load data
WBP880318	Noise produces spurious actuations
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED/89/HEC 5252	Recorder scales
WBSCA940032	Coax to single conductor transitions
WBP890586	E-MAX power supplies not qualified
WBP900107	Non-radioactive check source
WBP900190	Incorrect sample withdrawal point (loops 205, 206)
WBPER940279	Recorders tied directly to ratemeters with no isolator
WBPER940423	General sample line deficiencies with respect to design criteria requirements
WBPER940601	Documentation errors
WBPER950182	Use of QA level III parts in QA level I equipment (RC networks)

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03445	WBP870728	*Add pipe* tubing caps
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
09309	WBP880318	Add noise suppression networks, correct detector loop grounds
09309	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, rebuild detectors, standardize internal wiring
09309	WBP890396	Replace scintillator if required
10604	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation corrections only
10443	WBP900190	Reroute 205, 206 sample line
06795	WBNEEB8724 R3	Condition A2 of SCRWBNEEB8724, gen smpl line upgrades: delete outlet rt vlve, add outlet isol vlve; slope exception
06973	WBNEEB8724 R3	Condition A8, of SCRWBNEEB8724, sample line as-constructed
11304	WBP890586	Replace power supply in R-163, 164
11831	WBNEEB8724 R3	Condition A2 of SCRWBNEEB8724, documentation: slope exception
23236	WBP880318	Wrap detector cbls inside mon. w/EMI tape; reroute signal cbls from ratemeter to detector in cond. for 0-RE-90-125, 126
W37677		Resolve shield tie ground loops and isolator ground problem
31640	WBPER940279	Verify wiring correct in M-12 and test recorders for interface with Class 1E ratemeters
23167	WBSCA940032	Provide materials and instructions for coax to single conductor transition
	WBPER940423	R4 of design criteria, WB-DC-40-24 R4, resolved field deficiencies or incorporated exceptions
27485	N/A	SSDs
W37518	WBPER940279	Add notes to Instrument Tabs - special reqmts for recorders based on seismic test, contract 141254
S32449		Test requirements
W38500		Install noise suppression on LED check sources card
09309	WBP890192	Return defective preamp boards to documented configuration
36049	WBPER940601	Depict valves correctly
WO 93-09789-01	WBPER950182	Install QA level I RC network
34228	N/A	Change rotometer
34421	N/A	Preoperational test criteria.

Watts B[redacted]lear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-212	Liquid	No	Yes	No	No

Monitor Description: Turbine Building Sump Discharge Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A2 WBNEEB8724, General sample line routing problems
WBNEEB8724 R3	Condition A8 WBNEEB8724, documentation inconsistencies
WBNEEB8724 R3	Condition F WBNEEB8724, Unmonitored discharge path added by ECN 5183
WBPER940601	Doc errors
WBP870728	Missing pipe tubing caps
WBP880318	Noise problems
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBNEEB8553	Lack of load data
WBSCA940032	Coax to single conductor transition
WBPER940423	General sample line deficiencies

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03445	WBP870728	Install missing pipe tubing caps
06378	WBP890192	Install new ratemeters and power supply
05141	WBNEEB8724 R3	Condition A2 of WBNEEB8724, Replace inlet and outlet root valves w/ss; replace carbon steel pipe w/ss
05141	WBNEEB8724 R3	Condition F of WBNEEB8724, Add screen and sump pump in station drainage sump and add appropriate pump logic
06973	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Sample line as constructed
09308	WBNEEB8724 , WBP880318	Condition A8 of WBNEEB8724, Correct loop grounding for single point ground, assure preamp board per drawing configuration, rebuild detectors
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation corrections
23235	N/A	Correct vendor manual to reflect optical grease
30769	N/A	Change purge valves from 3/8" to 1"
23167	WBSCA940032	Provide materials and instructions for coax to single conductor transition
	WBPER940423	Resolve or incorporate exceptions to design criteria, WB-DC-40-24
35985		SSDs
36049	WBPER940601	Correct depiction of valves
W-37566		Ground loop - shield ties

Watts B[redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-225	Liquid	No	Yes	No	No

Monitor Description: Condensate Demineralizer Effluent Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A2, WBNEEB8724, general sample line routing problems
WBNEEB8724 R3	Condition A8, WBNEEB8724, documentation inconsistencies
WBPER940601	Doc errors ALARA concern, sample chamber contamination
WBP870728	Missing pipe tubing caps
WBP880318	Noise problems
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBNEEB8553	Lack of load data
CRDR HED 40	Nuisance alarms
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5252	Recorder scales
WBSCA940032	Coax to single conductor transition
WBPER940423	General sample line deficiencies

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03445	WBP870728	Install missing pipe tubing caps
06378	WBP890192	Install new ratemeters and power supply
06378	CRDR HED 109	Install new ratemeters and power supply
06973	WBNEEB8724 R3	Condition A8 of WBNEEB8724, sample line as constructed
09308	WBNEEB8724 , WBP880318	Condition A8 of WBNEEB8724, correct loop grounding for single point ground, assure preamp board per drawing configuration, rebuild detectors
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation corrections
14289	WBNEEB8724R3	Condition A2 of WBNEEB8724, Replace root valves with 1" ss ball; relocate monitor closer to process
23235	N/A	Correct vendor manual to reflect optical grease
30769	N/A	Change purge valves from 3/8" to 1"
23167	WBSCA940032	Provide materials, instructions for coax to single conductor transition
	WBPER940423	Provide materials, instructions for coax to single conductor transition, WB-DC-40-24 R4
33686	CRDR HED 40	Block alarm when monitor not in use
35985		SSDs
M-15887		Logic added to open 0-FCV-14-188 on hi rad signal
S-36049	WBPER940601	Show valves correctly
23235	CRDR HED 89/HEC 5252	Correct recorder scales
W-37566		Ground loop - shield ties

Watts B[redacted]uclear Plant
Radiation M[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-230	Area	No	No	No	No

Monitor Description: Condensate Demineralizer Area Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

Watts B[redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification: Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
0-RE-90-231	Area	No	No	No	No

Monitor Description: Condensate Demineralizer Area Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

Watts B[redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-001	Area	No	No	No	No

Monitor Description: Spent Fuel Pool Area Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

Watts Bar Nuclear Plant
Radiation Monitoring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-002	Area	No	No	No	No

Monitor Description: Personnel Lock Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

Watts B[redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-006	Area	No	No	No	No

Monitor Description: Component Cooling Heat Exchanger Area Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-6, 61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

Watts B[redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-007	Area	No	No	No	No

Monitor Description: Sample Room Area Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

Watts Ba[redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-008	Area	No	No	No	No

Monitor Description: Aux Feedwater Pump Area Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

Watts B[redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-010	Area	No	No	No	No

Monitor Description: CVCS Board Area Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

Watts B[redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-014	Particulate	No	No	No	No

Monitor Description: Sample Room Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation inconsistencies
WBO890192	Undocumented changes to ratemeters
WBP880318	Noise causes spurious actuations
WBP890396	Calibration documentation missing
WBP890422	Ratemeter Cable damage on rough cable entry
WBNEEB8553	Lack of load data
WBPER940670	Degraded wiring from 10 CFM moving filter to electronics box

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03001	N/A	Installs multiplexer so particular CAM unit in alarm can be determined from recorder
06378	WBP890192	Install new ratemeters and power supply
07064	WBP890422	Add grommet to prevent wire damage
09786	WBP880318	Add noise suppression across three relay coils and buzzer; correct ground for single point ground
09786	WBNEEB8724 R3	Condition A8, rebuild detectors; correct preamp board to as documented condition; make all wiring consistent and as documented; delete isolation transofrmer (doc only, except 1-RE-90-62) add diode across flow alarm relay in 1-RE-90-62
33714	WBPER940670	Corrects degraded wiring, 10 CFM moving filter to electronics box (except loops 2-14)

Watts Bar Nuclear Plant
Radiation Monitoring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-059	Area	No	No	No	No

Monitor Description: Reactor Building Upper Compartment Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

Watts Bar Nuclear Plant
Radiation Monitoring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-060	Area	No	No	No	No

Monitor Description: Reactor Building Upper Compartment Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B; General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

Watts [redacted]clear Plant
Radiation Mo[redacted]ring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-061	Area	No	No	No	No

Monitor Description: Reactor Building Lower Compartment Inst RM Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-6,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

Watts [redacted]clear Plant
Radiation Mo[redacted]ring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-062	Particulate	No	No	No	No

Monitor Description: RB Lower Compartment Instrumentation Room Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation inconsistencies
SCRWBNEEB8724 R3	Condition G of WBNEEB8724, Sample temperature exceeds detector limits (applicable to 1-RE-90-62 only)
WBP890192	Undocumented changes to ratemeters
WBP880318	Noise causes spurious actuations
WBP890396	Calibration documentation missing
WBP890422	Ratemeter cable damage on rough cable entry
WBNEEB8553	Lack of load data
DSR-045	Maintenance of 1-RE-90-62 an ALARA concern; request move to outside instrument room
WBPER940423	General sample line deficiencies
WBPER940670	Degraded wiring from 10CFM moving filter to electronics box

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03001	N/A	Installs multiplexer so particular CAM unit in alarm can be determined from recorder
06378	WBP890192	Install new ratemeters and power supply
07064	WBP890422	Add grommet to prevent wire damage
09786	WBP880318	Add noise suppression across three relay coils and buzzer; correct ground for single point ground
09786	WBNEEB8724 R3	Condition A8, rebuild detectors; correct preamp board to as documented condition; make all wiring consistent and as documented; delete isolation transformer (doc only, except 1-RE-90-62) add diode across flow alarm relay in 1-RE-90-62
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation corrections
09786	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Return 1-RE-90-62 to pre-isolation transformer configuration
WR-C297138	N/A	Replace recorder ground strap for 0-RE-90-16, 0-RE-90-17, and 1-RE-90-62
33714	WBPER940670	Corrects degraded wiring, 10CFM moving filter to electronics box (except loops 2-14)

Watts [redacted] clear Plant
Radiation Mo[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-106	Particulate, Iodine & Gas (PIG)	Yes	No	No	Yes

Monitor Description: Containment Building Lower Compartment Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724, R3	Condition A2 of WBNEEB8724, General sample line routing problems
WBNEEB8724 R3	Condition A4 of WBNEEB8724, Sample line length, traps, no heat trace, separation problems; no purge capability; pump damage on cntmt isolation
WBNEEB8724 R3	Condition A8 on WBNEEB8724, Documentation inconsistencies
WBNEEB8724 R3	Condition G of WBNEEB8724, Temperatures above detector limits
WBPER940601	Doc errors
WBP870606	Solenoid valves for cntmt isol replaced on MR
WBP870728	Missing pipe tubing caps
WBP870870	Inductive kickback from RL-1, failure resets
WBP880318	Noise causes spurious actuations
WBP880351	Containment isolation valve and piping classification
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBP890586	E-MAX power supplies not qualified
W-272-P	Iodine to flow switches don't work in application
WBNEEB8553	Lack of load data
WBNNEB8709	Particulate plateout concerns
WBNNEB8643	Containment isolation valves not supplied with essential control air
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5240	Recorder Scales
WBPER940279	Non-qualified recorders tied directly to class 1E ratemeters
WBPER940423	General sample line deficiencies, heat trace requirements
WBPER940670	Degraded wiring from particulate detector to electronics box
WBSCA940032	Coax to single conductor transition
WBPER950650	Difficulty in obtaining good samples through grab sample valves

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode across RL-1 alarm relay
03445	WBP870728	Install pipe tubing caps
06378	WBP890192; CRDR HED 109	Install new ratemeters and power supply
06805	WBNEEB8724 R3	Condition A2 of WBNEEB8724, general sample line upgrades for 1-RE-90-112: slope exception, bend radius exception, correct code class (documentation)
06806	WBNEEN8724 R3	Condition A2 of WBNEEB8724, general sample line upgrades for 1-RE-90-106: slope exception, bend radius exception, correct code class (documentation)
06973	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Sample line documentation correction
09378	WBP880318	Add noise suppression networks, correct detector loop grounds
09378	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Rebuild detectors, standardize internal wiring
09378	WBP890192	Return defective preamp boards to documented configuration
34113	WBPER940423	Add references to calcs and other dwgs on isometrics
10604	WBNEEB8724 R3	Documentation corrections only
13516	WBP880318	Delete containment isolation output from hi rad alarm relay
34605	WBPER940423	Revise isometric per DCN 17836 changes
35465	WBNEEB8724 R3	Condition A4 to WBNEEB8724, Add heat trace to sample line
35465	WBPER940423	Add heat trace to sample line
23237	W-272-P	Replace iodine low flow switch
23237	WBP880318	Wrap internal detector cables with EMI tape
23237	CRDR HED 89/HEC 5240	Correct recorder scales
WB-DC-40-24	WBNEEB8724 R3	Condition A4 of WBNEEB8724, R4 of design criteria, WB-DC-40-24, permits pumps to be isolated with no auto cut off
WB-DC-40-24	WBPER940279	Design criteria, WB-DC-40-24, R4, test recorders for interface with class 1E ratemeters
33714	WBPER940670	Correct degraded wiring between 10 CFM filter and electronics box
34605	WBPER940423	Reconcile isometrics 47W600-465P to walkdowns
23167	WBSCA940032	Provide materials, instructions for coax to single conductor transition
27485	N/A	SSDs
W-37518	WBPER940279	Add notes to Isolation tabs, special requirements for recorders based on seismic test, contract 141254
W-37566		Resolve ground loops - shield ties, local indicator & ERFDS
W-37677		Resolve ground loops - ERFDS isolators
S-36049		Indicate valves correctly
34113	WBPER940423	Add references to calcs and other dwgs on isometrics.
36049	WBPER940601	Correct valve depiction
30313	N/A	PAM upgrades
34195	N/A	Replace quick disconnect

Watts [redacted] clear Plant
Radiation Mo[redacted]ing System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-112	Particulate, Iodine & Gas (PIG)	Yes	No	No	Yes

Monitor Description: Containment Building Upper Compartment Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A2 of WBNEEB8724, General sample line routing problems
WBNEEB8724 R3	Condition A4 of WBNEEB8724, Sample line length, traps, no heat trace, separation problems; no purge capability; pump damage on cntmt isolation
WBNEEB8724 R3	Condition A8 on WBNEEB8724, Documentation inconsistencies
WBNEEB8724 R3	Condition G of WBNEEB8724, Temperatures above detector limits
WBPER940601	Doc errors
WBP870606	Solenoid valves for cntmt isol replaced on MR
WBP870728	Missing pipe tubing caps
WBP870870	Inductive kickback from RL-1, failure resets
WBP880318	Noise causes spurious actuations
WBP880351	Containment isolation valve and piping classification
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBP890586	E-MAX power supplies not qualified
W-272-P	Iodine lo flow switches don't work in application
WBNEEB8553	Lack of load data
WBNNEB8709	Particulate plateout concerns
WBNNEB8643	Containment isolation valves not supplied with essential control air
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5240	Recorder Scales
WBPER940279	Non-qualified recorders tied directly to class 1E ratemeters
WBPER940423	General sample line deficiencies, heat trace requirements
WBPER940670	Degraded wiring from particulate detector to electronics box
WBSCA940032	Coax to single conductor transition
WBPER950650	Difficulty in obtaining good samples through grab sample valves

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode across RL-1 alarm relay
03445	WBP870728	Install pipe tubing caps
06378	WBP890192; CRDR HED 109	Install new ratemeters and power supply
06805	WBNEEB8724 R3	Condition A2 of WBNEEB8724, general sample line upgrades for 1-RE-90-112: slope exception, bend radius exception, correct code class (documentation)
06806	WBNEEN8724 R3	Condition A2 of WBNEEB8724, general sample line upgrades for 1-RE-90-106: slope exception, bend radius exception, correct code class (documentation)
06973	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Sample line documentation correction
09378	WBP880318	Add noise suppression networks, correct detector loop grounds
09378	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Rebuild detectors, standardize internal wiring
09378	WBP890192	Return defective preamp boards to documented configuration
34113	WBPER940423	Add reference to calcs and other dwgs on isometrics
10604	WBNEEB8724 R3	Documentation corrections only
13516	WBP880318	Delete containment isolation output from hi rad alarm relay
34605	WBPER940423	Revise isometrics per DCN 17836 changes
35465	WBNEEB8724 R3	Condition A4 to WBNEEB8724, Add heat trace to sample line
35465	WBPER940423	Add heat trace to sample line
23237	W-272-P	Replace iodine low flow switch
23237	WBP880318	Wrap internal detector cables with EMI tape
23237	CRDR HED 89/HEC 5240	Correct recorder scales
WB-DC-40-24	WBNEEB8724 R3	Condition A4 of WBNEEB8724, R4 of design criteria, WB-DC-40-24, permits pumps to be isolated with no auto cut off
WB-DC-40-24	WBPER940279	Design criteria, WB-DC-40-24, R4, test recorders for interface with class 1E ratemeters
33714	WBPER940670	Correct degraded wiring between 10 CFM filter and electronics box
34605	WBPER940423	Reconcile isometrics 47W600-465P to walkdowns
23167	WBSCA940032	Provide materials, instructions for coax to single conductor transition
27485	N/A	SSDs
W-37518	WBPER940279	Add notes to Isolation tabs, special requirements for recorders based on seismic test, contract 141254
W-37566		Resolve ground loops - shield ties, local indicator & ERFDS
W-37677		Resolve ground loops - ERFDS isolators
S-36049		Indicate valves correctly
34113	WBPER940423	Add references to calcs and other dwgs on isometrics.
36049	WBPER940601	Correct valve depiction
30313	N/A	PAM upgrades
34195	N/A	Replacequick disconnects

Watts B[redacted]clear Plant
Radiation Mo[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-119	Gas	No	Yes	Yes	No

Monitor Description: Condenser Vacuum Pump Air Exhaust Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724 R3	Condition A2 of SCRWBNEEB8724, general sample line routing problems
SCRWBNEEB8724 R3	Condition A7 of SCRWBNEEB8724, moisture in condenser vacuum pump exhaust lines
SCRWBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation discrepancies
SCRWBNEEB8724 R3	Condition G of SCRWBNEEB8724, temperatures exceeding detector limits
WBPER940601	Documentation errors
WBP870728PER	Missing pipe tubing caps
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBP900107	Non-radioactive check source (applicable to loop 119 only)
WBNEEB8553	Lack of load data
CRDR HED 109	Radiation analyzer labels
CRDR HED/89/HEC 5252	Recorder scales (119 only)
WBPER940423	"T" in line to sampler 129, probes too close to disturbance, general sample line problems
WBP880318PER	Noise Problems
WBSCA940032	Coax to single conductor transitions

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03445	WBP870728	Add pipe tubing caps
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
17610	WBNEEB8724 R3	Condition A2 of SCRWBNEEB8724, general sample line upgrades: reroute S.L., add purge capability
36049	WBPER940601	Correct valve depiction
06973	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, sample line as-constructed
09309	WBP880318	Add noise suppression networks, correct detector loop grounds
S-37630	DD 95-371	Correct drawing discrepancies, relative locations of flange and probe
09309	WBP890396	Replace scintillator if required
09309	WBP890192	Return defective preamp boards to documented configuration
S-37910	WBPER940601	Lower flow limits
17610	WBNEEB8724 R3	Condition G of SCRWBNEEB8724, reroute sample line
17610	WBNEEB8724 R3	Condition A7 of SCRWBNEEB8724, reroute sample line
23236	WBP880318	Wrap detector cables inside monitor with EMI tape, Add jumper to LED driver board, loop 119 only
W37566	N/A	Resolve ground loop problem (shield connections)
23236	CRDR HED 89/HEC 5252	Correct recorder scales
33688	WBPER940423	Remove "T" in sample line, move 129 up one floor to its own line, abandon 99 in place
23167	WBSCA940032	Provide materials/instructions for coax to single conductor transition
27485	N/A	SSDs
S36049		Show type valves correctly
09309	WBNNEB8724 R3	Condition A8 of WBNNEB8724, Rebuild detectors, correct piping interference, standardize internal wiring
10604	WBNNEB8724 R3	Condition A8 of WBNEEB8724, Documentation corrections only
W38500		Install noise suppression across LED Ck source card
W38631		Disable Ck source when not required to prevent noise from actuating diode and initiating spurious hi rad alarms (special noise problem on 119 only)
30312	N/A	Pam upgrades

Watts B[redacted]clear Plant
Radiation Mo[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-120	Liquid	No	Yes	No	No

Monitor Description: Steam Generator Blowdown Liquid Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A2 of WBNEEB8724, General sample line routing problems
WBNEEB8724 R3	Condition A3 of WBNEEB8724, Undocumented manifold challenges sample content
WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation inconsistencies
WBNEEB8724 R3	Condition B of WBNEEB8724, Pressure control valves shown in design not installed in the plant
WBNEEB8724 R3	Condition G of WBNEEB8724, Temperatures and pressures above detector limits
WBP880407	Orifice plate use to reduce pressure; possible overpressurization of monitor and personal injury
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBNEEB 8553	Lack of load data
WBNNEB8703	Piping Class interfaces: drawing discrepancy
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5252	Recorder Scales
WBPER940423	General sample line deficiencies
WBPER940572	Sample heat exchanger not functioning per requirements
WBSCA940032	Coax to single conductor transition
WBP880318	Noise problems
WBP870728	Missing pipe tubing caps

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03445	WBP870728	Install missing pipe tubing caps
06378	WBP890192	Install new ratemeters and power supply
06378	CRDR HED 109	Install new ratemeters and power supply
06804	WBNEEB8724 R3	Condition A2 of WBNEEB8724, Install pressure control valves; rework line from flash tank
06804	WBNEEB8724 R3	Condition A3 of WBNEEB8724, install pressure control valves; rework line from flash tank
06804	WBNEEB8724 R3	Condition G of WBNEEB8724, install pressure control valves; rework line from flash tank
06804	WBP880407	Install pressure control valves; rework line from flash tank
06973	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Sample line as-constructed
06973	WBNNEB8703 R3	Sample line as-constructed
09308	WBNEEB8724 , WBP880318	Condition A8 of WBNEEB8724, correct loop grounding for single point ground, assure preamp board per drawing configuration, rebuild detectors
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation corrections
23235	N/A	Correct vendor manual to reflect optical grease
23235	CRDR HED 89/HEC 5252	Correct recorder scales
30769	N/A	Change purge valves from 3/8" to 1"
33455	N/A	Provide block switch to prevent actuations during check source operation
33253	WBPER940572	Reverse sample heat exchanger tube side/shell side connections
23167	WBSCA940032	Provide materials, instructions for coax to single conductor transition
	WBPER940423	R4 of design criteria, WB-DC-40-24, resolves or incorporates exceptions
31324	N/A	Replace orifice plate with larger orifice for operability
35985		SSDs
W-37566	N/A	Ground loops - shielded ties
W-38628-A		Add noise suppression across flow alarm lights
04193	PIRWBNNEB8703	Correct piping class on drawing
37401	N/A	Correct block function to allow alarm

Watts [redacted]clear Plant
Radiation Mo[redacted]ing System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-121	Liquid	No	Yes	No	No

Monitor Description: Steam Generator Blowdown Liquid Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A2 of WBNEEB8724, General sample line routing problems
WBNEEB8724 R3	Condition A3 of WBNEEB8724, Undocumented manifold challenges sample content
WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation inconsistencies
WBNEEB8724 R3	Condition B of WBNEEB8724, Pressure control valves shown in design not installed in the plant
WBNEEB8724 R3	Condition G of WBNEEB8724, Temperatures and pressures above detector limits
WBP880407	Orifice plate use to reduce pressure; possible overpressurization of monitor and personal injury
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBNEEB 8553	Lack of load data
WBNNEB8703	Piping Class interfaces: drawing discrepancy
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5252	Recorder Scales
WBPER940423	General sample line deficiencies
WBPER940572	Sample heat exchanger not functioning per requirements
WBSCA940032	Coax to single conductor transition
WBP880318	Noise problems
WBP870728	Missing pipe tubing caps

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03445	WBP870728	Install missing pipe tubing caps
06378	WBP890192	Install new ratemeters and power supply
06378	CRDR HED 109	Install new ratemeters and power supply
06804	WBNEEB8724 R3	Condition A2 of WBNEEB8724, Install pressure control valves; rework line from flash tank
06804	WBNEEB8724 R3	Condition A3 of WBNEEB8724, install pressure control valves; rework line from flash tank
06804	WBNEEB8724 R3	Condition G of WBNEEB8724, install pressure control valves; rework line from flash tank
06804	WBP880407	Install pressure control valves; rework line from flash tank
06973	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Sample line as-constructed
06973	WBNNEB8703 R3	Sample line as-constructed
09308	WBNEEB8724 , WBP880318	Condition A8 of WBNEEB8724, correct loop grounding for single point ground, assure preamp board per drawing configuration, rebuild detectors
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation corrections
23235	N/A	Correct vendor manual to reflect optical grease
23235	CRDR HED 89/HEC 5252	Correct recorder scales
30769	N/A	Change purge valves from 3/8" to 1"
33455	N/A	Provide block switch to prevent actuations during check source operation
33253	WBPER940572	Reverse sample heat exchanger tube side/shell side connections
23167	WBSCA940032	Provide materials, instructions for coax to single conductor transition
	WBPER940423	R4 of design criteria, WB-DC-40-24, resolves or incorporates exceptions
31324	N/A	Replace orifice plate with larger orifice for operability
35985		SSDs
W-37566	N/A	Ground loops - shielded ties
W-38628-A		Add noise suppression across flow alarm lights
04193	PIRWBNNEB8703	Correct piping class discrepancy
37401	N/A	Correct block function to allow alarm

Watts [redacted]clear Plant
Radiation Mo[redacted]g System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-123	Liquid	No	No	No	No

Monitor Description: Component Cooling System Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A2 of WBNEEB8724, General sample line routing problems
WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation inconsistencies
WBPER940601	Doc errors
WBP880272	Non-seismically qualified flow switch (0, 1-123)
WBP880273	Non-seismically qualified flow switch (2-123)
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBNEEB8553	Lack of load data
CRDR HED 40	Nuisance alarm
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5252	Recorder Scales
WBPER940423	General sample line deficiencies
WBSCA940032	Coax to single conductor transition
WBP880318	Noise problems

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
06378	WBP890192	Install new ratemeters and power supply
06378	CRDR HED 109	Install new ratemeters and power supply
06801	WBNEEB8724 R3	Condition A2 to WBNEEB8724, replace inlet and outlet isolation valves w/ss globe; add recirc purge/test valves; take exception for carbon steel root valves
06973	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Sample line as constructed
09308	WBNEEB8724 , WBP880318	Condition A8 of WBNEEB8724, Correct loop grounding for single point ground, assure preamp board per drawing configuration, rebuild detectors
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation corrections resolves non-seismic flow switch (documentation)
15423	WBP880272	Resolves non-seismic flow switch (documentation)
15423	WBP880273	Documentation corrections resolves non-seismic flow switch (documentation)
23235	N/A	Correct vendor manual to reflect optical grease
23235	CRDR HED 89/HEC 5252	Correct recorder scales
23167	WBSCA940032	Provide materials, instructions for coax to single conductor transition
33686	CRDR HED 40	Block alarm when monitor not in use
	WBPER940423	Resolve or incorporate exceptions in R4 of design criteria, WB-DC-40-24
W-37566	N/A	Ground loops - shield ties (1-123 only)
S-36049	WBPER940601	Show valves correctly, EMS corrections

Watts [redacted]clear Plant
Radiation Mo[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification: Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-129	Sampler	No	Yes	No	No

Monitor Description: Condenser Vacuum Pump Air Exhaust Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
SCRWBNEEB8724	Condition A2 of SCRWBNEEB8724, general sample line routing problems
SCRWBNEEB8724	Condition A7 of SCRWBNEEB8724, moisture in condenser vacuum pump
WBP880402	Incorrect documentation of isolation valves
WBPER940423	Tee in line to 129, sample probe location too close to disturbance, isometrics & transmission calculation not revised for DCN-17610
PIRWBNEEB8553	Lack of load data
WBPER940601	Documentation errors
WBNNEB8709	Particulate plateout concerns

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
22320		Move 0-RE-90-128 outside Unit 1 boundary
03436	WBP880402	Correct isolation valve position documentation
06803	WBNEEB8724 R3	Cond A2 of WBNEEB8724, gen smpl line upgrades/0-RE-90-128: inlet/outlet reversal justification; slope exception
17610	WBNEEB8724 R3	Cond A2 of WBNEEB8724,gen smpl line upgrades/1-RE-90-129:eval,repl nozzle;repl T w/ Y conn;add purge capability
06973	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, correct sample line documentation
10604	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation corrections only
17610	WBNEEB8724 R3	Condition A7 of SCRWBNEEB8724, reroute sample line (129 only)
36049	WBPER940601	Depict valves correctly
33688	WBPER940423	Remove tee fm line to 129, move 129 up one floor & install new probe at proper dist fm flow disturbance, add heat trace
S37630	DD 95-0371	Correct dwg discrepancy - tubing fittings, downstream of filter
W36528	F36896,F37909	1-RE-90-129 SSD

Watts [redacted]clear Plant
Radiation M[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-130	Gas	Yes	Yes	No	Yes

Monitor Description: Containment Purge Air Exhaust Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A8 of WBNEEB8724, general documentation inconsistencies
WBNEEB8724 R3	Condition A2 of WBNEEB8724, general sample line routing problems
WBNEEB8724 R3	Condition G of WBNEEB8724, detector temperature limit exceeded
WBP870728	Missing pipe tubing caps
WBP880318	Noise causes false actuations
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBP890401	No continuous indication of cpm in control room
WBP890422SCA	Local RP-30 wires scrapped bare
WBP890586	E-MAX power supplies not qualified
PIRWBNEEB8553	Lack of load data
PIRWBNNEB8705	Specific documentation discrepancies
PIRWBNNEB8709	Particulate plateout concerns
WBSCA940032	Coax to single conductor transition
WBPER940423	General sample line deficiencies with regard to design criteria requirements
WBPER940601	Documentation errors

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03445	WBP870728	Add pipe tubing caps
06378	WBP890192	Install new ratemeters and power supply
06802	WBNEEB8724 R3	Condition A2, Gen smpl ln upgrades: replace root & isol vlves; 4 exceptions:slope,bend radius, separations, vlve stamp
06973	WBNEEB8724 R3	Condition A8, Sample line as-constructed
07064	WBP890422	Add grommet to prevent wire damage
09309	WBP880318	Add noise suppression networks, correct detector loop grounds
09309	WBNEEB8724 R3	Condition A8, Rebuild detectors, correct piping interference, standardize internal wiring
09309	WBP890192	Return defective preamp boards to documented configuration
10604	WBNEEB8724 R3	Condition A8, Documentation corrections only
11304	WBP890586	Replace power supply in R-163, 164
23236	WBP880318	Wrap detector cables inside monitor with EMI tape
23236	WBNNEB8705	Documentation only: specific drawing discrepancies
09309	WBP890396	Replace scintillators if required
36049	WBPER40601	Depict valves correctly
	WBPER940423	R4 of Design Criteria, WB-DC-40-24, resolves or incorporates sample line exceptions
27485	N/A	SSDs
36720		Move sample points out of dead air space
S32449		Test requirements
W37677	N/A	Resolve ground loops - shield ties & isolator grounds
34421	N/A	Preoperational test criteria

Watts [redacted]clear Plant
Radiation Mo[redacted]ring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-131	Gas	Yes	Yes	No	Yes

Monitor Description: Containment Purge Air Exhaust Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A8 of WBNEEB8724, general documentation inconsistencies
WBNEEB8724 R3	Condition A2 of WBNEEB8724, general sample line routing problems
WBNEEB8724 R3	Condition G of WBNEEB8724, detector temperature limit exceeded
WBP870728	Missing pipe tubing caps
WBP880318	Noise causes false actuations
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing; Eberline GM Tubes
WBP890401	No continuous indication of cpm in control room
WBP890422	Local RP-30 wires scrapped bare
WBP890586	E-MAX power supplies not qualified
WBNEEB8553	Lack of load data
WBNNEB8705	Specific documentation discrepancies
WBNNEB8709	Particulate plateout concerns
WBSCA940032	Coax to single conductor transition
WBPER940423	General sample line deficiencies with regard to design criteria requirements
WBPER940601	Documentation errors

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
03445	WBP870728	Add pipe tubing caps
06378	WBP890192	Install new ratemeters and power supply
06802	WBNEEB8724 R3	Condition A2, Gen smpl ln upgrades: replace root & isol vlves; 4 exceptions:slope,bend radius, separations, vlve stamp
06973	WBNEEB8724 R3	Condition A8, Sample line as-constructed
07064	WBP890422	Add grommet to prevent wire damage
09309	WBP880318	Add noise suppression networks, correct detector loop grounds
09309	WBNEEB8724 R3	Condition A8, Rebuild detectors, correct piping interference, standardize internal wiring
09309	WBP890192	Return defective preamp boards to documented configuration
10604	WBNEEB8724 R3	Condition A8, Documentation corrections only
11304	WBP890586	Replace power supply in R-163, 164
23236	WBP880318	Wrap detector cables inside monitor with EMI tape
23236	WBNNEB8705	Documentation only: specific drawing discrepancies
09309	WBP890396	Replace scintillators if required
36049	WBPER940601	Depict valves correctly
	WBPER940423	R4 of Design Criteria, WB-DC-40-24, resolves or incorporates sample line exceptions
27485	N/A	SSDs
36720		Move sample points out of dead air space
S32449		Test requirements
W37677	N/A	Resolve ground loops - shield ties & isolator grounds
34421	N/A	Preoperational test criteria

Watts B[redacted]clear Plant
Radiation Mo[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-271	Area	Yes	No	Yes	Yes

Monitor Description: RB Upper Compartment PAM Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation discrepancies
WBP890586	E-MAX rack power supplies not qualified
WBP890396	Calibration documentation
WBNEEB8553	Load data missing
CDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5250	Recorder scales
WBPER940519	Ion chambers/boxes swapped in rework; were calibrated as a pair
WBPER940534	273 & 274 not mounted with flat washers as shown in VTM
WBPER940072	SE calibration methods
WBSCA940032	Penetration terminations of coax; coax to single conductor transition

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
10604	WBNEEB8724	Condition A8 to SCRWBNEEB8724, documentation corrections only
11304	WBP890586	Replace power supplies in R-163,164
23167	CRDR HED 89/HEC 5250	Correct recorder scales
23167	WBSCA940032	Provide materials/instructions for coax to single conductor transition
RD1030623	WBPER940519	Return ion chambers for recalibration in boxes as installed
Contract 108598	WBPER940072	Purchase new RT-11 calibration source
RD100708909153	WBSCA940032	Correct connector to cable termination
N/A	WBPER940534	Incorporated into WBSCA 910259; became civil issue
S-32449		Test requirements
27485	N/A	SSDs
34421	N/A	Preoperational test criteria

Watts [redacted]clear Plant
Radiation Mo[redacted]ring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-272	Area	Yes	No	Yes	Yes

Monitor Description: RB Upper Compartment PAM Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation discrepancies
WBP890586	E-MAX rack power supplies not qualified
WBP890396	Calibration documentation
WBNEEB8553	Load data missing
CDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5250	Recorder scales
WBPER940519	Ion chambers/boxes swapped in rework; were calibrated as a pair
WBPER940534	273 & 274 not mounted with flat washers as shown in VTM
WBPER940072	SE calibration methods
WBSCA940032	Penetration terminations of coax; coax to single conductor transition

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
10604	WBNEEB8724	Condition A8 to SCRWBNEEB8724, documentation corrections only
11304	WBP890586	Replace power supplies in R-163,164
23167	CRDR HED 89/HEC 5250	Correct recorder scales
23167	WBSCA940032	Provide materials/instructions for coax to single conductor transition
RD1030623	WBPER940519	Return ion chambers for recalibration in boxes as installed
Contract 108598	WBPER940072	Purchase new RT-11 calibration source
RD100708909153	WBSCA940032	Correct connector to cable termination
N/A	WBPER940534	Incorporated into WBSCA 910259; became civil issue
S-32449		Test requirements
27485	N/A	SSDs
34421	N/A	Preop test criteria

Watts [redacted]clear Plant
Radiation Mo[redacted]ring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-273	Area	Yes	No	Yes	Yes

Monitor Description: RB Lower Compartment PAM Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation discrepancies
WBP890586	E-MAX rack power supplies not qualified
WBP890396	Calibration documentation
WBNEEB8553	Load data missing
CDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5250	Recorder scales
WBPER940519	Ion chambers/boxes swapped in rework; were calibrated as a pair
WBPER940534	273 & 274 not mounted with flat washers as shown in VTM
WBPER940072	SE calibration methods
WBSCA940032	Penetration terminations of coax; coax to single conductor transition

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
10604	WBNEEB8724	Condition A8 to SCRWBNEEB8724, documentation corrections only
11304	WBP890586	Replace power supplies in R-163,164
23167	CRDR HED 89/HEC 5250	Correct recorder scales
23167	WBSCA940032	Provide materials/instructions for coax to single conductor transition
RD1030623	WBPER940519	Return ion chambers for recalibration in boxes as installed
Contract 108598	WBPER940072	Purchase new RT-11 calibration source
RD100708909153	WBSCA940032	Correct connector to cable termination
N/A	WBPER940534	Incorporated into WBSCA 910259; became civil issue
S-32449		Test requirements
27485	N/A	SSDs
34421	N/A	Preop test criteria

Watts [redacted]clear Plant
Radiation M[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-274	Area	Yes	No	Yes	Yes

Monitor Description: RB Lower Compartment PAM Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation discrepancies
WBP890586	E-MAX rack power supplies not qualified
WBP890396	Calibration documentation
WBNEEB8553	Load data missing
CDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5250	Recorder scales
WBPER940519	Ion chambers/boxes swapped in rework; were calibrated as a pair
WBPER940534	273 & 274 not mounted with flat washers as shown in VTM
WBPER940072	SE calibration methods
WBSCA940032	Penetration terminations of coax; coax to single conductor transition

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
10604	WBNEEB8724	Condition A8 to SCRWBNEEB8724, documentation corrections only
11304	WBP890586	Replace power supplies in R-163,164
23167	CRDR HED 89/HEC 5250	Correct recorder scales
23167	WBSCA940032	Provide materials/instructions for coax to single conductor transition
RD1030623	WBPER940519	Return ion chambers for recalibration in boxes as installed
Contract 108598	WBPER940072	Purchase new RT-11 calibration source
RD100708909153	WBSCA940032	Correct connector to cable termination
N/A	WBPER940534	Incorporated into WBSCA 910259; became civil issue
S-32449		Test requirements
27485	N/A	SSDs
34421	N/A	Preop test criteria

Watts [redacted]uclear Plant
Radiation M[redacted]ring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-275	Shine	No	No	No	Yes

Monitor Description: Reactor Coolant Drain Tank Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A6 of SCRWBNEEB8724, location, mounting, geometry missing
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure resets
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBP890473P	Unauthorized "keep alive" source in RD-1's
WBP910053	Vendor changes to RD-1 electronics card, bad fit
PIRWBNEEB8553	Lack of load data
CRDR HED 109	Radiation analyzer indicator light scales
CRDR HED 89/HEC 5250	Recorder scales
SCRWBNEEB8680	Cat A/C interface violations
WBPER940072	Sorrento calibration methods: RT-10, RT-11 calibrators
WBSCA940032	Transition from coax to single conductor
WBPER950680	Low signal experienced before source operation results in downscale failure alarms in MCR

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1
05002	WBNEEB8680	Add isolation for Cat A/C interface
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
10604	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	WBNEEB8724 R3	Condition A6 of SCRWBNEEB8724, document location & mounting detail
23167	CRDR HED 89/HEC 5250	Correct recorder scales
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
RD1007089	WBPER940072	Purchase new RT-10, RT-11 calibrators
TACF 1-96-01-90	WBPER950680	Add temporary keep alive sources to prevent spurious alarms

Watts B[redacted]clear Plant
Radiation Mo[redacted]ng System (RMS)
Deficiencies impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-276	Shine	No	No	No	Yes

Monitor Description: Reactor Coolant Drain Tank Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A6 of SCRWBNEEB8724, location, mounting, geometry missing
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure resets
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBP890473P	Unauthorized "keep alive" source in RD-1's
WBP910053	Vendor changes to RD-1 electronics card, bad fit
PIRWBNEEB8553	Lack of load data
CRDR HED 109	Radiation analyzer indicator light scales
CRDR HED 89/HEC 5250	Recorder scales
SCRWBNEEB8680	Cat A/C interface violations
WBPER940072	Sorrento calibration methods: RT-10, RT-11 calibrators
WBSCA940032	Transition from coax to single conductor
WBPER950680	Low signal experienced before source operation results in downscale failure alarms in MCR
WBPER950075	Use of old scale in new QA ratemeter.

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1
05002	WBNEEB8680	Add isolation for Cat A/C interface
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
10604	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	WBNEEB8724 R3	Condition A6 of SCRWBNEEB8724, document location & mounting detail
23167	CRDR HED 89/HEC 5250	Correct recorder scales
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
RD1007089	WBPER940072	Purchase new RT-10, RT-11 calibrators
TACF 1-96-01-90	WBPER950680	Add temporary keep alive sources to prevent spurious alarms
92-1662500	WBPER950075	Correct scale to new

Watts [redacted]clear Plant
Radiation M[redacted]ring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-277	Shine	No	No	No	Yes

Monitor Description: Reactor Building Floor and Equipment Drain Sump Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A6 of SCRWBNEEB8724, location, mounting, geometry missing
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure resets
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBP890473P	Unauthorized "keep alive" source in RD-1's
WBP910053	Vendor changes to RD-1 electronics card, bad fit
PIRWBNEEB8553	Lack of load data
CRDR HED 109	Radiation analyzer indicator light scales
CRDR HED 89/HEC 5250	Recorder scales
SCRWBNEEB8680	Cat A/C interface violations
WBPER940072	Sorrento calibration methods: RT-10, RT-11 calibrators
WBSCA940032	Transition from coax to single conductor
WBPER950680	Low signal experienced before source operation results in downscale failure alarms in MCR

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1
05002	WBNEEB8680	Add isolation for Cat A/C interface
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
10604	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	WBNEEB8724 R3	Condition A6 of SCRWBNEEB8724, document location & mounting detail
23167	CRDR HED 89/HEC 5250	Correct recorder scales
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
RD1007089	WBPER940072	Purchase new RT-10, RT-11 calibrators
TACF 1-96-01-90	WBPER950680	Add temporary keep alive sources to prevent spurious alarms

Watts [redacted]clear Plant
Radiation Mo[redacted]ing System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-278	Shine	No	No	No	Yes

Monitor Description: Reactor Building Floor and Equipment Drain Sump Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A6 of SCRWBNEEB8724, location, mounting, geometry missing
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure resets
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBP890473P	Unauthorized "keep alive" source in RD-1's
WBP910053	Vendor changes to RD-1 electronics card, bad fit
PIRWBNEEB8553	Lack of load data
CRDR HED 109	Radiation analyzer indicator light scales
CRDR HED 89/HEC 5250	Recorder scales
SCRWBNEEB8680	Cat A/C interface violations
WBPER940072	Sorrento calibration methods: RT-10, RT-11 calibrators
WBSCA940032	Transition from coax to single conductor
WBPER950680	Low signal experienced before source operation results in downscale failure alarms in MCR

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1
05002	WBNEEB8680	Add isolation for Cat A/C interface
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
10604	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	WBNEEB8724 R3	Condition A6 of SCRWBNEEB8724, document location & mounting detail
23167	CRDR HED 89/HEC 5250	Correct recorder scales
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
RD1007089	WBPER940072	Purchase new RT-10, RT-11 calibrators
TACF 1-96-01-90	WBPER950680	Add temporary keep alive sources to prevent spurious alarms

Watts [redacted]clear Plant
Radiation Mo[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-280	Area	No	No	No	No

Monitor Description: Post Accident Sampling Room Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674.
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2
30354	N/A	Correct scale

Watts [redacted]clear Plant
Radiation M[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-290	Shine	No	No	No	Yes

Monitor Description: RHR Post Accident Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724	Condition A6 of WBNEEB8724, location, mounting, geometry missing
WBNEEB8724	Condition A8 of WBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure resets
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBP890473P	Unauthorized "keep alive" source in RD-1's (applicable to loops 290 and 292)
WBP910053	Vendor changes to RD-1 electronics card, bad fit (applicable to loops 290 and 292)
PIRWBNEEB8553	Lack of load data
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5250	Recorder scales
WBPER940072	RT-10, RT-11 transfer data; SE calibration methods
WBSCA940032	Transition from coax to single conductor
WBPER950256	Hi range (291, 293) will not alarm at local indicator because +24 volts is not supplied

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1
5002	WBNEEB8680	Add isolation for Cat A/C interface
36274	WBPER950256	Delete local alarm requirement for 291, 293
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation corrections only
23167	WBNEEB8724 R3	Condition A6 of WBNEEB8724, document location & mounting detail
23167	CRDR HED 89/HEC 5250	Correct recorder scales
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
23409	N/A	SSDs
RD1007089	WBPER940072	Order new RT-10, RT-11 calibrators
S-37910	WBNEEB8724 R3	Condition A6 of WBNEEB8724, Correct RE-90-292 document change

Watts [redacted]clear Plant
Radiation Mo[redacted]ring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-291	Shine	No	No	No	Yes

Monitor Description: RHR Post Accident Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724	Condition A6 of WBNEEB8724, location, mounting, geometry missing
WBNEEB8724	Condition A8 of WBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure resets
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
PIRWBNEEB8553	Lack of load data
WBSCA940032	Transition from coax to single conductor
WBPER950256	Hi range (291, 293) will not alarm at local indicator because +24 volts is not supplied
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5250	Recorder scales
WBPER940072	RT-10, RT-11 transfer data; SE calibration methods
WBSCA940032	Transition from coax to single conductor
WBPER950256	Hi range (291, 293) will not alarm at local indicator because +24 volts is not supplied

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation corrections only
23167	WBNEEB8724 R3	Condition A6 of WBNEEB8724, document location & mounting detail
23167	CRDR HED 89/HEC 5250	Correct recorder scales
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
23409	N/A	SSDs
RD1007089	WBPER940072	Order new RT-10, RT-11 calibrators
S-37910	WBNEEB8724 R3	Condition A6 of WBNEEB8724, Correct RE-90-292 document change
36274, 36836	WBPER950256	Delete local alarm requirement for 291, 293

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Radiation M[redacted]ng System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-292	Shine	No	No	No	Yes

Monitor Description: RHR Post Accident Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724	Condition A6 of WBNEEB8724, location, mounting, geometry missing
WBNEEB8724	Condition A8 of WBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure resets
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBP890473P	Unauthorized "keep alive" source in RD-1's (applicable to loops 290 and 292)
WBP910053	Vendor changes to RD-1 electronics card, bad fit (applicable to loops 290 and 292)
PIRWBNEEB8553	Lack of load data
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5250	Recorder scales
WBPER940072	RT-10, RT-11 transfer data; SE calibration methods
WBSCA940032	Transition from coax to single conductor
WBPER950256	Hi range (291, 293) will not alarm at local indicator because +24 volts is not supplied
WBPER950390	Location not per design output

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation corrections only
23167	WBNEEB8724 R3	Condition A6 of WBNEEB8724, document location & mounting detail
23167	CRDR HED 89/HEC 5250	Correct recorder scales
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
23409	N/A	SSDs
RD1007089	WBPER940072	Order new RT-10, RT-11 calibrators
S-37910	WBNEEB8724 R3	Condition A6 of WBNEEB8724, Correct RE-90-292 document change
95-18363-00	WBPER950390	Relocate detector

Watts [redacted]clear Plant
Radiation Mo[redacted]ring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-293	Shine	No	No	No	Yes

Monitor Description: RHR Post Accident Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724	Condition A6 of WBNEEB8724, location, mounting, geometry missing
WBNEEB8724	Condition A8 of WBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure resets
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
PIRWBNEEB8553	Lack of load data
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5250	Recorder scales
WBPER940072	RT-10, RT-11 transfer data; SE calibration methods
WBSCA940032	Transition from coax to single conductor
WBPER950256	Hi range (291, 293) will not alarm at local indicator because +24 volts is not supplied

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1
5002	WBNEEB8680	Add isolation for Cat A/C interface
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation corrections only
23167	WBNEEB8724 R3	Condition A6 of WBNEEB8724, document location & mounting detail
23167	CRDR HED 89/HEC 5252	Correct recorder scales
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
23409	N/A	SSDs
RD1007089	WBPER940072	Order new RT-10, RT-11 calibrators
S-37910	WBNEEB8724 R3	Condition A6 of WBNEEB8724, Correct RE-90-292 document change
36274, 36836	WBPER950256	Delete local alarm requirement for 291, 293

Watts [redacted]clear Plant
Radiation M[redacted]ring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-400, 1-LPF-90-400	Gas Sampler	No	Yes	Yes	No

Monitor Description: Shield Building Vent Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A1 of WBNEEB8724, non-isokinetic sample, NCR 6822SCA was resolved by corrective actions for SCRWBNEEB8724
WBNEEB8724 R3	Condition A2 of WBNEEB8724, general sample line routing problems
WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation inconsistencies
WBNEEB8724 R3	Condition C of WBNEEB8724, sample line bend radius
WBNEEB8724 R3	Condition E of WBNEEB8724, Sample line bend radius
WBP870728	Missing pipe tubing caps
WBP880197	Lack of mounting details for flow elements
WBP880409	Air monitor isokinetic sample panels problems
WBP890396	Calibration documentation missing
WBNNEB8705	Specific documentation discrepancies
WBNNEB8709	Particulate plateout concerns
391/85-48-15	Unit 2 shield building monitor required for unit 1
WBPER940107	Software error in RM-80 allows stack overflow
WBPER940423	General sample line deficiencies vs. design criteria
WBPER930458	Calibration interval

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02243(U1)	WBP880197	Document mounting details for flow elements
03451	WBNEEB8724 R3	Condition A1 & A2, & A8, Remove Eberline monitors 1, 2-RE-90-400, 401, 402, 403 and install WRGM 1,2-RE-90-400,402.
03451	WBNEEB8724 R3	Condition C & E of WBNEEB8724, Remove air monitor panels 1,2-L-398 & install new panels by Kurz
03541	WBP880197	Install valves as required
03451	WBP880409	Install new cabling and wiring as required
03451	WBP890396	
03451	WBNNEB8705	
03451	391/85-48-15	
21619	N/A	Installs flow probes in Unit 1 and 2 Shield Building vents
33276	WBPER940107	Install new EPROMS, change software rev level, Unit 1
35465	WBPER940423	Add insulation and heat trace
	WBPER940423	Resolves general sample line deficiencies or incorporate exceptions, design criteria WB-DC-40-24, R4
S-37549	WBPER940601	Revise WB-DC-40-24 to allow seismic class 1(L)B for radiation detection, sampling, and flow monitoring and control equipment, EMS safety class
F-37490		Latest issue data base as of 7/21/95 Unit 1
S-37910	WBPER940601	Lower flow limits
F-38210		Seismic restraints for spent filters
F37490 (M3451)		Revise data base sensitivity connection factors - Unit 1
S-38097		Calc info output
S-38268		Limit fan operation to no ABGTS be run if both containment purges are running (exceeds flow measurement range)
34155		Correct flow element identifiers

Watts [redacted] clear Plant
Radiation Mo[redacted]ring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-402 1-LPF-90-452	Gas Sampler	No	Yes	Yes	No

Monitor Description: Shield Building Vent Sample Conditioning Skid

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A1 of WBNEEB8724, non-isokinetic sample
WBNEEB8724 R3	Condition A2 of WBNEEB8724, general sample line routing problems
WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation inconsistencies
WBNEEB8724 R3	Condition C of WBNEEB8724, sample line bend radius
WBNEEB8724 R3	Condition E of WBNEEB8724, Sample line bend radius
WBP870728	Missing pipe tubing caps
WBP880197	Lack of mounting details for flow elements
WBP880409	Air monitor isokinetic sample panels problems
WBP890396	Calibration documentation missing
WBNNEB8705	Specific documentation discrepancies
WBNNEB8709	Particulate plateout concerns
391/85-48-15	Unit 2 shield building monitor required for unit 1
WBPER940107	Software error in RM-80 allows stack overflow
WBPER940423	General sample line deficiencies vs. design criteria

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
33106	N/A	Relay Unit 2 M-30 annunciator to Unit 1
02244(U2)	WBP880197	Document mounting details for flow elements
03450	WBNEEB8724 R3	Condition A1 & A2, & A8, Remove Eberline monitors 1, 2-RE-90-400, 401, 402, 403 and install WRGM 1,2-RE-90-400,402.
03450	WBNEEB8724 R3	Condition C & E of WBNEEB8724, Remove air monitor panels 1,2-L-398 & install new panels by Kurz
03540	WBP880197	Install valves as required
03450	WBP880409	Install new cabling and wiring as required
03450	WBP890396	
03450	WBNNEB8705	
03450	391/85-48-15	
21619	N/A	Installs flow probes in Unit 1 and 2 Shield Building vents
33275	WBPER940107	Install new EPROMS, change software rev level, Unit 2
35465	WBPER940423	Add insulation and heat trace
	WBPER940423	Resolves general sample line deficiencies or incorporate exceptions, design criteria WB-DC-40-24, R4
S-37549	WBPER940601	Revise WB-DC-40-24 to allow seismic class 1(L)B for radiation detection, sampling, and flow monitoring and control equipment, EMS safety class
F-37489		Latest issue data base as of 7/21/95 Unit 2
S-37910	WBPER940601	Lower flow limits
F-38210		Seismic restraints for spent filters
F37489 (M3450)		Revise data base sensitivity connection factors - Unit 2
S-38097		Calc info output
S-38268		Limit fan operation to no ABGTS be run if both containment purges are running (exceeds flow measurement range)
S-36049		Verify safety class in EMS

Watts [redacted] uclear Plant
Radiation Monitoring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-404 1-LPR-90-405 1-LPR-90-450	Gas	No	No	Yes	No

Monitor Description: Condenser Vacuum Vent Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A2 of WBNEEB8724, General sample line routing problems
WBNEEB8724 R3	Condition A7 of WBNEEB8724, Moisture in condenser vacuum pump exhaust lines
WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation discrepancies
WBNEEB8724 R3	Condition G of WBNEEB8724, Temperatures exceeding detector limits
WBP890396	Calibration documentation missing; Eberline GM Tubes
WBPER940423	General sample line deficiencies with respect to design criteria requirements
CRDR HED 151	Usability of Eberline CT-2B

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
17610	WBNEEB8724 R3	Condition A2 of SCRWBNEEB8724, General sample line upgrades: add purge/test connections
17610	WBNEEB8724 R3	Condition A2 of SCRWBNEEB8724, (Sample line upgrades for monitors 99, 119, 129 may impact 404 also)
06973	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, Sample line as-constructed
09916	CRDR HEDs 150, 151	Repl MEM I boards w/MEM II in MCR CT-2B & Local DAM units; inst bubble memory in CT-2B, add TSC connection
09916	CRDR HEDs 150, 151 cont.	Install relays in CT-2B & add annunciation for malf & hi rad; add take-up real for printer in CT-2B
10604	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, Documentation corrections only
17610	SCRWBNEEB8724 R3	Condition G of SCRWBNEEB8724, Reroute sample line, new tap
17610	SCRWBNEEB8724 R3	Condition A7 of SCRWBNEEB8724, Reroute sample line, new tap
23545	FCRNP1048 R1	Mounting details 1, 2-RM-90-450
33690	WBPER940423	Install new pump for 404, remove bulk filter assembly
34525	N/A	Add data base to SSDs
19058	WBP890396	Replace Eberline GM tubes
27485	N/A	SSDs
	WBPER940423	WB-DC-40-24 R4, resolves or incorporates exceptions
30666		Add purge capability and isolation valves
S37630	DD 95-0371	Correct relative locations of flange & probe
W35498		ERFDS programming for tested effluent release following radiological event
S38097		Calc info output
37637	N/A	Revised firmware details
30312	N/A	Pam upgrades

Watts [redacted]uclear Plant
Radiation Monitoring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-421	Shine	No	No	Yes	No

Monitor Description: Main Steam Line Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724 R3	Condition A6 of SCRWBNEEB8724, lack of geometry analysis
SCRWBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP890396	Calibration documentation missing
WBPER910454	Main steam line monitors not qualified for environment
CRDR HED 89/HEC 5250	Recorder scales
INPO OER 88-2708	Low range steam line monitors loose counts at SONGS
WBPER940107	RM-80 allows overwriting of memory
WBPER940072	Improper transfer calibration procedure
WBPER940601	No design criteria exception for unqualified low range; general equipment deficiencies
WBSCA940032	Coax to single conductor transition

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
09964	WBPER910454	Downgrade loops to RG 1.97 Cat 2 corrective actions based on walkdowns: add TSC, rdr, alarm outputs
10604	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89/HEC 5250	Correct recorder scales
23167	WBSCA940032	Materials/instructions for coax to single conductor transition
29173	WBNEEB8724 R3	Condition A6 of SCRWBNEEB8724, document monitor location
RD1007089	WBPER940072	New RD-2B detectors calibrated to new, approved procedure, new RT-10, 11 calibrators
33273	WBPER940107	Upgrade E-PROMS for part 21 problem
27485	WBPER940601 (F-33273)	Rev SSDs to delete low range detector
F-38245	Revise SSDs (27485)	
S-38097		Calc infor input

Watts [redacted] uclear Plant
Radiation M[redacted]oring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification: Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-422	Shine	No	No	Yes	No

Monitor Description: Main Steam Line Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724 R3	Condition A6 of SCRWBNEEB8724, lack of geometry analysis
SCRWBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP890396	Calibration documentation missing
WBPER910454	Main steam line monitors not qualified for environment
CRDR HED 89/HEC 5250	Recorder scales
INPO OER 88-2708	Low range steam line monitors loose counts at SONGS
WBPER940107	RM-80 allows overwriting of memory
WBPER940072	Improper transfer calibration procedure
WBPER940601	No design criteria exception for unqualified low range; general equipment deficiencies
WBSCA940032	Coax to single conductor transition

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
09964	WBPER910454	Downgrade loops to RG 1.97 Cat 2 corrective actions based on walkdowns: add TSC, rdr, alarm outputs
10604	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89/HEC 5250	Correct recorder scales
23167	WBSCA940032	Materials/instructions for coax to single conductor transition
29173	WBNEEB8724 R3	Condition A6 of SCRWBNEEB8724, document monitor location
RD1007089	WBPER940072	New RD-2B detectors calibrated to new, approved procedure, new RT-10, 11 calibrators
33273	WBPER940107	Upgrade E-PROMS for part 21 problem
27485	WBPER940601 (F-33273)	Rev SSDs to delete low range detector
F-38245	Revise SSDs (27485)	
S-38097		Calc infor input

Watts [redacted] uclear Plant
Radiation Monitoring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-423	Shine	No	No	Yes	No

Monitor Description: Main Steam Line Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724 R3	Condition A6 of SCRWBNEEB8724, lack of geometry analysis
SCRWBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP890396	Calibration documentation missing
WBPER910454	Main steam line monitors not qualified for environment
CRDR HED 89/HEC 5250	Recorder scales
INPO OER 88-2708	Low range steam line monitors loose counts at SONGS
WBPER940107	RM-80 allows overwriting of memory
WBPER940072	Improper transfer calibration procedure
WBPER940601	No design criteria exception for unqualified low range; general equipment deficiencies
WBSCA940032	Coax to single conductor transition

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
09964	WBPER910454	Downgrade loops to RG 1.97 Cat 2 corrective actions based on walkdowns: add TSC, rdr, alarm outputs
10604	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89/HEC 5250	Correct recorder scales
23167	WBSCA940032	Materials/instructions for coax to single conductor transition
29173	WBNEEB8724 R3	Condition A6 of SCRWBNEEB8724, document monitor location
RD1007089	WBPER940072	New RD-2B detectors calibrated to new, approved procedure, new RT-10, 11 calibrators
33273	WBPER940107	Upgrade E-PROMS for part 21 problem
27485	WBPER940601 (F-33273)	Rev SSDs to delete low range detector
F-38245	Revise SSDs (27485)	
S-38097		Calc infor input

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Radiation Monitoring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification: Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
1-RE-90-424	Shine	No	No	Yes	No

Monitor Description: Main Steam Line Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724 R3	Condition A6 of SCRWBNEEB8724, lack of geometry analysis
SCRWBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP890396	Calibration documentation missing
WBPER910454	Main steam line monitors not qualified for environment
CRDR HED 89/HEC 5250	Recorder scales
INPO OER 88-2708	Low range steam line monitors loose counts at SONGS
WBPER940107	RM-80 allows overwriting of memory
WBPER940072	Improper transfer calibration procedure
WBPER940601	No design criteria exception for unqualified low range; general equipment deficiencies
WBSCA940032	Coax to single conductor transition

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
09964	WBPER910454	Downgrade loops to RG 1.97 Cat 2 corrective actions based on walkdowns: add TSC, rdr, alarm outputs
10604	WBNEEB8724 R3	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89/HEC 5250	Correct recorder scales
23167	WBSCA940032	Materials/instructions for coax to single conductor transition
29173	WBNEEB8724 R3	Condition A6 of SCRWBNEEN8B24, document monitor location
RD1007089	WBPER940072	New RD-2B detectors calibrated to new, approved procedure, new RT-10, 11 calibrators
33273	WBPER940107	Upgrade E-PROMS for part 21 problem
27485	WBPER940601 (F-33273)	Rev SSDs to delete low range detector
F-38245	Revise SSDs (27485)	
S-38097		Calc infor input

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Radiation Monitoring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
2-RE-90-001	Area	No	No	No	No

Monitor Description: Spent Fuel Pool Area Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

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Radiation Monitoring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification: Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
2-RE-90-006	Area	No	No	No	No

Monitor Description: Component Cooling Heat Exchanger Area Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-6, 61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

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Radiation Monitoring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
2-RE-90-007	Area	No	No	No	No

Monitor Description: Sample Room Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

Watts Bar Nuclear Plant
Radiation Monitoring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor: 2-RE-90-008

Monitor Type: Area

Monitor Classification:

Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
No	No	No	No

Monitor Description: Aux Feedwater Pump Area Monitor

TVA Deficiency:

SCRWBNEEB8724
WBP870870
WBP890192
WBP890396
WBP890473P
WBP910053
WBNEEB8553
23005-WBN-02
CDR HED 109
CRDR HED 93
CRDR HED 89/HEC 5253
CRDR HED 89/HEC 5238
WBSCA940032
WBPER940072
WBP890492SCA

Description of Deficiency:

Condition A8 of SCRWBNEEB8724, documentation inconsistencies
Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
Undocumented ratemeter changes
Lack of calibration documentation
Unauthorized keep alive source in RD-1
Vendor change, RD-1 electronics card change fit
Lack of load data
Lack of radiation monitoring in CDWE
Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
Recorder scales (applicable only to 1-RE-90-280)
Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
RT-10, RT-11 calibrator documentation, SE calibration methods
Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312	WBP890192	PAM Upgrade (0-RE-90-135)
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new ratemeters & power supply
06378	N/A	Install new detector and components, loop 002
09840	SCRWBNEEB8724	Delete loops 235 & 236
10604	CRDR HED 89 & 93	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	WBP870870	Correct recorder scales
23169	N/A	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	WBPER940072	Replace recorders 1-RR-90-1 and RR-90-12
RD1014511	WBSCA940032	Purchase new RT-10, RT-11 calibrators
23167	WBP890492SCA	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	N/A	Replace coax cable for cable damage issue
35114		In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566	F-24447	Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-36399	Delete 0-R-90-63
06378		Add keep alive source for 1-RE-90-2

Watts [redacted] Nuclear Plant
Radiation Monitoring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
2-RE-90-010	Area	No	No	No	No

Monitor Description: CVCS Board Area Monitor

TVA Deficiency:	Description of Deficiency:
SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation inconsistencies
WBP870870	Inductive kickback from RL-1, failure reset (not applicable to O-RE-90-135)
WBP890192	Undocumented ratemeter changes
WBP890396	Lack of calibration documentation
WBP890473P	Unauthorized keep alive source in RD-1
WBP910053	Vendor change, RD-1 electronics card change fit
WBNEEB8553	Lack of load data
23005-WBN-02	Lack of radiation monitoring in CDWE
CDR HED 109	Radiation analyzer indicator light labels (not applicable to 0-RE-90-135)
CRDR HED 93	Recorder scales (not applicable to 1-RE-90-280, 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5253	Recorder scales (applicable only to 2-RE-90-1,6,7,8,10)
CRDR HED 89/HEC 5238	Recorder scales (applicable only to 1-RE-90-280)
WBSCA940032	Undocumented method of transitioning from coax to TSP, triax, or single conductor; inadequate WWK cable to connector termination
WBPER940072	RT-10, RT-11 calibrator documentation, SE calibration methods
WBP890492SCA	Replace coax cable for cable damage issue

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02440	WBP870870	Add diode, alarm relay coil, RL-1, General Atomic Engineering Change Order 12674
30312		PAM Upgrade (0-RE-90-135)
06378	WBP890192	Install new ratemeters & power supply
06378	CRDR HED 109	Install new ratemeters & power supply
06378	WBP890396	Install new detector and components, loop 002
09840	N/A	Delete loops 235 & 236
10604	SCRWBNEEB8724	Condition A8 of SCRWBNEEB8724, documentation corrections only
23167	CRDR HED 89 & 93	Correct recorder scales
23169	WBP870870	Add diode, alarm relay coil, RL-1 for 2-RI-90-7B,8B,10B, General Atomic Engineering Change Order 12674
23409	N/A	SSD for 0-RE-90-135
33616	N/A	Replace recorders 1-RR-90-1 and RR-90-12
RD1007089	WBPER940072	Purchase new RT-10, RT-11 calibrators
23167	WBSCA940032	Provide materials/instructions for transition from coax to single conductors
08858	WBP890492SCA	Replace coax cable for cable damage issue
08859	WBP890492SCA	Replace coax cable for cable damage issue
09153	WBP890492SCA	Replace coax cable for cable damage issue
35114	N/A	In WBRD 390,391/94-56 not a listed violation) Relocate 1-RE-90-7,61, and 0-RE-90-11 for optimum area radiation detection
37566		Resolve ground loops (shield ties) (loops 2,59,60 only)
16544	F-24447	Delete 0-R-90-63
06378	F-36399	Add keep alive source for 1-RE-90-2

Watts [redacted] uclear Plant
Radiation M[redacted]oring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
2-RE-90-123	Liquid	No	No	No	No

Monitor Description: Component Cooling System Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A2 of WBNEEB8724, General sample line routing problems
WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation inconsistencies
WBPER940601	Doc errors
WBP880272	Non-seismically qualified flow switch (0, 1-123)
WBP880273	Non-seismically qualified flow switch (2-123)
WBP890192	Undocumented changes to ratemeters
WBP890396	Calibration documentation missing
WBNEEB8553	Lack of load data
CRDR HED 40	Nuisance alarm
CRDR HED 109	Radiation analyzer indicator light labels
CRDR HED 89/HEC 5252	Recorder Scales
WBPER940423	General sample line deficiencies
WBSCA940032	Coax to single conductor transition
WBP880318	Noise problems

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
06378	WBP890192	Install new ratemeters and power supply
06378	CRDR HED 109	Install new ratemeters and power supply
06801	WBNEEB8724 R3	Condition A2 to WBNEEB8724, replace inlet and outlet isolation valves w/ss globe; add recirc purge/test valves; take exception for carbon steel root valves
06973	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Sample line as constructed
09308	WBNEEB8724 , WBP880318	Condition A8 of WBNEEB8724, Correct loop grounding for single point ground, assure preamp board per drawing configuration, rebuild detectors
10604	WBNEEB8724 R3	Condition A8 of WBNEEB8724, Documentation corrections resolves non-seismic flow switch (documentation)
15423	WBP880272	Resolves non-seismic flow switch (documentation)
15423	WBP880273	Documentation corrections resolves non-seismic flow switch (documentation)
23235	N/A	Correct vendor manual to reflect optical grease
23235	CRDR HED 89/HEC 5252	Correct recorder scales
23167	WBSCA940032	Provide materials, instructions for coax to single conductor transition
33686	CRDR HED 40	Block alarm when monitor not in use
	WBPER940423	Resolve or incorporate exceptions in R4 of design criteria, WB-DC-40-24
W-37566	N/A	Ground loops - shield ties (1-123 only)
S-36049	WBPER940601	Show valves correctly, EMS corrections

Wa[redacted] Nuclear Plant
Radiation [redacted]itoring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
2-RE-90-400 2-LPF-90-400	Gas Sampler	No	Yes	Yes	No

Monitor Description: Shield Building Vent Monitor

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A1 of WBNEEB8724, non-isokinetic sample, NCR 6822SCA was resolved by corrective actions for SCRWBNEEB8724
WBNEEB8724 R3	Condition A2 of WBNEEB8724, general sample line routing problems
WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation inconsistencies
WBNEEB8724 R3	Condition C of WBNEEB8724, sample line bend radius
WBNEEB8724 R3	Condition E of WBNEEB8724, Sample line bend radius
WBP870728	Missing pipe tubing caps
WBP880197	Lack of mounting details for flow elements
WBP880409	Air monitor isokinetic sample panels problems
WBP890396	Calibration documentation missing
WBNNEB8705	Specific documentation discrepancies
WBNNEB8709	Particulate plateout concerns
391/85-48-15	Unit 2 shield building monitor required for unit 1
WBPER940107	Software error in RM-80 allows stack overflow
WBPER940423	General sample line deficiencies vs. design criteria
WBPER930458	Calibration interval

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02243(U1)	WBP880197	Document mounting details for flow elements
34155		Correct flow element identifiers
1-RE-90-400	WBPER930458	Revise calculation to increase calibration interval to 18 months
03451	WBNEEB8724 R3	Condition A1 & A2, & A8, Remove Eberline monitors 1, 2-RE-90-400, 401, 402, 403 and install WRGM 1,2-RE-90-400,402.
03451	WBNEEB8724 R3	Condition C & E of WBNEEB8724, Remove air monitor panels 1,2-L-398 & install new panels by Kurz
37799	N/A	Correct computer points on control drawing
03451	WBP880197	Install valves as required
03451	WBP880409	Install new cabling and wiring as required
03451	WBP890396	
03451	WBNNEB8705	
03451	391/85-48-15	
21619	N/A	Installs flow probes in Unit 1 and 2 Shield Building vents
33276	WBPER940107	Install new EPROMS, change software rev level, Unit 1
35465	WBPER940423	Add insulation and heat trace
	WBPER940423	Resolves general sample line deficiencies or incorporate exceptions, design criteria WB-DC-40-24, R4
S-37549	WBPER940601	Revise WB-DC-40-24 to allow seismic class 1(L)B for radiation detection, sampling, and flow monitoring and control equipment
F-37489		Latest issue data base as of 7/21/95 Unit 2
S-37910	WBPER940601	Lower flow limits
F-38210		Seismic restraints for spent filters
F37490 (M3451)		Revise data base sensitivity connection factors - Unit 1
S-38097		Calc info output
S-38268		Limit fan operation to no ABGTS be run if both containment purges are running (exceeds flow measurement range)

Wat[redacted] Nuclear Plant
Radiation [redacted]toring System (RMS)
Deficiencies Impacting RMS

Radiation Monitor:	Monitor Type:	Monitor Classification:			
		Tech Spec:	ODCM:	Reg. Guide 1.97:	Safety Related:
2-RE-90-402 2-LPF-90-452	Gas Sampler	No	Yes	Yes	No

Monitor Description: Shield Building Sample Conditioning Skid

TVA Deficiency:	Description of Deficiency:
WBNEEB8724 R3	Condition A1 of WBNEEB8724, non-isokinetic sample, NCR 6822SCA was resolved by corrective actions for SCRWBNEEB8724
WBNEEB8724 R3	Condition A2 of WBNEEB8724, general sample line routing problems
WBNEEB8724 R3	Condition A8 of WBNEEB8724, documentation inconsistencies
WBNEEB8724 R3	Condition C of WBNEEB8724, sample line bend radius
WBNEEB8724 R3	Condition E of WBNEEB8724, Sample line bend radius
WBP870728	Missing pipe tubing caps
WBP880197	Lack of mounting details for flow elements
WBP880409	Air monitor isokinetic sample panels problems
WBP890396	Calibration documentation missing
WBNNEB8705	Specific documentation discrepancies
WBNNEB8709	Particulate plateout concerns
391/85-48-15	Unit 2 shield building monitor required for unit 1
WBPER940107	Software error in RM-80 allows stack overflow
WBPER940423	General sample line deficiencies vs. design criteria

Design Change Notice:	Related Deficiency:	Description of Design Changes/Field Modifications:
02244(U2)	WBP880197	Document mounting details for flow elements
03451	WBNEEB8724 R3	Condition A1 & A2, & A8, Remove Eberline monitors 1, 2-RE-90-400, 401, 402, 403 and install WRGM 1,2-RE-90-400,402.
03451	WBNEEB8724 R3	Condition C & E of WBNEEB8724, Remove air monitor panels 1,2-L-398 & install new panels by Kurz
03451	WBP880197	Install valves as required
03451	WBP880409	Install new cabling and wiring as required
03451	WBP890396	
03451	WBNNEB8705	
03451	391/85-48-15	
21619	N/A	Installs flow probes in Unit 1 and 2 Shield Building vents
33275	WBPER940107	Install new EPROMS, change software rev level, Unit 2
35465	WBPER940423	Add insulation and heat trace
	WBPER940423	Resolves general sample line deficiencies or incorporate exceptions, design criteria WB-DC-40-24, R4
S-37549	WBPER940601	Revise WB-DC-40-24 to allow seismic class 1(L)B for radiation detection, sampling, and flow monitoring and control equipment
F-37489		Latest issue data base as of 7/21/95 Unit 2
S-37910	WBPER940601	Lower flow limits
F-38210		Seismic restraints for spent filters
F37489 (M3450)		Revise data base sensitivity connection factors - Unit 2
S-38097		Calc info output
S-38268		Limit fan operation to no ABGTS be run if both containment purges are running (exceeds flow measurement range)
S-36049		Verify safety class in EMS

Attachment 2

Resolution of Engineering Assessment Items

ENCLOSURE 1
ATTACHMENT 2
TABLE 1
STATUS OF OPEN ITEMS

Monitor	Issue	Track/Resolved	Status
1-RE-90-106	Drawing shows ball & plug valves as gate or globe valves	WBPER940601 DCN S-36049-A	Closed
1-RE-90-112	Drawing shows ball & plug valves as gate or globe valves	WBPER940601 DCN S-36049-A	Closed
1-RE-90-119	Drawing shows ball & plug valves as gate or globe valves	WBPER940601 DCN S-36049-A	Closed
1-RE-90-120	Drawing shows ball & plug valves as gate or globe valves	No change	Closed
0,1,2-RE-90-123	Drawing shows ball & plug valves as gate or globe valves	WBPER940601 DCN S-36049-A	Closed
0-RE-90-133, 134,140,141	Drawing shows ball & plug valves as gate or globe valves	WBPER940601 DCN S-36049-A	Closed
0-RE-90-212	Drawing shows ball & plug valves as gate or globe valves	WBPER940601 DCN S-36049-A	Closed
0-RE-90-225	Drawing shows ball & plug valves as gate or globe valves	WBPER940601 DCN S-36049-A	Closed
0-RE-90-101	Model Numbers for B & C channel swapped in vendor manual	WBPER940601 VR-1698	Closed
0-RE-90-101	Rate meter tag # are detector model #	WBPER940601 DCN not required EMS corrected	Closed
0-RE-90-132	Model Numbers for B & C channel swapped in vendor manual	WBPER940601 VR-1698	Closed
0-RE-90-132	Rate meter tag # are detector model #	WBPER940601 DCN not required EMS corrected	Closed
1,2-RE-90-400	Safety class not verified in EMS for 2-400	WBPER940601 DCN S-36049-A	Closed
1,2-RE-90-402	Safety class not verified in EMS for 2-402	WBPER940601 DCN S-36049-A	Closed
0-RE-90-101	Skid seismic category doesn't match process duct in EMS	WBPER940601 DCN S-37549-A	Closed
0-RE-90-122	Skid seismic category doesn't match process pipe in EMS	WBPER940601 DCN S-37549-A	Closed
0,1,2-RE-90-123	Skid seismic category doesn't match process pipe in EMS	WBPER940601 DCN S-37549-A	Closed
0-RE-90-101	Revise Aux Building HVAC Sys. Description to delete auto isolation on signal from this monitor	WBPER940601 DCN S-37549-A	Closed
0-RE-90-101	Revise 1-47W610-90-3 for alarm	Was already done DCN 21861 DCA 34	Closed
1-RE-90-129	Operator aid to adjust sampler flow to vacuum exhaust flow rate	WBPER940601 DCN F-37909-A	Closed

ENCLOSURE 1
ATTACHMENT 2
TABLE 2
STATUS OF TEAM ITEMS

Monitor	Description	Completed	Status
1-RE-90-112	Revise particulate sensitivity in Table 11.4-2 & in Tech Specs - TVA determined no change required in FSAR orTech Spec.	No change required	Closed
1-RE-90-112	Revise FSAR to show range was determined at vendor specified background	FSAR Amendment 89 Submitted 5/16/95	Closed
1-RE-90-112	Revise FSAR Table 11.4-2 Footnote on background	FSAR Amendment 89 Submitted 5/16/95	Closed
1-RE-90-112	Delete requirement for Radcon coverage - Section 3.9 of DC	WB-DC-40-24 R4 Issued 4/28/95	Closed
1-RE-90-106	Revise particulate sensitivity in FSAR Table 11.4-2 & in Tech Specs - TVA determined no change required in FSAR or Tech Spec.	No change required.	Closed
1-RE-90-106	Revise FSAR to show range was determined at vendor specified background	FSAR Amendment 89 Submitted 5/16/95	Closed
1-RE-90-106	Revise FSAR Table 11.4-2 Footnote on background	FSAR Amendment 89 Submitted 5/16/95	Closed
1-RE-90-106	Delete requirement for Radcon coverage - Section 3.9 of DC - same as 3	WB-DC-40-24 R4 Issued 4/28/95	Closed
1-RE-90-101	Generate calculation to show monitor can detect 10 DAC ; Revise I&C calc 0-RE-90-101 to correct function and provide demonstrated accuracy for iodine to 10 DAC	WBNTSR-103 R0 B26 950421 363 0-RE-90-101 R2 B26 950610 320	Closed
1-RE-90-101	same as item 9	same as item 9	Closed
1-RE-90-400	Revise NUREG-0737 submittal to reflect latest values from WBNAPS3-048 calc on range - TROI Items NUREG 0737 II.F.1.2A	T04 950616 151	Closed
1-RE-90-400	same as 11	same as item 11	Closed
1-RE-90-400	Delete requirement for pressure compensation in DC	WB-DC-40-24 R4 Issued 4/28/95	Closed
1-RE-90-400	Ensure DC does not require a root valve for this monitor	WB-DC-40-24 R4 Issued 4/28/95	Closed
1-RE-90-400	Revise DC to allow the use of flareless compression fittings	WB-DC-40-24 R4 Issued 4/28/95	Closed
1-RE-90-400	Revise DC to eliminate requirement for condensate pots; sample lines being heat traced	WB-DC-40-24 R4 Issued 4/28/95	Closed

ENCLOSURE 1
ATTACHMENT 2
TABLE 2
STATUS OF TEAM ITEMS

1-RE-90-402	Ensure DC does not require a root valve for this monitor	WB-DC-40-24 R4 Issued 4/28/95	Closed
1-RE-90-402	Revise DC to eliminate requirement for condensate pots; sample lines being heat traced	WB-DC-40-24 R4 Issued 4/28/95	Closed
1-RE-90-099	Revise 0737 submittal to reflect elimination of the monitor - In TROI - Item NUREG 0737 II.F.1.2A	T04 950616 151	Closed
1-RE-90-099	Delete reference in FSAR that sample lines in the turbine building are seismic	FSAR Amendment 89 Submitted 5/16/95	Closed
1-RE-90-119	Revise DC to allow the use of LED check sources	WB-DC-40-24 R4 Issued 4/28/95	Closed
1-RE-90-119	Delete reference in FSAR that sample lines in the turbine building are seismic	FSAR Amendment 89 Submitted 5/16/95	Closed
1,2-RE-90-404	Revise ranges in FSAR, RG 1.97, and 0737 submittal to match WBNAPS3-048 - In TROI - Item NUREG 0737 II.F.1.2A	FSAR Amendment 89 Submitted 5/16/95 T04 950616 151	Closed
1,2-RE-90-404	Revise DC to allow the use of turbine building ambient air for purge	WB-DC-40-24 R4 Issued 4/28/95	Closed
1,2-RE-90-404	Delete reference in FSAR that sample lines in the turbine building are seismic	FSAR Amendment 89 Submitted 5/16/95	Closed
0-RE-90-125 & 126	Revise WBNTSR-028 and FSAR to match on required range	FSAR Amendment 89 Submitted 5/16/95 WBNTSR-028 R1 B26 950214 396	Closed
0-RE-90-125 & 126	Revise DC to allow nonisokinetic sampling for non-particulate monitors	WB-DC-40-24 R4 Issued 4/28/95	Closed
0-RE-90-205 & 206	Revise WBNTSR-028 and FSAR to match on required range	FSAR Amendment 89 Submitted 5/16/95 WBNTSR-028 R1 B26 950214 396	Closed
0-RE-90-205 & 206	Revise DC to allow nonisokinetic sampling for non-particulate monitors	WB-DC-40-24 R4 Issued 4/28/95	Closed
1-RE-90-130 & 131	Revise WBNTSR-038 required range	WBNTSR-038 R5 B25 950303 360	Closed
0-RE-90-013	Rename monitor to reflect location in shipping bay	FSAR Amendment 89 Submitted 5/16/95 WB-DC-40-24 R4 Issued 4/28/95	Closed

ENCLOSURE 1
ATTACHMENT 2
TABLE 2
STATUS OF TEAM ITEMS

0-RE-90-138	Rename as "Waste Packaging Room Monitor" in DC & FSAR	FSAR Amendment 89 Submitted 5/16/95 WB-DC-40-24 R4 Issued 4/28/95	Closed
0-RE-90-118	Revise DC to specify that locally is at the Waste Gas Panel (0-L-2)	WB-DC-40-24 R4 Issued 4/28/95	Closed
1,2-RE-90-120/121	Revise FSAR to delete 1-RE-90-124 - TVA decided to retain the 1 gpm leak rate capability	FSAR Amendment 89 Submitted 5/16/95	Closed
1,2-RE-90-120/121	WBNTSR-066 was revised	WBNTSR-066 R4 B26 950307 384	Closed
1,2-RE-90-120/121	Revise DC to delete requirement that all components be stainless steel	WB-DC-40-24 R4 Issued 4/28/95	Closed
1,2-RE-90-120/121	Revise DC discussion on draining the liquid monitor skids	WB-DC-40-24 R4 Issued 4/28/95	Closed
1,2-RE-90-124	Remove monitor from DC and FSAR - Removed from DC and FSAR for unit 1. Unit 2 has to stay in FSAR	Has to stay in FSAR WB-DC-40-24 R4 Issued 4/28/95	Closed
0-RE-90-122	Clarify range values in FSAR	FSAR Amendment 89 Submitted 5/16/95	Closed
0-RE-90-122	Revise FSAR to show background at which range was determined	FSAR Amendment 89 Submitted 5/16/95	Closed
0-RE-90-122	Add discussion in DC on low flow alarm	WB-DC-40-24 R4 Issued 4/28/95	Closed
0,1,2-RE-90-123	Revise DC to clarify that these monitors do not have sample pumps	WB-DC-40-24 R4 Issued 4/28/95	Closed
0,1,2-RE-90-123	Revise required range calc WBNTSR-042 to establish a lower maximum range	WBNTSR-042 R	Closed
0,1,2-RE-90-123	Revise DC to clarify that these monitors do not have sample pumps	WB-DC-40-24 R4 Issued 4/28/95	Closed
0,1,2-RE-90-123	Revise DC to allow the use of globe valves as root valves	WB-DC-40-24 R4 Issued 4/28/95	Closed
0,1,2-RE-90-123	Revise DC to delete requirement that all components be stainless steel	WB-DC-40-24 R4 Issued 4/28/95	Closed
0-RE-90-225	Revise DC to allow the use of globe valves as root valves	WB-DC-40-24 R4 Issued 4/28/95	Closed
0-RE-90-225	Revise DC to delete requirement that all components be stainless steel	WB-DC-40-24 R4 Issued 4/28/95	Closed

ENCLOSURE 1
ATTACHMENT 2
TABLE 2
STATUS OF TEAM ITEMS

0-RE-90-212	Change monitor name from Turbine Bld Sump to Station Sump - Not changed -no technical content	Not Changed	Closed
0-RE-90-212	Revise DC to show TSC computer is used	WB-DC-40-24 R4 Issued 4/28/95	Closed
0-RE-90-212	Revise DC to allow the use of globe valves as root valves	WB-DC-40-24 R4 Issued 4/28/95	Closed
0-RE-90-212	Revise DC to delete requirement that all components be stainless steel	WB-DC-40-24 R4 Issued 4/28/95	Closed
0-RE-90-211	Revise FSAR & DC - monitor removed from plant design	FSAR Amendment 89 Submitted 5/16/95 WB-DC-40-24 R4 Issued 4/28/95	Closed
0-RE-90-133/134 & 140/141	Revise DC to remove "operate during and after an accident" invoke RG 1.97 requirements	WB-DC-40-24 R4 Issued 4/28/95	Closed
0-RE-90-133/134 & 140/141	Revise DC to allow the use of globe valves as root valves	WB-DC-40-24 R4 Issued 4/28/95	Closed
0-RE-90-133/134 & 140/141	Revise DC to delete requirement that all components be stainless steel	WB-DC-40-24 R4 Issued 4/28/95	Closed
1-RE-90-280	Change name to "Post Accident Sampling Room Area Monitor	FSAR Amendment 89 Submitted 5/16/95 WB-DC-40-24 R4 Issued 4/28/95	Closed
0-RE-90-102 & 103	Need location specific calc issued	WBNTSR-104 R0 B26 950414 354	Closed

ENCLOSURE 1
ATTACHMENT 2
TABLE 3
STATUS OF OBSERVATIONS

Monitor	Issue	Resolution	Status
0-RE-90-101	Valve ISIV-90-101F is shown on dwg 1-47W610-90-3 R13. DD 9400124 was issued to remove the sample line root valve from the drawing. The sample panel can be isolated. Therefore the absence of a root valve is acceptable. Eight revisions of 1-47W610-90-3 have been issued without incorporating the DD.	No work required	Closed
0-RE-90-132	Many of the values used by Calc. WBNTSR-037 R0, come for procedure TI-18, which is on administrative hold.	TI-18 is no longer on hold.	Closed
1,2-RE-90-400	Model numbers not listed in EMS. Vendor manual is not issued yet. Available in RIMS only. Will be fixed by closure of DCNs 3450 & 3451	Documents updated as required by TVA Procedures.	Closed
1,2-RE-90-400	Vendor drawing 0403-5010 Rev B has a typo. An E-2 should be E+2	Vendor informed of typo	Closed
1,2-RE-90-400	Drawing 1-47W610-90-5 should be as built as soon as possible due to numerous changes and poor quality of the microfilm	Drawing is now CCD since completion of DCNs 3450 & 3451.	Closed
1,2-RE-90-400	Change EQ status from "Yes" to "No" in Reg Guide 1.97 response for items located in mild environments.	Changes not made. Inconsistent with TVA program.	Closed
1,2-RE-90-400	Ensure that maintenance is aware that detector correction factors are required.	Information provided in SSDs	Closed
1,2-RE-90-402	Vendor manual is in RIMS but has not been issued as an approved vendor manual. EMS does not list the vendor manual number. Model number information isn EMS is for the old monitors which were remvoed by DCNs 3450 & 3451. This will be corrected when the DCNs are closed	DCNs were open when this observation was made. Manual approved and EMS updated as part of DCN closure.	Closed
1,2-RE-90-402	A demonstrated accuracy calculation is not required. However, it is necessary to provide Chemistry with the results of Rev 3 to calculation WBNTSR-060.	Chemistry was provided with the calc results via WBNTSR-107.	Closed
2-RE-90-402	Safety class for 2-RE-90-402 is not verified in EMS.	WBPER940601 DCN S-36049-A	Closed

ENCLOSURE 1
ATTACHMENT 2
TABLE 3
STATUS OF OBSERVATIONS

2-RE-90-402	Verify lead lined storage box for particulate filters and iodine cartridges is installed. Box is portable and Chemistry has box.	Chemistry put box in room.	Closed
1,2-RE-90-119	Change EQ status from "Yes" to "No" in Reg Guide 1.97 response for items located in mild environments.	Changes not made. Inconsistent with TVA program.	Closed
1,2-RE-90-119	Typo in ODCM Table 1.1-2	Typo corrected	Closed
1,2-RE-90-129	Provide Chemistry with the results of Rev 3 to calculation WBNTSR-060.	Chemistry was given the results of the calculation via WBNTSR-107.	Closed
1,2-RE-90-404	DD 9100021 tried to add the background detector to as designed dwg. 47W610-90-5. Background is part of the standard Eberline NGP-1 design. Since the signal is available consideration should be given to utilizing it.	Background is not required to be used by SSDs.	Closed
1,2-RE-90-404	Purge capability is by manual action of the operator to manually realign sample line valves. Ususally, purge capability is provided by push button or switch action. The existing configuration is acceptable but requires manual operator action at the sample lines.	No action needed.	Closed
0-RE-90-125, 126	Procurement requisition W 8375 must be awarded and report approved to test Unit 2 recorders to seismic criteria.	WBPER940279 was tracking this issue. Contract 141254 EX-WB-DC-30-4-37 (T2995 0721 837)	Closed
0-RE-90-205, 206	Procurement requisition W 8375 must be awarded and report approved to test Unit 2 recorders to seismic criteria.	WBPER940279 was tracking this issue. Contract 141254 EX-WB-DC-30-4-37 (T2995 0721 837)	Closed

ENCLOSURE 1
ATTACHMENT 2
TABLE 3
STATUS OF OBSERVATIONS

1-RE-90-012	Manufacturers sensitivity report is being ordered for addition to RIMS via 2652. This applies to all Sorrento monitors purchased under PO 92759 and its supplements	Sorrento provided report (T41 951101 800)	Closed
0-RE-90-122	Operator procedures should note that a release can be terminated (RCV-77-43 closed) due to a sample flow fault without an alarm in the MCR	No change required Release is monitored by Chemistry	Closed
0-RE-90-133	The skid power feed for 0-RE-90-133 and 1-RE-90-106 should be rewired to separate breakers	Not changed. Monitors individually fused and no requirement was violated.	Closed
0-RE-90-133	Procurement requisition W 8375 must be awarded and report approved to test Unit 2 recorders to seismic criteria.	WBPER940279 was tracking this issue. Contract 141254 EX-WB-DC-30-4-37 (T2995 0721 837)	Closed
0-RE-90-133, -134, -140, -141	Change EQ status from "Yes" to "No" in Reg Guide 1.97 response for items located in mild environments.	Changes not made. Inconsistent with TVA program.	Closed
1-RE-90-421, -422, -423, -424	For the RE: RD-11 the environmental temperature exceeds that qualification temperature. Tracked by WBPER940601	DCN F-33273 abandoned low range detector	Closed
1-RE-90-277, 278	These monitors are not important to safety, so the detectors are acceptable per requirements for non-safety equipment in WB-DC-40-24 R4.	No action required.	Closed
1-RE-90-275, 276	These monitors are not important to safety, so the detectors are acceptable per requirements for non-safety equipment in WB-DC-40-24 R4.	No action required.	Closed
1-RE-90-290, 292	These monitors are not important to safety, so the detectors are acceptable per requirements for non-safety equipment in WB-DC-40-24 R4.	No action required.	Closed

Enclosure 2
Watts Bar Nuclear Plant (WBN) Unit 1
Radiation Monitoring System Assessment

Post-fuel Load Activities

Information Requested:

For monitors which fulfill Technical Specification, Offsite Dose Calculation Manual (ODCM), and Regulatory Guide (RG) 1.97 requirements, describe the availability (time in-service) of the monitors since receipt of a low power license.

Response:

TVA's letter dated January 22, 1996, provided cumulative average availabilities since fuel load for the RMS as a whole and for the Technical Specification and ODCM monitors. The tables contained in Attachment 1 and listed below, provide related information for each individual monitor, showing the function of the monitor, the percent availability and, where appropriate, a discussion of work activities on the monitors which affected its availability. Graphical representations of this data are also provided in Attachment 1 as follows.

Table 1. System 90 Availability by Monitor.

Table 2. System 90 Out of Service Trend by Subsystem.

Graph 1. Radiation Monitoring System Availability.

Graph 2. Technical Specification Monitor Availability.

Graph 3. ODCM Monitor Availability.

Table 3. System 90 Out of Service Trend, Chronologically by Workorder.

Information Requested:

For key organizations such as Operations, Maintenance, Radiological Control, and Chemistry, describe the specific training that has been provided which will help ensure that the RMS is operated and maintained in accordance with TVA procedures and NRC regulations.

Response:

Training has been established to ensure that personnel required to perform tasks involving the RMS have the skills and understanding necessary to perform their tasks correctly. Continuing training modules for key departments have been revised and augmented.

Operations, Maintenance, Radiological Controls and Chemistry Training Programs are accredited by the National Academy for Nuclear Training and use the Systematic Approach to Training (SAT) for analysis, design, development, implementation and evaluation. The SAT process which is used for the evaluation of the training programs was applied to the DCNs associated with the RMS. A review of each of the design changes included a comparison to existing tasks and training materials. Necessary training tasks are added or revised. Training materials are developed or revised and training is conducted to ensure that sufficient personnel are qualified for plant operations. Additional training will be held to enhance existing training and to increase the number of qualified technicians.

Operations Department

The classroom training lesson plans for licensed and non-licensed Operators were reviewed and revised in November 1995 to ensure that the latest RMS design changes, e.g., latest Shield Building Vent Monitor equipment, addition of annunciator and trip block functions, and changes to interlock functions, are understood by operators. The accuracy of information presented in the lesson plan was confirmed and the level of discussion was increased to provide additional assurance that operation of monitor controls at both the monitor enclosure and the main control panel will be performed correctly. Normal indications, valid alarm conditions as well as potential false indications due to equipment failure are stressed. Available methods for collecting data on the newest digital radiation monitoring equipment were presented to familiarize operators with actions performed by other personnel.

Training of Operator crews including Shift Operation Supervisors, Licensed Reactor Operators and Assistant Unit Operators was conducted using the revised lesson plan 3-0T-SYS-090A. This training was conducted over six days from December 12-20, 1995, and consisted of six and one-half hours of presentation and discussions with the RMS engineer who was present on all but one day.

On-the-job certifications (qualification cards focusing on Radiation Monitoring tasks) have been developed for all operators. Qualification card certification is in process.

Radiological Control (RADCON) Department

Enhanced radiation monitoring training was provided for RADCON Technicians in several areas.

Classroom training was performed to enhance RADCON Technician knowledge and understanding of the RMS. The following continuing training classes have been conducted:

RMS (HPT307.016) - Eight-hour classes focusing on the functions, auto system responses, alarm response and location of RMS components.

Auxiliary Building Ventilation System (HPT307.025) - Four-hour classes on the design basis, component location and interface with the RMS.

Reactor building Purge Ventilation System (HPT 307.026) - Four-hour classes on purpose, component location and interface with the RMS.

Radiation Control Technician training includes qualification on six tasks for Continuous Air Monitors (CAMs). These tasks included:

- Change filters in CAMs
- Change filter paper in CAMs
- Verify operation of CAMs
- Conduct performance tests of CAMs
- Change chart paper in CAMs
- Respond to CAM alarms

Instrument & Controls (I&C) Maintenance Department

I&C training program contains formal classroom training which includes training on RMS. Training includes the following:

- Initial apprentice program
- Senior Instrument Mechanic (SIM) program
- Continuing and specialized program

Approximately 30 job training specific tasks (qualification cards) which are focused on Radiation Monitoring have been developed and implemented. This effort has ensured that qualified personnel are available to perform each radiation monitoring task.

The core I&C Maintenance crew for RMS includes the following:

- Radiation monitoring qualified technicians which have obtained special knowledge from vendor interface, system engineers, and equipment installation

- Both classroom training and on-job Qualification Cards are utilized

Chemistry Department

Training provided for Count Room Radiochemical Laboratory Analysts (RLAs) involved with effluent permitting included required initial training and specific qualification tasks as well as recently completed enhanced training. Training is complete for personnel currently at WBN.

Original Required Training:

- Classroom training using RMS Module 305.205: includes comprehensive treatment of WBN radiation monitors, their design, locations, instrumentation and controls, and sampling techniques.

- Qualification Card Tasks for Count Room RLAs on tasks involved with effluent permitting.

Enhanced Recent Training:

- Discussion sessions with Count Room RLAs to thoroughly familiarize them with the practices included in new WBN procedure PAI-5.04, "Installed Radiation Monitoring Program."

- Group department meetings with Count Room RLAs to review WBN experience with radiation monitoring problems, e.g., interface with Operations, monitoring deficiencies, etc.

- Chemistry management field observations were performed for Count Room RLAs during the performance of specific System 90 tasks.

- Enhanced Radiation Monitoring training provided for Radio-Chemical Laboratory Analysts.

- Classroom training using RMS Module 305.205.

System Engineer

The System Engineer (SE) with oversight for the RMS has completed in-house Engineering Support Personnel Training and additional vendor-supplied training. The SEs additional qualifications include 10 years of experience as the WBN RMS engineer as well as vendor certification on the Sorrento Electronics Wide Range Gas Monitor. The SEs competence on Radiation Monitoring was demonstrated by completion of position specific training in accordance with ESP 310.000, "System Engineering Qualification Standard."

Information Requested:

Describe the methods through which conformance to the requirements of RG 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants," are assured with respect to the process which compares effluent monitor readings with grab samples.

Response:

Consistent with the guidance provided in Revision 1 of RG 1.21, site procedures require a routine comparison of effluent radiation monitor readings to laboratory analysis of effluent samples to be performed. This comparison is made to determine the degree of correlation between these diverse measurements thus ensuring the validity of monitor calibrations while allowing early detection of component failure or calibration drift. Review and analysis of results are performed by the Chemistry and Technical Support organization to identify and evaluate disagreements. Chemistry Department and Technical Support instructions implement the following activities to ensure that this objective is met:

- Radiation monitor readings of radioactive noble gas and radioactive liquid releases will be recorded at the time samples of the monitored process are collected.

- Determination of expected monitor response will be made when process activities are sufficient to allow meaningful analysis. This determination will be based upon analysis of the measurement data taken on the collected sample and the detector calibration curve established during initial or primary calibration.

- Comparison of expected monitor response to actual monitor response will be made to establish the degree of agreement for further evaluation.

- Evaluation of disagreement against design-required instrument accuracy for the radiation monitor will be made to determine if monitor performance is acceptable. Investigation of the cause and initiation of corrective actions will be made if unacceptable results are identified.

- Trending of comparison data will be performed and results addressed in periodic system status reports. Trend data will be used to establish normal or expected monitor performance which can then be used to identify changes in plant performance allowing early evaluation of these changes.

Information Requested:

Provide a discussion of the program that supports the availability of spare parts to maintain the system.

Response:

The WBN Critical Spares Program establishes both minimum inventory and re-order spare part quantities based on vendor recommendations and plant maintenance data. Once finalized, access to the Bill of Materials (BOMs) will be through the Equipment Management System (EMS).

To date, the identification and purchase of RMS spare parts has resulted in BOMs being completed for 60 manufacturer/model types included in the RMS spare parts scope. Examples of the completed BOMs are included in Attachment 2 to this enclosure. The 60 completed represent 220 plant sub-components. For these components, there are currently 393 line items in inventory with established reorder points (ROP) and reorder quantities (ROQ). There are an additional 27 line items on order, with established delivery dates.

Since turnover of the system to plant Operations, the unavailability of spare parts has not been an issue in maintaining and repairing RMS equipment. The actions discussed above regarding the Critical Spares Program will enhance the maintenance of the system and ensure that needed replacement components are available.

Attachment 1

Radiation Monitor Availability

TABLE 1
SYSTEM 90
AVAILABILITY (BY MONITOR)

SYSTEM 90 AVAILABILITY
(11/9/95 through 1/22/96)

Monitor # Monitor Name *(Monitor Range)*	Tech Spec/ ODCM	% Available	% Not Available	Work Description
System 90A AREA Monitors	6 TS/ 0 ODCM	99.46%	0.54%	
0-LPR-90-3 Waste Package Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
0-LPR-90-4 Decon Room Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
0-LPR-90-5 Spent Fuel Pit Pmps Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
0-LPR-90-9 Waste Evap Cond Tank Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
0-LPR-90-11 Cntmt Spray RHR Pmp Rm Area Mon *(1.0E-1 to 1.0E+4 MRH)*		85.59%	14.41%	• Broken pin in detector cannon connector plug. • Iindicator replacement.(1)
0-LPR-90-102 Fuel Pool Area Mon *(1.0E-1 to 1.0E+4 MRH)*	Tech Spec	95.95%	4.05%	• Detector was high pressure washed causing failure. • Channel recorder repair and adjustment.(2)
0-LPR-90-103 Fuel Pool Area Monitor *(1.0E-1 to 1.0E+4 MRH)*	Tech Spec	100%	0%	
0-LPR-90-135 Main Cntrl Rm Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
0-LPR-90-230 Condensate Demin Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
0-LPR-90-231 Condensate Demin Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
1-LPR-90-1 Spent Fuel Pit Pmps Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	

SYSTEM 90 AVAILABILITY
(11/9/95 through 1/22/96)

Monitor # *Monitor Name* *(Monitor Range)*	Tech Spec/ ODCM	% Available	% Not Available	Work Description
1-LPR-90-2 Personnel Lock Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
1-LPR-90-6 Comp Cool Wtr Ht Exch Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
1-LPR-90-7 Hot Smpl Rm Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
1-LPR-90-8 Aux Fdwtr Pmps Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
1-LPR-90-10 CVCS Brd Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
1-LPR-90-59 RCB Up Comp Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
1-LPR-90-60 RCB Up Comp Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
1-LPR-90-61 RCB Low Comp Area Mon *(1.0E-1 to 1.0E-4 MRH)*		100%	0%	
1-LPR-90-271 RCB Up Comp Post Acc Area Mon *(1.0E+0 to 1.0E-8 RH)*	Tech Spec	100%	0%	
1-LPR-90-272 RCB Up Comp Post Acc Area Mon *(1.0E+0 to 1.0E-8 RH)*	Tech Spec	100%	0%	
1-LPR-90-273 RCB Low Comp Post Acc Area Mon *(1.0E+0 to 1.0E+8 RH)*	Tech Spec	100%	0%	

SYSTEM 90 AVAILABILITY
(11/9/95 through 1/22/96)

Monitor # / Monitor Name / (Monitor Range)	Tech Spec/ ODCM	% Available	% Not Available	Work Description
1-LPR-90-274 RCB Low Comp Post Acc Area Mon *(1.0E+0 to 1.0E+8 RH)*	Tech Spec	100%	0%	
1-LPR-90-275 Reactor Cool Dn Tk Area Mon *(1.0E+0 to 1.0E+5 MRH)*		100%	0%	
1-LPR-90-276 Peactor Cool Dn Tk Area Mon *(1.0E+0 to 1.0E+5 MRH)*		100%	0%	
1-LPR-90-277 Reactor Blbg Fl & Equip Drn Sump Area Mon *(1.0E+0 to 1.0E+5 MRH)*		100%	0%	
1-LPR-90-278 Reactor Blbg Fl & Equip Drn Sump Area Mon *(1.0E+0 to 1.0E+5 MRH)*		100%	0%	
1-LPR-90-280 Post Acc Smpl Rm Area Mon *(1.0E+0 to 1.0E+5 MRH)*		100%	0%	
1-LPR-90-290 RHR Post Acc Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
1-LPR-90-291 RHR Post Acc Area Mon *(1.0E+3 to 1.0E+11 MRH)*		100%	0%	
1-LPR-90-292 RHR Post Acc Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
1-LPR-90-293 RHR Post Acc Area Mon *(1.0E+3 to 1.0E+11 MRH)*		100%	0%	
2-LPR-90-1 Spent Fuel Pit Pmps Area Mon *(1.0E-1 to 1.0E+4 MRH)*		98.65%	1.35%	• Low background • Replace indicator.(1)

SYSTEM 90 AVAILABILITY
(11/9/95 through 1/22/96)

Monitor # / Monitor Name / (Monitor Range)	Tech Spec/ ODCM	% Available	% Not Available	Work Description
2-LPR-90-6 Comp Cool Wtr Ht Exch Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
2-LPR-90-7 Hot Smpl Rm Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
2-LPR-90-8 Aux Fdwtr Pmps Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
2-LPR-90-10 CVCS Brd Area Mon *(1.0E-1 to 1.0E+4 MRH)*		100%	0%	
System 90B LIQUID Monitors	0 TS 7 ODCM	98.74%	1.26%	
0-LPR-90-122 Wst Disp Sys Liq Eff Mon *(1.0E+1 to 1.0E+7 CPM)*	ODCM	100%	0	
0-LPR-90-123 CCS Liq Eff Mon *(1.0E+1 to 1.0E+7 CPM)*		100%	0%	
0-LPR-90-133 ERCW Liq Eff Mon *(1.0E+1 to 1.0E+7 CPM)*	ODCM	100%	0%	
0-LPR-90-134 ERCW Liq Eff Mon *(1.0E+1 to 1.0E+7 CPM)*	ODCM	100%	0%	
0-LPR-90-140 ERCW Liq Eff Mon *(1.0E+1 to 1.0E+7 CPM)*	ODCM	100%	0%	
0-LPR-90-141 ERCW Liq Eff Mon *(1.0E+1 to 1.0E+7 CPM)*	ODCM	100%	0%	

SYSTEM 90 AVAILABILITY
(11/9/95 through 1/22/96)

Monitor # Monitor Name *(Monitor Range)*	Tech Spec/ ODCM	% Available	% Not Available	Work Description
0-LPR-90-212 Sta Sump Disc Liq Eff Mon *(1.0E+1 to 1.0E+7 CPM)*	ODCM	87.39%	12.61%	• Indicator replacement.(1) • Low HI RAD setpoint • Trash in sample lines.
0-LPR-90-225 Condensate Demin Liq Eff Mon *(1.0E+1 to 1.0E+7 CPM)*	ODCM	100%	0%	
1-LPR-90-123 CCS Liq Eff Mon *(1.0E+1 to 1.0E+7 CPM)*		100%	0%	
2-LPR-90-123 CCS Liq Eff Mon *(1.0E+1 to 1.0E+7 CPM)*		100%	0%	
System 90C SAMPLE Monitors	0 TS 3 ODCM	92.74%	7.26%	
0-LPF-90-300 Aux Bldg Isokinetic Mon *(No Detector, Flow Only)*	ODCM	89.19%	10.81%	• Motor failure.(3) • Flow Controller malfunction.
0-LPF-90-320 Ser. Bldg Isokinetic Mon *(No Detector, Flow Only)*	ODCM	100%	0%	
1-LPR-90-129 Cond Vac Exh Part & Iod Sample *(No Detector, Flow Only)*	ODCM	89.02%	10.98%	• Power removed when 1-LPR-90-119 removed from service.
System 90D GAS Monitors	4 TS 2 ODCM	94.72%	5.28%	
0-LPR-90-118 Wst Disp Sys Gas Eff Mon *(1.0E+1 to 1.0E+7 CPM)*	ODCM	100%	0%	
0-LPR-90-125 MCR Intake Mon *(1.0E+1 to 1.0E+7 CPM)*	Tech Spec	100%	0%	

SYSTEM 90 AVAILABILITY
(11/9/95 through 1/22/96)

Monitor # Monitor Name *(Monitor Range)*	Tech Spec/ ODCM	% Available	% Not Available	Work Description
0-LPR-90-126 MCR Intake Mon *(1.0E+1 to 1.0E+7 CPM)*	Tech Spec	100%	0%	
0-LPR-90-205 MCR Emer Intake Mon *(1.0E+1 to 1.0E+7 CPM)*		100%	0%	
0-LPR-90-206 MCR Emer Intake Mon *(1.0E+1 to 1.0E+7 CPM)*		100%	0%	
1-LPR-90-119 Cond Vac Exh Mon *(1.0E+1 to 1.0E+7 CPM)*	ODCM	57.77%	42.23%	• Pump/Motor failure.(3) • Spurious alarms induced by electromagnetic noise.(4)
1-LPR-90-130 Cntmt Purge Air Exh Mon *(1.0E+1 to 1.0E+7 CPM)*	Tech Spec	100%	0%	
1-LPR-90-131 Cntmt Purge Air Exh Mon *(1.0E+1 to 1.0E+7 CPM)*	Tech Spec	100%	0%	
System 90E PIG Monitors	2 TS 2 ODCM	87.13%	12.87%	
0-LPR-90-101 Aux Bldg Vent PIG Mon *(1.0E+1 to 1.0E+7 CPM)*	ODCM	87.61%	12.39%	• Filter Fail alarm (moving filter).(5) • Back-flow through iodine/particulate channel. • Filter paper misalignment (moving filter paper).
0-LPR-90-132 Serv Bldg Vent PIG Mon *(1.0E+1 to 1.0E+7 CPM)*	ODCM	90.82%	9.18%	• Flow control valve adjustment. • Filter fail alarm (moving filter).(5) • Pump/Motor failure.(3)
1-LPR-90-106 Cont Bldg Low Comp PIG Mon *(1.0E+1 to 1.0E+7 CPM)*	Tech Spec	77.63%	22.37%	• Pump/Motor failure.(3) • Channel recorder adjustment.(2) • Low background iodine channel. • Low Flow alarm adjustment. • Investigation following excessive vacuum. • Obstruction to monitor flow (clogged when boron leak occurred).

SYSTEM 90 AVAILABILITY
(11/9/95 through 1/22/96)

Monitor # / Monitor Name / (Monitor Range)	Tech Spec/ ODCM	% Available	% Not Available	Work Description
1-LPR-90-112 Cont Bldg Up Comp PIG Mon *(1.0E+1 to 1.0E+7 CPM)*	Tech Spec	92.46%	7.54%	• Unable to obtain chemistry grab sample. • Filter fail alarm (moving filter).(5) • Low background iodine channel. • High background on particulate channel. • Investigation following excessive vacuum. • Test valves will not allow sufficient flow.
System 90F CAM Monitors	0 TS 0 ODCM	87.44%	12.56%	
0-LPR-90-12 Spent Fuel Pit CAM *(1.0E+1 to 1.0E+7 CPM)*		56.76%	43.24%	• Filter fail mechanism failure. • Pump/Motor failure.(3)
0-LPR-90-13 Wst Pkg Area CAM *(1.0E+1 to 1.0E+7 CPM)*		78.38%	21.62%	• Filter fail alarms.(5)
0-LPR-90-15 Hldup Vlv Glry CAM *(1.0E+1 to 1.0E+7 CPM)*		99.55%	0.45%	• Low flow alarm adjustment.
0-LPR-90-16 Decon Area CAM *(1.0E+1 to 1.0E+7 CPM)*		100%	0%	
0-LPR-90-17 Safety Inj Pmp Area CAM *(1.0E+1 to 1.0E+7 CPM)*		100%	0%	
0-LPR-90-138 Wst Pkg Area CAM *(1.0E+1 to 1.0E+7 CPM)*		94.59%	5.41%	• Obstructed sample line.
1-LPR-90-14 Hot Sample Rm Area CAM *(1.0E+1 to 1.0E+7 CPM)*		70.27	29.73%	• Pump/Motor failure.(3)
1-LPR-90-62 RB Low Comp Inst Rm CAM *(1.0E+1 to 1.0E+7 CPM)*		100%	0%	

SYSTEM 90 AVAILABILITY

(11/9/95 through 1/22/96)

Monitor # Monitor Name *(Monitor Range)*	Tech Spec/ ODCM	% Available	% Not Available	Work Description
System 90G DIGITAL Monitors	0 TS 4 ODCM	99.26%	0.74%	
1-LPF-90-400 Plant Vent Stack Isokinetic Mon *(No Detector, Flow Only)*	ODCM	100%	0%	
1-LPR-90-400 Plant Vent Stack WRGM	ODCM	98.99%	1.01%	• Data base was lost during power outage tests.
1-LPR-90-404 Cond Vac Exh Mid/Hi Rng Mon		97.30%	2.70%	• Monitor was isolated when 1-LPR-90-119 removed from service. • Low bkgnd on the background detector causing loss of counts.
2-LPF-90-400 Plant Vent Stack Isokinetic Mon *(No Detector, Flow Only)*	ODCM	100%	0%	
2-LPR-90-400 Plant Vent Stack WRGM	ODCM	100%	0%	
System 90I HFT Monitors	0 TS 2 ODCM	91.22%	8.78%	
1-LPR-90-120 Stm Gen Bldn Liq Mon *(1.0E+1 to 1.0E+7 CPM)*	ODCM	72.97%	27.03%	• Spurious alarms caused by electromagnetic noise.(4)
1-LPR-90-121 Stm Gen Bldn Liq Mon *(1.0E+1 to 1.0E+7 CPM)*	ODCM	74.32%	25.68%	• Spurious alarms caused by electromagnetic noise.(4)

SYSTEM 90 AVAILABILITY
(11/9/95 through 1/22/96)

Monitor # Monitor Name (Monitor Range)	Tech Spec/ ODCM	% Available	% Not Available	Work Description
1-LPR-90-421 Stm Line Lp #1 & Relf Mon (1.0E+1 to 1.0E+7 CPM)		100%	0%	
1-LPR-90-422 Stm Line Lp #2 & Relf Mon (1.0E+1 to 1.0E+7 CPM)		100%	0%	
1-LPR-90-423 Stm Line Lp #3 & Relf Mon (1.0E+1 to 1.0E+7 CPM)		100%	0%	
1-LPR-90-424 Stm Line Lp #4 & Relf Mon (1.0E+1 to 1.0E+7 CPM)		100%	0%	

(1) Indicator failures are not a related problem. Their failures have not been of similar nature.

(2) Recorders have been out of service and are still in a burn in period. They have been adjusted and/or repaired promptly. Parts have not been a concern.

(3) Preventative maintenance measures have been scheduled to rebuild pumps on a quarterly basis as recommended by vendor.

(4) Noise suppression components have been installed to correct for EMF noise.

(5) A vendor manual revision has been implemented, and a work order performed to ensure O-rings have been installed in all particulate moving filter assemblies to arrest filter paper slipping.

TABLE 2
SYSTEM 90 OUT-OF-SERVICE
TREND BY SUBSYSTEM

January 22, 1996

SYSTEM 90 OOS TREND
(Starting Date 11/9/95)

For the purpose of this evaluation of DOWN-TIME, the following is calculated from 11/9/95, 1800 Hrs to 1/22/96, 1800 Hrs (A total of 74 days or 1776 hrs). Start time is the date WR was entered into MPAC. Stop time is the date of CR status in MPAC for WO not yet reviewed. Completed WOs are reviewed to determine actual time OOS as well as down time imposed by Chemistry installed sample cart.

SYS #	# Chnl's	% Avalible Time	Monitor Not Functional
90A	37 (65712 hr)	99.46 %	0.54 % (352 hr)
90B	10 (17760 hr)	98.74 %	1.26 % (224 hr)
90C	3 (5328 hr)	92.74 %	7.26 % (387 hr)
90D	8 (14208 hr)	94.72 %	5.28 % (750 hr)
90E	4 (12 CH) (21312 hr)	87.13 %	12.87 % (2743 hr)
90F	8 (14208 hr)	87.44 %	12.56 % (1784 hr)
90G	5 (8880 hr)	99.26 %	0.74 % (66 hr)
90I	6 (10656 hr)	91.22 %	8.78 % (936 hr)
Total	89 (158,064 hrs)	95.42 % (150,822 hrs)	4.58 % (7,242 hrs)

January 22, 1996

SYSTEM 90 OOS TREND

(Starting Date 11/9/95)

The information provided by this table was compiled from generated repair/failure work requests. Only those monitors where work has been requested are given.

For the purpose of this evaluation, the following was calculated from 11/9/95, 1800 Hrs to 1/22/96, 1800 Hrs (A total of 74 days or 1776 hrs). The % Maint Time begins when WR is entered into MPAC and ends when WO is CR statused in MPAC. Completed WOs are reviewed to determine actual time OOS as well as down time imposed by Chemistry installed sample cart.

SYS #/MON #	% Available Time	Monitor Not Functional
90A Area Monitors		
2-RE-90-1 (Spent Fuel Pit Area Mon)	98.65 %	1.35 % (24 hr)
0-RE-90-11 (Cntmt Spray RHR Pmp Rm Area Mon)	85.59 %	14.41 % (256 hr)
*0-RE-90-102 (Fuel Pool Area Mon)	95.95 %	4.05 % (72 hr)
*0-RE-90-103 (Fuel Pool Area Mon)	100 %	0 %
1-RE-90-292 (RHR Post Acc Area Mon)	100 %	0 %
90B Liquid Monitors		
0-RE-90-122 (Wst Disp Sys Liq Mon)	100 %	0 %
-RE-90-123 (Comp Cooling Liq Mon)	100 %	0 %
*0-RE-90-212 (Sta Sump Disc Eff Mon)	87.39 %	12.61 % (224 hr)
*0-RE-90-225 (Cond Demin Eff Mon)	100 %	0 %
90C Sample Monitors		
*1-RE-90-129 (Cond Vac Exh Part & Iod Mon)	89.02 %	10.98 % (195 hr)
*0-RE-90-300 (Aux Bldg Isokinetic Mon)	89.19 %	10.81 % (192 hr)
90D Gaseous Monitors		
*0-RE-90-118 (Wst Disp Sys Gas Eff Mon)	100 %	0 %
*1-RE-90-119 (Cond Vac Exh Gas Mon)	57.77 %	42.23 % (750 hr)
*0-RE-90-126 (MCR Intake Gas Mon)	100 %	0 %
90E PIG Monitors of 90E have 3 channels, formula for calc is: OOS hrs/(total hrs * 3).		
*0-RE-90-101 (Aux Bldg Vent PIG Mon)	87.61 %	12.39 % (660 hr)
*1-RE-90-106 (Cont Bldg Low Comp PIG Mon)	77.63 %	22.37 % (1192 hr)
*1-RE-90-112 (Cont Bldg Up Comp PIG Mon)	92.46 %	7.54 % (402 hr)
*0-RE-90-132 (Serv. Bldg Vent PIG Mon)	90.82 %	9.18 % (489 hr)

* Tech Spec/ODCM Monitors

January 22,1996

SYSTEM 90 OOS TREND

(Starting Date 11/9/95)

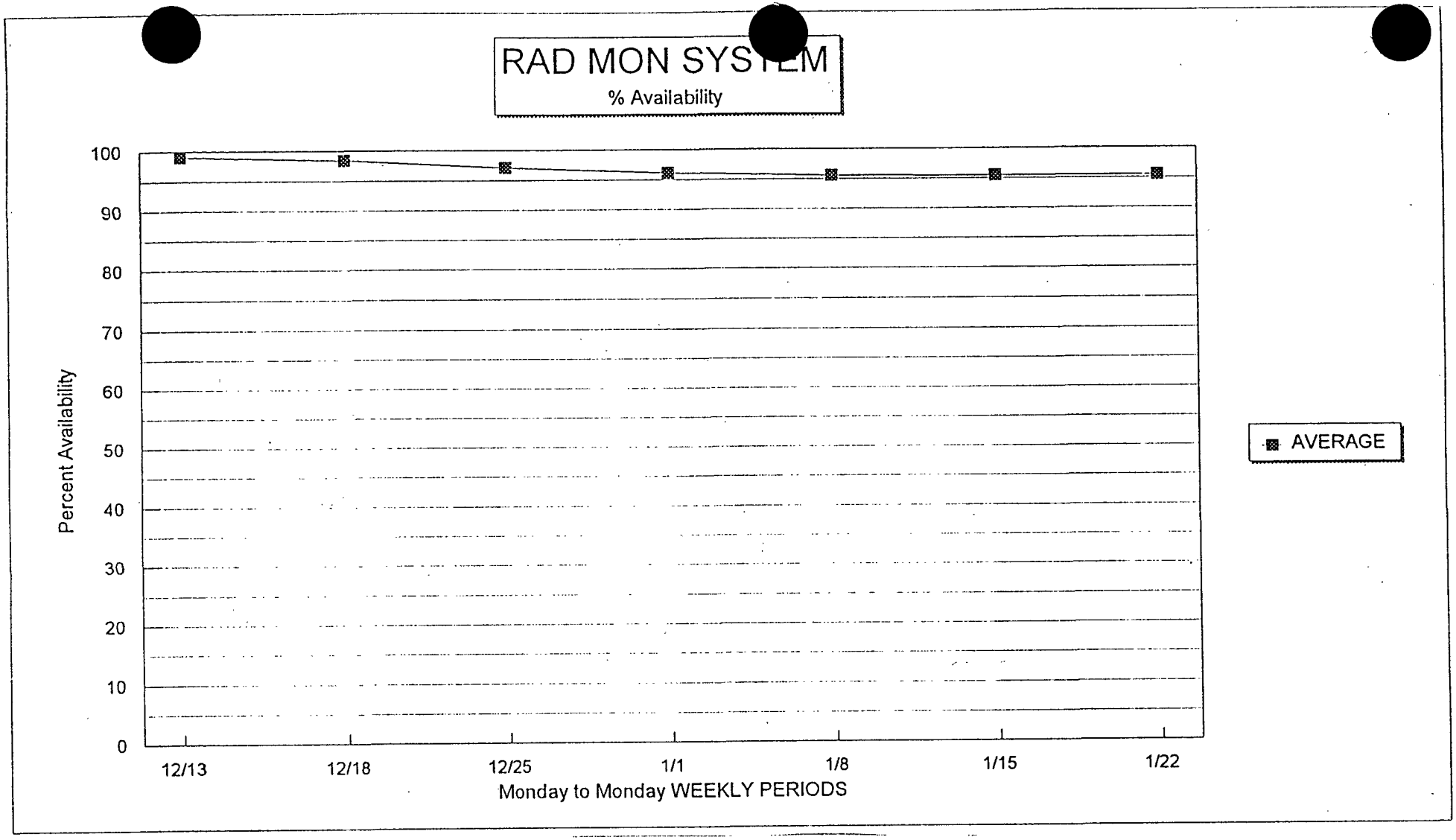
SYS #/MON #	% Available Time	Monitor Not Functional
90F CAM		
0-RE-90-12 (Spent Fuel Pit Part Mon)	56.76 %	43.24 % (768 hr)
0-RE-90-13 (Waste Pkg Area Part Mon)	78.38 %	21.62 % (384 hr)
1-RE-90-14 (Hot Smpl Rm Area Part Mon)	70.27 %	29.73 % (528 hr)
0-RE-90-15 (Holdup Vlv Gal Part Mon)	99.55 %	0.45 % (8 hr)
0-RE-90-16 (Decon Area Part Mon)	100 %	0 %
0-RE-90-17 (Safety Inj Pmp Area Part Mon)	100 %	0 %
1-RE-90-62 (Cont Bldg Low Comp Inst Rm Part Mon)	100 %	0 %
0-RE-90-138 (Wst Pkg Area Part Mon)	94.59 %	5.41 % (96 hr)
90G Digital Effluent		
*1-RE-90-400 (Wide Rng Gas Mon)	98.99 %	1.01 % (18 hr)
1-RE-90-404 (Cond Vac Exh Mid/Hi Gas Mon)	97.30 %	2.70 % (48 hr)
1-RE-90-450 (Cond Vac Exh Mid/Hi Com Mod)	100 %	0 %
90I HFT Mons (SGBD & MSL)		
*1-RE-90-120 (Stm Gen Bldn Liq Samp Mon)	72.94 %	27.03 % (480 hr)
*1-RE-90-121 (Stm Gen Bldn Liq Samp Mon)	74.32 %	25.68 % (456 hr)
1-RE-90-423 (Main Steam Line Rad Mon)	100 %	0 %

* Tech Spec/ODCM Monitors

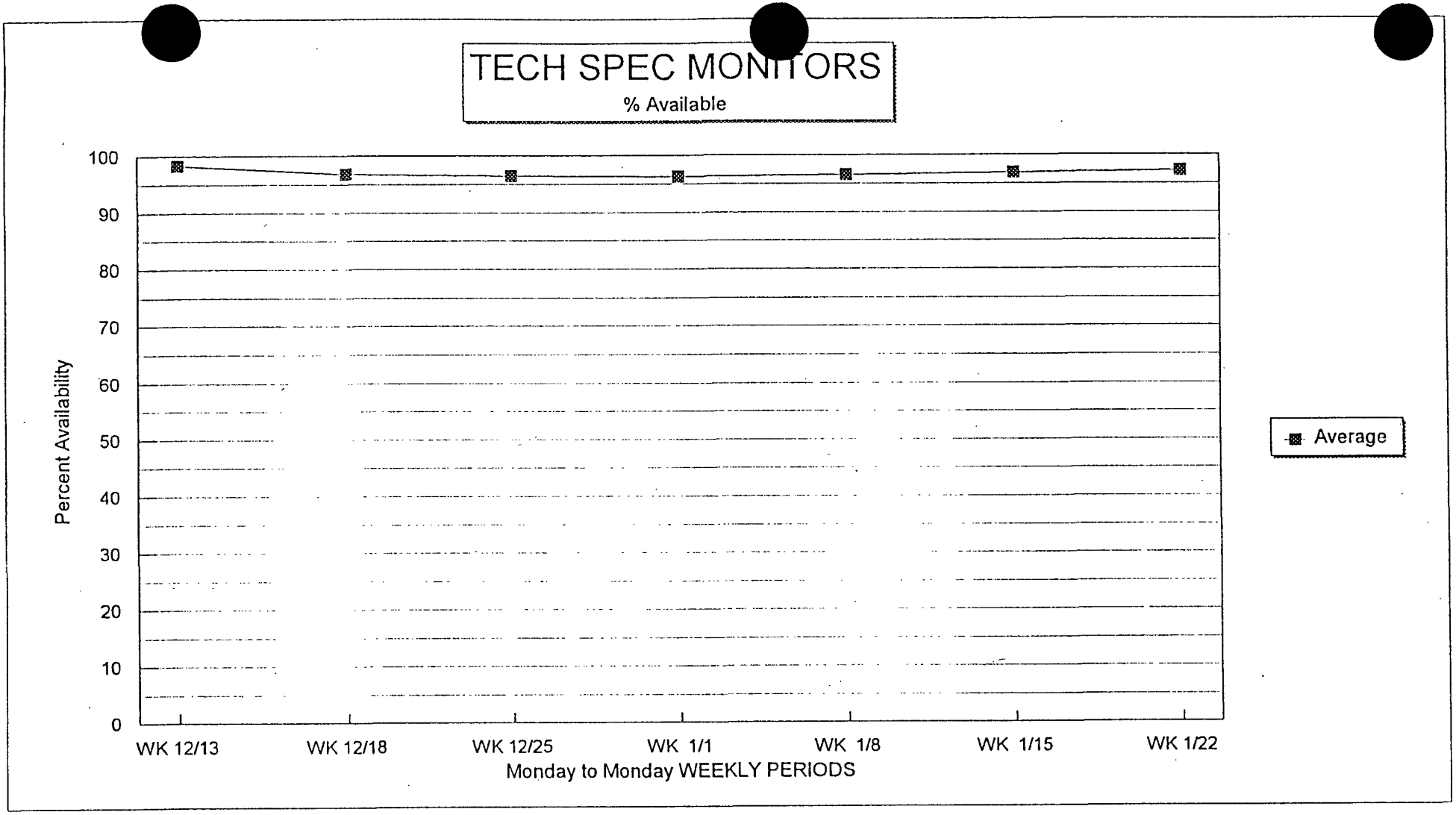
GRAPH 1
RADIATION MONITORING SYSTEM AVAILABILITY

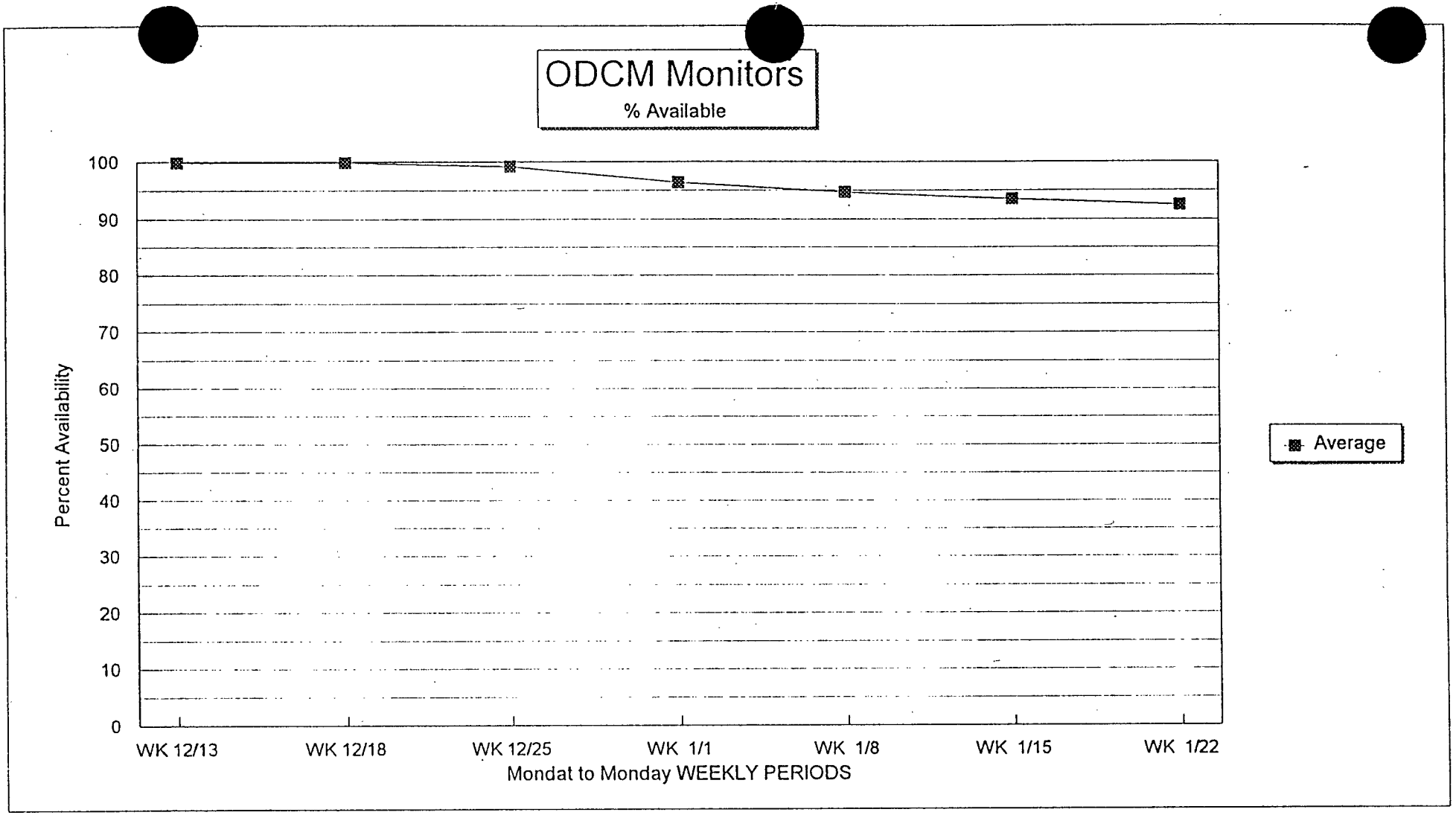
GRAPH 2
TECHNICAL SPECIFICATION
MONITOR UNAVAILABILITY

GRAPH 3
ODCM MONITOR UNAVAILABILITY



Principal cause for downward trend is the unavailability of monitors 1-RE-90-119, 1-LPR-90-120, and 121 to correct electronic noise issues.


TECH SPEC MONITORS
% Available
100
90
80
70
60
50
40
30
20
10
0
Percent Availability
WK 12/13
WK 12/18
WK 12/25
WK 1/1
WK 1/8
WK 1/15
WK 1/22
Monday to Monday WEEKLY PERIODS
Average



Principal cause for downward trend is the unavailability of monitors 1-RE-90-119, 1-LPR-90-120, and 121 to correct electronic noise issues.

TABLE 3

SYSTEM 90 OUT OF SERVICE TREND
(CHRONOLOGICALLY BY WORK ORDER)

January 22, 1996

SYSTEM 90 OOS TREND

(Starting Date 11/9/95)

Monitor #	Date WR Initiated	Date WO Comp (CR)	Duration WO Open (Days)	Time Rad Mon Actually OOS (Hours)	Reason OOS	Corrective Action
1-RM-90-112C Cnt Bldg Upper Comp PIG Rad Mon	10/30/95	11/24/95	15	6 (OOS by WO 95-25280-00)	WO 95-25128-00: Operate light will not stay lit	Verified proper HV, LLD, ULD and Cal source readings. ALL were within as left tol.
1-LPR-90-112A Cnt Bldg Upper Comp PIG Rad Mon	11/1/95	11/24/95	15	48	WO 95-25280-00: Unable to obtain Grab Sample Bypass	Exercised relf vlv. Performed IMI-90.003. Adjusted filter feed clutch. Inst O-ring on filter paper
0-LPR-90-13 Wst Pkg Area CAM	11/3/95	11/10/95	7	N/A	WO 95-25339-00: Filter Fail Alarm	Replaced paper (A VM revision has been generated to resolve slipping paper) Paper was moving but not resetting timer
1-LPR-90-106 Cnt Bldg Lower Comp PIG Rad Mon	11/6/95	11/20/95	11	264	WO 95-25662-00: Pump locked up causing motor failure and 1-HS-90-106A failure.	Pump, motor and HS replaced
0-LPR-90-12 Spent Fuel Pit CAM	11/10/95	11/20/95	10	24	WO 95-25948-00: Filter Fail Alarm	Changed fast speed mtr clutch & adj filter feed micro-switch
1-LPR-90-400 Shield Bldg Vent WRGM	11/11/95	11/12/95	1	18	WO 95-25919-00: Communication between monitor and MCR has failed	Reloaded RM-80 data base
0-RR-90-122 Wst Disp Sys Liq Rad Mon	11/12/95	11/15/95	4	N/A	WO 95-25939-00: RR does not record same value as ratemeter indicating.	Cleaned contacts of amplifier card & calibrated RR
0-LPR-90-138 Waste Pkg Area CAM	11/14/95	11/18/95	4	96	WO 95-26066-00: Flow Alarm, Apparent particulate flow restriction	Cleared obstructed sense line. Also repaired RR door catch
0-LPR-90-101 Aux Bldg Vent Part Rad Mon	11/19/95	11/22/95	3	43	WO 95-26399-00: Particulate flow alarm, apparent flow restriction	Replaced filter paper & installed O-rings
0-RR-90-16 Decon Area CAM	11/19/95	AP status		N/A	WR C318789: (Minor Maintenance) Chart paper not advancing	WO went to I&C shop 11/22/95
0-RR-90-17 Safety Inj Pmp Area CAM	11/19/95	AP status		N/A	WR C318796: (Minor Maintenance) Chart drive not operating properly	WO went to I&C shop 11/22/95
1-RR-90-106 Cnt Bldg Lo Comp PIG Rad Mon	11/20/95	11/30/95	10	N/A	WR C288396: (WR cancelled & tied to WO 95-24535-00) Red pin sticking, will not ink	Cleared red pin pathway

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SYSTEM 90 OOS TREND

(Starting Date 11/9/95)

Monitor #	Date WR Initiated	Date WO Comp (CR)	Duration WO Open (Days)	Time Rad Mon Actually OOS (Hours)	Reason OOS	Corrective Action
0-LPR-90-132 Serv Bldg Vent PIG Rad Mon	11/22/95	11/18/95 CI status	26	115	WO 95-27213-00: Unable to calibrate flow controller for Pmp #1, cnt vlv sticking	Replaced drive mtr, Installed O-rings on filter paper, performed IMI-90.003. Replaced filter fail micro switch. Replaced sheared pin on slow drive filter paper mtr
0-LPR-90-102 Spent Fuel Pit Area Rad Mon	11/24/95	11/26/95	2	48	WO 95-26794-00: Rad Mon failed HI after RE was Hi pressure washed	Connector plug reconnected & tightened
2-RE-90-1 Spent Fuel Pit Pmp Area Rad Mon	11/25/95	12/6/95	11	N/A	WO 95-27183-00: Failed low, will not source check	Troubleshooting revealed no problems. OPS reported no problems, check source test responded properly
0-RR-90-102 Spent Fuel Pit Area Rad Mon	11/27/95	11/29/95	2	N/A	WO 95-27242-00: Repair door on recorder	Repaired door latch
0-LPR-90-102 Spent Fuel Pit Area Rad Mon	11/27/95	11/28/95	1	24	WO 95-26809-00: Loop will not respond to check source test	Replaced detector
1-LPR-90-112 Cnt Bldg Up Comp PIG Rad Mon	11/27/95	12/13/95	16	N/A	WR C288349: Filter fail alarms once or more each day	WR cancelled, will be performed by WO 95-28136-00
0-RE-90-11 Cont Spray RHR Pmp Rm Area Rad Mon	11/28/95	12/8/95 CI status	10	240	WO 95-27251-00: Green operate light will no stay lit	Broken connector pin. Replaced cannon plug
1-LPR-90-292 RHR Post Acc Area Rad Mon	11/29/95	12/7/95	8	N/A	WO 95-27249-00: Green operate light will not stay lit	No problems found, operating properly.
1-LPR-90-106C Cnt Bldg Lo Comp PIG Rad Mon	12/1/95	12/11/95	10	240 (1-PE-90-106C only)	WO 95-25003-00: Ann window continuously alarming due to low counts	Replaced bridge rectifier & properly reconnected the detector connector
0-RI-90-212A Stat Sump Disc Liq Rad Mon	12/2/95	12/8/95 CI status	6	8	WO 95-27326-00: Ratemeter indicator would not calibrate, (sticking)	Ratemeter indicator replaced and calibrated
1-LPR-90-106C Cnt Bldg Lo Comp PIG Rad Mon	12/3/95	12/7/95	4	N/A (OOS by WO 95-25003-00)	WO 95-27323-00: Following black-out test, iodine flow alarm would not clear	No problems found. Setpoints verified with no adjustments needed.
0-LPR-90-17 Safety Inj Pmp Area CAM	12/5/95	A status			WR C061974: Chronic filter fail alarm	

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SYSTEM 90 OOS TREND

(Starting Date 11/9/95)

Monitor #	Date WR Initiated	Date WO Comp (CR)	Duration WO Open (Days)	Time Rad Mon Actually OOS (Hours)	Reason OOS	Corrective Action
0-LPR-90-15 Holdup Vlv Gallery CAM	12/7/95	12/14/95	7	8	WR C318602: Flow alarm will not clear	WR cancelled to WO 95-28131-00 which was cancelled to WO 95-24558-00 which was completed 12/14/95 (TR#380424)
1-LPR-90-106 Cnt Bldg Lo Compt PIG Rad Mon	12/7/95	12/8/95	1	8 (1-RE-90-106C was OOS by WO 95-25003-00)	WO 95-27726-00: Corrective action following excessive vacuum	WBPER950650 Calibrated flow controllers & verified no leakage
1-LPR-90-112 Cnt Bldg Up Comp PIG Rad Mon	12/7/95	12/11/95	3	8	WO 95-27727-00: Corrective action following excessive vacuum	Performed inspection and verification of calibration. No problems found
0-RE-90-132 Ser Bldg Vent PIG Rad Mon	12/8/95	12/12/95	4	N/A	WO 95-27907-00: Malfunction alarm comes in & out before OPS can investigate	WO cancelled: work to be performed by WO 95-27213-00
0-LPR-90-12 Spent Fuel Pit CAM	12/9/95	1/9/96 CE status	31	744	WO 95-27781-00: Local breaker trips immediately after being closed	
0-RM-90-212A Station Sump Disc Lig Rad Mon	12/10/95	12/11/95	1	N/A	WO 95-27765-00: Troubleshoot to determine high alarm failure	Setpoint to low for plant conditions. Adjusted to new setpoint
Various	12/11/95	1/12/96 CI status	32	N/A	WO 95-27778-00: Remove Tech Spec name tags from 0-M-12 & 1-M-30 PNLs	Removed name tags
1-LPR-90-112 Cnt Bldg Up Comp PIG Rad Mon	12/13/95	12/18/95	5	N/A	WO 95-28136-00: Ratemeter reads 3000 CPM, background appears to be high. Verify calibration	WO cancelled, no problems found
0-RE-90-103 Spent Fuel Pit Area Rad Mon	12/13/95	12/20/95	7	N/A	WO 95-28173-00: Reading bottom of scale, can not verify Bkgnd per 1-SI-0-2	WO cancelled, To be performed by WO 95-27205-00
0-LPR-90-118 Waste Disp Sys Gas Rad Mon	12/15/95	1/11/96 CI status	27	N/A	WO 95-28201-00: RR reads 6000 CMP while RM reads 2000 CPM	Loose connector. Cleaned RR mechanical components and calibrated.
Various	12/15/95	A status		N/A	WR C311067: Verify O-ring installation on particulate moving filter monitors	

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SYSTEM 90 OOS TREND

(Starting Date 11/9/95)

Monitor #	Date WR Initiated	Date WO Comp (CR)	Duration WO Open (Days)	Time Rad Mon Actually OOS (Hours)	Reason OOS	Corrective Action
1-RE-90-14 Hot Sample Pm CAM	12/18/95	1/9/96 CE status	22	528	WO 95-28212-00: No flow through CAM, monitor in Flow Alarm status	Broken belt. Replaced Pmp/Mtr belt
1-RE-90-119 Cond Vac Exh Gas Rad Mon	12/18/95	12/21/95 CX status	3	78	WO 95-28188-00: Flow element bypassed	WBPER950681 TR# 373886 1/10/96
1-RE-90-129 Cond Vac Exh Part & Iod Rad Mon	12/18/95	12/21/95	N/A	75	Monitor was isolated when 1-RE-90-119 was removed from service	
1-RE-90-404 Cond Vac Exh Mid:Hi Rng Gas Rad Mon	12/19/95	12/21/95	N/A	48	Monitor was isolated when 1-RE-90-119 was removed from service	WBPER950681
0-LPR-90-101 Aux Bldg Vent PIG Rad Mon	12/20/95	12/22/95 CE status	2	48	WO 95-28425-00: Iodine pre-filter indicating back flow	WBPER950676 (See WO 95-28425-01)
1-RE-90-119 Cond Vac Exh Gas Rad Mon	12/24/95	1/21/96 CR status	28	672	WO 95-28701-00: Monitor appears to be to sensitive to electrical interference	DCN generated to replace present check source AC relay with a DC relay to reduce noise susceptibility.
0-LPR-90-101 Aux Bldg Vent PIG Rad Mon	12/26/95	1/1/96 CI status	6	121	WO 95-28425-01: Iodine pre-filter indicating back flow	0-RE-90-101C pig door bent. Corrected deformation, revised plant instructions to STOP 0-PMP-90-300 before 0-RE-90-101 pump and START 0-RE-90-101 pump before 0-PMP-90-300
0-RE-90-13 Waste Pkg Area CAM	12/26/95	1/11/96 CI status	16	384	WO 95-28732-00: continuous filter fail alarm	
1-LPR-90-120 Stm Gen Bldn Liq Rad Mon	12/27/95	1/16/96 CR status	20	480	WO 95-28956-00: Low Flow & Hi Rad alarm will not clear	Noise problem. DCN W-38628 generated to install RC networks.
1-LPR-90-123 CCS Liq Rad Mon	12/27/95	AP status			WO 96-00446-00: Flow alarm will not clear	
0-RR-90-225 Cond Demin Liq Rad Mon	12/28/95	12/29/95	1	N/A	WO 95-28973-00: Recorder does not advance	WO cancelled, chart paper advancing properly. No work performed
1-LPR-90-121 Stm Gen Bldn Liq Rad Mon	12/29/95	1/16/96 CR status	18	432	WO 95-28956-00: Low Flow & Hi Rad alarm will not clear	Noise problem. DCN W-38628 generated to install RC networks.

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SYSTEM 90 OOS TREND

(Starting Date 11/9/95)

Monitor #	Date WR Initiated	Date WO Comp (CR)	Duration WO Open (Days)	Time Rad Mon Actually OOS (Hours)	Reason OOS	Corrective Action
0-LPR-90-12 Spent Fuel Pit CAM	12/29/95	1/6/96 CI status	8	(OOS by WO 95-27781-00)	WO 95-27781-01: Replace pump, found seized.	Replaced pump.
1-LPR-90-112 Cnt Bldg Up Comp PIG Rad Mon	12/30/95	1/8/96 CI status	9	216 (1-RE-90-112C only)	WO 95-28978-00: Inst. Malf. alarming periodically.	
1-LPR-90-106 Cnt Bldg Low Comp PIG Rad Mon	12/30/95	1/1/96 CI status	2	48	WO 95-28980-00: Particulate alarm will not clear.	Filters clogged by boron leak. Calibrated flow controller.
0-RI-90-11 Cont Spray RHR Pmp Rm Area Rad Mon	11/2/95	1/17/96 CI status	46	16	WO 95-24966-00: During performance of 92 day COT, RI would not calibrate	Replaced indicator
0-FS-90-129 Cond Vac Exh Part & Iod Mon	1/4/96	1/9/96 CE status	5	120	WO 95-26681-01: Troubleshoot to correct problem found during WO 95-26681-00	
0-RR-90-102 Spent Fuel Pit Area Rad Mon	1/4/96	1/10/96 CE status	6	N/A	WO 95-27200-01: Found recorder inoperable during 92 day COT	
0-RR-90-126 MCR Intake Gas Rad Mon	1/5/96	1/12/96 CI status	7	N/A	WO 96-00461-00: Recorder reading does not match ratemeter	
1-ISIV-90-120J Stm Gen Bldn Liq Rad Mon	1/6/96	1/7/96 CX status	1	(OOS by WO 95-28956-00)	WO 96-00579-00: Valve appears to be broken, stuck closed.	TR# 373885 1/9/96
0-LPR-90-101 Aux Bldg Vent PIG Rad Mon	1/11/96	1/15/96 CR status	4	8	WO 96-00905-00: Correct filter paper alignment problem.	
0-RM-90-212A Station Sump Disc Lig Rad Mon	1/13/96	AD status			WO 95-26231-00: Clogged rotameter	
0-RM-90-300 Aux Bldg Isokinetic Sample Mon	1/15/96	1/23/96 CR status	8	192	WO 96-00935-00: Replace broken belt and frozen motor.	
0-RM-90-16 Decon Area CAM	1/17/96	CANCELLED			WO 96-01302-00: Inst Malf alarming sporadically	To be worked by WR 287210

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SYSTEM 90 OOS TREND

(Starting Date 11/9/95)

Monitor #	Date WR Initiated	Date WO Comp (CR)	Duration WO Open (Days)	Time Rad Mon Actually OOS (Hours)	Reason OOS	Corrective Action
0-RM-90-16 Decon Area CAM	1/17/96	AA status			WR 287210: Place O-rings on filter feed and take-up spool for listed RMs	
0-PMP-90-132 Serv Bldg Vent PIG Rad Mon	1/17/96	1/19/96 CI status	2	48	WO 96-01318-01: Replace pump motor.	Replaced motor
1-LPR-90-450 Cond Vac Exh Mid-Hi Com Mod	1/17/96	AE status		N/A	WO 96-01333-00: Recurring FAIL alarm	Background detector is failing because of low background (Loss Of Counts)
0-RM-90-300 Aux Bldg Isokinetic Sample Mon	1/19/96	1/22/96 CR status	3	72	WO 95-27598-01: Troubleshoot 0-LPF-90-300 for CFV not responding during 0-ODI-90-300.	Cleaned card edge, cleared problem.
1-TTIV-90-112 Cnt Bldg Op Comp PIG Rad Mon	1/19/96	PL status		N/A	WO 96-01421-00: Valve will not allow adequate flow.	
1-LPR-90-62 Cnt Bldg Low Comp Inst Rm Part Rad Mon	1/20/95	PG status			WO 96-01452-00: Low flow alarm did not respond when pump turned off.	
2-RE-90-1 Spent Fuel Pit Pmp Area Rad Mon	1/21/96	1/22/96 CR status	1	24	WO 95-27141-01: Troubleshoot to determine 2-RI-90-1 not responding during performance of IMI-90.015 (COT).	
1-RM-90-423 Main Steam Line Rad Mon	1/21/96	PL status		N/A	WR 287019: Green LED for 1-RM-90-423 not bright. Repair/Replace	

Attachment 2

Critical Spares Program BOMs

System 90 Component Evaluations

Complete and loaded into EMS Database

0-BKR-090-0101-A	AB VENT RAD MON (0-RE-90-101)	I005	EF3-B020	CAD521 BOM 1310 Rev 000
0-BKR-090-0125-A	MCR AIR INTAKE RAD MON (0-RE-90-125)	I005	EF3-B020	CAD521 BOM 1310 Rev 000
0-BKR-090-0126-B	MCR AIR INTAKE RAD MON (0-RE-90-126)	I005	ED63B020	CAD521 BOM 1310 Rev 000
0-BKR-090-0132-A	SB VENTILATION RAD MON (0-RE-90-132)	I005	ED63B020	BTN034F BOM 585 Rev 000
0-BKR-090-0205-A	MCR EMERG AIR INTAKE RAD MON (0-RE-90-205)	I005	EF3-B020	CAD521 BOM 1310 Rev 000
0-BKR-090-0206-B	MCR EMERG AIR INTAKE RAD MON (0-RE-90-206)	I005	EF3-B020	CAD521 BOM 1310 Rev 000
0-BKR-090-L397-B	480V C&A VT BD 1B1-B BKR 12E1 RAD MONITOR	I005	EF3-B020	CAD521 BOM 1310 Rev 000
0-CKV-090-0101	0-RE-90-101 AIR CHECK	C339	N89-180	AVR777 BOM 497 Rev 000
0-CKV-090-0101A	AUX BLDG VENT RAD MON FAN A EXHAUST CHECK	C339	119T-6PP	BXM130 BOM 543 rev 0
0-CKV-090-0101B	AUX BLDG VENT RAD MON FAN B EXHAUST CHECK	C339	119T-6PP	BXM130 BOM 543 rev 0
0-CKV-090-0122	WASTE DISPOSAL SYS LIQ EFFLUENT MON DISCH CHK	C339	259T-8PP	BXM183 BOM 496 rev 0
0-CKV-090-0125	MCR AIR INTAKE RAD MONITOR CHECK	G063	119T-6PP	BXM130 BOM 543 rev 0
0-CKV-090-0126	MCR AIR INTAKE RAD MONITOR CHECK	G063	119T-6PP	BXM130 BOM 543 rev 0
0-CKV-090-0128	WDS GAS EFFLUENT SAMPLE CHECK	N425	SS-4CP2-1	AYM875 BOM 875 rev 0
0-CKV-090-0132A	SERV BLDG VENT RAD MON FAN A EXHAUST CHECK	C339	119T-6PP	BXM130 BOM 543 rev 0
0-CKV-090-0132B	SERV BLDG VENT RAD MON FAN B EXHAUST CHECK	C339	119T-6PP	BXM130 BOM 543 rev 0
0-CKV-090-0133	ERCW LIQUID RAD MON CHECK	G063	259T-8PP	BXM183 BOM 496 rev 0
0-CKV-090-0134	ERCW LIQUID RAD MON CHECK	G063	259T-8PP	BXM183 BOM 496 rev 0
0-CKV-090-0205	MCR EMERG AIR INTAKE RAD MONITOR CHECK	G063	119T-6PP	BXM130 BOM 543 rev 0
0-CKV-090-0206	MCR EMERG AIR INTAKE RAD MONITOR CHECK	G063	119T-6PP	BXM130 BOM 543 rev 0
[redacted]CKV-090-0211	ABANDONED IN PLACE	C339	259T-8PP	BXM183 BOM 496 rev 0
[redacted]-CKV-090-0212	STATION SUMP DISCHARGE RAD MONITOR CHECK	C339	259T-8PP	BXM183 BOM 496 rev 0
0-FC-090-0012	SPENT FUEL PIT PART MON FLOW CONT	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FC-090-0013	WSTE PKG AREA PART MON FLOW CONT	B069	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FC-090-0015	HOLDUP VLV GALLERY PART MON FLOW CONT	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FC-090-0016	DECONTAMINATION AREA PART MON FLOW CONT	B069	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FC-090-0017	SAF INJ PMP AREA PART MON FLOW CONT	B069	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FC-090-0101A	AUX BLDG VENT MON FAN A FLOW CONT	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FC-090-0101B	AUX BLDG VENT MON FAN B FLOW CONT	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FC-090-0105	MAIN CONT RM PART MON FLOW CONT	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FC-090-0132A	SERV BLDG VENT MON PART-GAS FLOW CONT	B069	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FC-090-0132B	SERV BLDG VENT MON IODINE FLOW CONT	B069	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FC-090-0138	WASTE PKG AREA PART MON FLOW CONT	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FCV-090-0300	ISOKINETIC SAMP SYS FLOW CONT VLV	D006	58501-A25-B52	CAD935 BOM 1427 Rev 000
0-FI-090-0128	WDS GAS EFFLUENT PART-IODINE SAMP FLOW	D295	VFA-9-SSV	AYM906 BOM 1684 rev 0
0-FI-090-0300/1A	ISOKINETIC SAMP SYS STACK VELOSITY (FPM)	D033	DM-4100L	BAR605 BOM 1426 rev 0000
0-FI-090-0300/1B	ISOKINETIC SAMP SYS STACK VOL (CFM)	D033	DM-4100L	BAR605 BOM 1426 rev 0000
0-FI-090-0300/2A	ISOKINETIC SAMP SYS NOZZLE WITHDRAWAL VEL	D033	DM4100L	BAR605 BOM 1426 rev 0000
0-FI-090-0300/2B	ISOKINETIC SAMP SYS SAMP VOL (CFM)	D033	DM-4100L	BAR605 BOM 1426 rev 0000
0-FI-090-0320/1A	ISOKINETIC SAMP SYS SAMP VELOSITY (FPM)	D033	DM-4100L	BAR605 BOM 1426 rev 0000
0-FI-090-0320/1B	ISOKINETIC SAMP SYS STACK VOL (CFM)	D033	DM-4100L	BAR605 BOM 1426 rev 0000
0-FI-090-0320/2A	ISOKINETIC SAMP SYS NOZZLE WITHDRAWAL VEL	D033	DM4100L	BAR605 BOM 1426 rev 0000
0-FI-090-0320/2B	ISOKINETIC SAMP SYS SAMP VOL (CFM)	D033	DM4100L	BAR605 BOM 1426 rev 0000
0-FS-090-0012	SPENT FUEL PIT PART MON LOW FLOW SW	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000

System 90 Component Evaluations

Complete and loaded into EMS Database

0-FS-090-0013	WSTE PKG AREA PART MON LOW FLOW SW	B069	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FS-090-0015	HOLDUP VLV GALLERY PART MON LOW FLOW SW	B069	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FS-090-0016	DECONTAMINATION AREA PART MON LOW FLOW SW	B069	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FS-090-0017	SAF INJ PMP AREA PART MON LOW FLOW SW	B069	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FS-090-0101A	AUX BLDG VENT MON PART-GAS LOW FLOW	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FS-090-0105	MAIN CONT RM PART MON LOW FLOW	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FS-090-0125-A	MAIN CONT RM INTAKE MON LOW FLOW	B069	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FS-090-0126-B	MAIN CONT RM INTAKE MON LOW FLOW	B069	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FS-090-0128	WDS GAS EFFLUENT PART- IODINE SAMP LOW FLOW	B069	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FS-090-0132A	SERV BLDG VENT MON PART LOW FLOW	B069	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FS-090-0138	WASTE PKG AREA PART MON LOW FLOW	B069	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FS-090-0205-A	MAIN CONT RM EMER INTAKE MON LO FLOW	G063	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FS-090-0206-B	MAIN CONT RM EMER INTAKE MON LO FLOW	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
0-FSV-090-0101A	AUX BLDG VENT MON PART PURGE AIR	A610	8210C88	BYW929 BOM 878 Rev 000
0-FSV-090-0101B	AUX BLDG VENT MON PART PURGE AIR	A610	8210A38	BYX035 BOM 877 Rev 000
0-FSV-090-0132A	SERV BLDG VENT MON PART PURGE AIR	A610	8210C88	BYW929 BOM 878 Rev 000
0-FSV-090-0132B	SERV BLDG VENT MON PART PURGE AIR	A610	8210A38	BYX035 BOM 877 Rev 000
0-HS-090-0125-A	MAIN CONT RM INTAKE MON FAN	G063	MBG-2	BPV719 BOM 1415 REV 0
0-HS-090-0126-B	MAIN CONT RM INTAKE MON FAN	S345	MBG-2	BPV719 BOM 1415 REV 0
0-HS-090-0205-A	MAIN CONT RM EMER INTAKE MON FAN	G063	MBG-2	BPV719 BOM 1415 REV 0
0-HS-090-0206-B	MAIN CONT RM EMER INTAKE MON FAN	G063	MBG-2	BPV719 BOM 1415 REV 0
0-MTR-090-0012A	MOTOR FOR 0-PMP-90-12	G292	0281-5050-01	BXM141 BOM 387 Rev 000
0-MTR-090-0013A	MOTOR FOR 0-PMP-90-13	G292	0281-5050-01	BXM141 BOM 387 Rev 000
0-MTR-090-0015A	MOTOR FOR 1-PMP-90-15	G292	0281-5050-01	BXM141 BOM 387 Rev 000
0-MTR-090-0016A	MOTOR FOR 0-PMP-90-16	G292	0281-5050-01	BXM141 BOM 387 Rev 000
0-MTR-090-0017A	MOTOR FOR 0-PMP-90-17	G292	0281-5050-01	BXM141 BOM 387 Rev 000
0-MTR-090-0105A	MOTOR FOR 0-FCV-90-105	G292	0281-5050-01	BXM141 BOM 387 Rev 000
0-MTR-090-0138A	MOTOR FOR 0-PMP-90-138	G292	0281-5050-01	BXM141 BOM 387 Rev 000
0-PCV-090-0300A	ISOKINETIC SAMP SYS SUPPLY AIR REGULATOR	N174	11-018	BAH135F BOM 452 Rev 000
0-PMP-090-0105	MAIN CONTROL ROOM MON FAN	DR05	RAI	CAP056 BOM 1709 Rev 000
0-PX-090-0102T-A	ISOLATORS 12 & 48V DC POWER SUPPLIES	PW03	HC12-3.4-A	CAP539 BOM 1421 REV 0
0-PX-090-0103-B	FUEL POOL RADIATION MON POWER SUPPLY	S637	RP-23/0281-0600-0	CAP539 BOM 1421 REV 0
0-PX-090-0103T-B	ISOLATORS 12 & 48V DC POWER SUPPLIES	PW03	HC12-3.4-A	CAP539 BOM 1421 REV 0
0-RM-090-0102T-A	FUEL POOL MON ISOLATOR	EM03	175C-304	BNQ423 BOM 1403 rev 0000
0-RM-090-0103T-B	FUEL POOL MON ISOLATOR	EM03	A/N 175C304	BNQ423 BOM 1403 rev 0000
0-RM-090-0125T-A	MAIN CONT RM INTAKE MON ISOLATOR	EM03	175C304	BNQ423 BOM 1403 rev 0000
0-RM-090-0126T-B	MAIN CONT RM INTAKE MON ISOLATOR	EM03	A/N 175C304	BNQ423 BOM 1403 rev 0000
0-RM-090-0133T-A	ERCW LIQ MON ISOLATOR	EM03	175C304	BNQ423 BOM 1403 rev 0000
0-RM-090-0134T-B	ERCW LIQ MON ISOLATOR	EM03	A/N 175C304	BNQ423 BOM 1403 rev 0000
0-RM-090-0140T-A	ERCW LIQ MON ISOLATOR	EM03	175C304	BNQ423 BOM 1403 rev 0000
0-RM-090-0141T-B	ERCW LIQ MON ISOLATOR	EM03	175C304	BNQ423 BOM 1403 rev 0000
0-RM-090-0205T-A	MAIN CONT RM EMER INTAKE MON ISOLATOR	EM03	175C304	BNQ423 BOM 1403 rev 0000
0-RM-090-0206T-B	MAIN CONT RM EMER INTAKE MON ISOLATOR	EM03	A/N 175C304	BNQ423 BOM 1403 rev 0000
1-BKR-090-0106-A	480V C&A VT BD 1A1-A BKR 6F1 AIR MONITOR	I005	ED63B020	CAD521 BOM 1310 Rev 000

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1-BKR-090-0112-B	CNTMT BLDG UPPER COMPT RAD MON (1-RE-90-112)	I005	ED63B020	CAD521 BOM 1310 Rev 000
1-BKR-090-0119A-A	COND VAC PMP AIR EXH RAD MON (1-RE-90-119)	I005	EF3-B020	CAD521 BOM 1310 Rev 000
1-BKR-090-0130-A	CNTMT PURGE AIR EXH RAD MON (1-RE-90-130)	I005	EF3-B020	CAD521 BOM 1310 Rev 000
1-BKR-090-0131-B	CNTMT PURGE AIR EXH RAD MON (1-RE-90-131)	I005	EF3-B020	CAD521 BOM 1310 Rev 000
1-BKR-090-0452-A	480V C&A VT BD 1A1A BKR12E1 SHLD BLDG FL MON	I005	EF3-B020	CAD521 BOM 1310 Rev 000
1-CKV-090-0099	ABANDONED IN PLACE	C339	119T-6PP	BXM130 BOM 543 rev 0
1-CKV-090-0106A	CNTMT BLDG LOWER COMPT RAD MON FAN A EXH	G063	119T-6PP	BXM130 BOM 543 rev 0
1-CKV-090-0106B	CNTMT BLDG LOWER COMPT RAD MON FAN B EXH	G063	119T-6PP	BXM130 BOM 543 rev 0
1-CKV-090-0112A	CNTMT BLDG UPPER COMPT RAD MON FAN A EXH	G063	119T-6PP	BXM130 BOM 543 rev 0
1-CKV-090-0112B	CNTMT BLDG UPPER COMPT RAD MON FAN B EXH	G063	119T-6PP	BXM130 BOM 543 rev 0
1-CKV-090-0119	COND VAC PMP AIR RAD MONITOR CHECK	C339	119T-6PP	BXM130 BOM 543 rev 0
1-CKV-090-0120	STM GEN BLDN LIQ SAMPLERAD MONITOR CHECK	C339	259T-8PP	BXM183 BOM 496 rev 0
1-CKV-090-0124	STM GEN BLDN LIQ SAMPLERAD MON DISCH CHECK	C339	259T-8PP	BXM183 BOM 496 rev 0
1-CKV-090-0129	CNDS VAC PMP AIR EXH RAD MONITOR CHECK	N425	SS-4CP2-1	AYM875 BOM 875 rev 0
1-CKV-090-0130	CNTMT PURGE AIR EXH RAD MONITOR CHECK	G063	119T-6PP	BXM130 BOM 543 rev 0
1-CKV-090-0131	CNTMT PURGE AIR EXH RAD MONITOR CHECK	G063	119T-6PP	BXM130 BOM 543 rev 0
1-CKV-090-0452A	SHIELD BLDG VT MON SYS CHECK VLV	KU01	UN-3-150-C	BWV285 BOM 1540 Rev 000
1-CKV-090-0452B	SHIELD BLDG VT MON SYS CHECK VLV	KU01	UN-3-150-C	BWV285 BOM 1540 Rev 000
1-FC-090-0014	SAMPLE RM PART MON FLOW CONT	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
1-FC-090-0062	LWR COMPT REAC BLDG PART MON FLOW CONT	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
1-FC-090-0106B-A	CNTMT BLDG LWR COMPT MON IODINE FLOW CONT	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
1-FC-090-0112B-B	CNTMT BLDG UP COMPT MON IODINE FLOW CONT	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
1-FC-090-0452	SHIELD BLDG VT MON SYS PRI SA FL CONTROLLER	KU01	4200	BYA227J BOM 982 rev 0
1-FCV-090-0107-A	CNTMT BLDG LOWER COMPT AIR RAD MON SUPPLY	K085	TV-D-9957X01AC	AWG199 BOM 729 Rev 000
1-FCV-090-0108-B	CNTMT BLDG LOWER COMPT AIR RAD MON SUPPLY	K085	TV-D-9957X01AC	AWG199 BOM 729 Rev 000
1-FCV-090-0109-B	CNTMT BLDG LOWER COMPT AIR RAD MON SUPPLY	K085	TV-D-9957X01AC	AWG199 BOM 729 Rev 000
1-FCV-090-0110-B	CNTMT BLDG LOWER COMPT AIR RAD MON RETURN	K085	TV-D-9957X01AC	AWG199 BOM 729 Rev 000
1-FCV-090-0111-A	CNTMT BLDG LOWER COMPT AIR RAD MON RETURN	K085	TV-D-9957X01AC	AWG199 BOM 729 Rev 000
1-FCV-090-0112A-B	CNTMT BLDG UPPER COMPT AIR RAD MON FAN A FLO	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
1-FCV-090-0113-A	CNTMT BLDG UPPER COMPT AIR RAD MON SUPPLY	K085	TV-D-9957X01AC	AWG199 BOM 729 Rev 000
1-FCV-090-0114-B	CNTMT BLDG UPPER COMPT AIR RAD MON SUPPLY	K085	TV-D-9957X01AC	AWG199 BOM 729 Rev 000
1-FCV-090-0115-B	CNTMT BLDG UPPER COMPT AIR RAD MON SUPPLY	K085	TV-D-9957X01AC	AWG199 BOM 729 Rev 000
1-FCV-090-0116-B	CNTMT BLDG UPPER COMPT AIR RAD MON RETURN	K085	TV-D-9957X01AC	AWG199 BOM 729 Rev 000
1-FCV-090-0117-A	CNTMT BLDG UPPER COMPT AIR RAD MON RETURN	K085	TV-D-9957X01AC	AWG199 BOM 729 Rev 000
1-FCV-090-0452	SHIELD BLDG VT MON SYS PRI SA FCV	KU01	1361D7008	BXT905L BOM 1048 rev 0
1-FE-090-0400A1	SHIELD BLDG VT MON SYS CNTMT PURGE A FL ELEM 1	KU01	KB12-316-HT-4-TSD	BXV600 BOM 1226 Rev 000
1-FE-090-0400A2	SHIELD BLDG VT MON SYS CNTMT PURGE A FL ELEM 2	KU01	KB12-316-HT-4-TSD	BXV600 BOM 1226 Rev 000
1-FE-090-0400A3	SHIELD BLDG VT MON SYS CNTMT PURGE A FL ELEM 3	KU01	KB12-316-HT-4-TSD	BXV600 BOM 1226 Rev 000
1-FE-090-0400A4	SHIELD BLDG VT MON SYS CNTMT PURGE A FL ELEM 4	KU01	KB12-316-HT-4-TSD	BXV600 BOM 1226 Rev 000
1-FE-090-0400B1	SHIELD BLDG VT MON SYS CNTMT PURGE B FL ELEM 1	KU01	KB12-316-HT-4-TSD	BXV600 BOM 1226 Rev 000
1-FE-090-0400B2	SHIELD BLDG VT MON SYS CNTMT PURGE B FL ELEM 2	KU01	KB12-316-HT-4-TSD	BXV600 BOM 1226 Rev 000
1-FE-090-0400B3	SHIELD BLDG VT MON SYS CNTMT PURGE B FL ELEM 3	KU01	KB12-316-HT-4-TSD	BXV600 BOM 1226 Rev 000
1-FE-090-0400B4	SHIELD BLDG VT MON SYS CNTMT PURGE B FL ELEM 4	KU01	KB12-316-HT-4-TSD	BXV600 BOM 1226 Rev 000
1-FE-090-0400C1	SHIELD BLDG VT MON SYS ABGTS FLOW ELEMENT 1	KU01	KB12-316-HT-4-TSD	BXV604X BOM 1225 Rev 000

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1-FE-090-0400C2	SHIELD BLDG VT MON SYS ABGTS FLOW ELEMENT 2	KU01	KB12-316-HT-4-TSD	BXV604X BOM 1225 Rev 00
1-FE-090-0400C3	SHIELD BLDG VT MON SYS ABGTS FLOW ELEMENT 3	KU01	KB12-316-HT-4-TSD	BXV604X BOM 1225 Rev 000
1-FE-090-0400C4	SHIELD BLDG VT MON SYS ABGTS FLOW ELEMENT 4	KU01	KB12-316-HT-4-TSD	BXV604X BOM 1225 Rev 000
1-FE-090-0400D1	SHIELD BLDG VT MON SYS EGTS FLOW ELEMENT 1	KU01	KB12-316-HT-3-TSD	BXV598 BOM 1227 Rev 000
1-FE-090-0400D2	SHIELD BLDG VT MON SYS EGTS FLOW ELEMENT 2	KU01	KB12-316-HT-3-TSD	BXV598 BOM 1227 Rev 000
1-FE-090-0400D3	SHIELD BLDG VT MON SYS EGTS FLOW ELEMENT 3	KU01	KB12-316-HT-3-TSD	BXV598 BOM 1227 Rev 000
1-FI-090-0129	CNDS VAC PMP AIR EXH PART-IODINE SAMP	D295	VFA-9-SSV	AYM906 BOM 1684 rev 0
1-FI-090-0400A	SHIELD BLDG VT MON SYS LOW RANGE FLOW IND	B440	13012CL28A	BYB659F BOM 1767 rev 0
1-FI-090-0400B	SHIELD BLDG VT MON SYS MID/HIGH RANGE FLOW IND	B440	1355EA2DCJA1A	BRX592 BOM 1766 rev 0
1-FI-090-0404	COND VAC VT NOBLE GAS FLOW INDICATOR	D295	VFB-66-SS	BYA380 BOM 1685 rev 0
1-FM-090-0400A	SHIELD BLDG VT MON SYS FLOW CMPTR/MODIFIER	KU01	155	BYA182E BOM 1229 rev 0
1-FS-090-0014	SAMPLE RM PART MON LOW FLOW SW	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
1-FS-090-0062	LOWER COMPT REAC BLDG PART MON LOW FLOW	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
1-FS-090-0099	ABANDONED IN PLACE	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
1-FS-090-0106A-A	CNTMT BLDG LWR COMPT AIR MON PART LO FLOW	G063	D2T-H18SS	BQT868 BOM 1003 Rev 000
1-FS-090-0112A-B	CNTMT BLDG UP COMPT MON PART LOW FLOW	G063	SWITCH #D2T-H18SS	BQT868 BOM 1003 Rev 000
1-FS-090-0119	COND VAC PMP AIR EXH MON LOW FLOW	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
1-FS-090-0129	CNDS VAC PMP AIR EXH PART IODINE SAMP	B069	D2T-H18SS	BQT868 BOM 1003 Rev 000
1-FS-090-0130-A	CNTMT PURGE AIR EXH MON LOW FLOW SW	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
1-FS-090-0131-B	CNTMT PURGE AIR EXH MON LOW FLOW SW	B074	D2T-H18SS	BQT868 BOM 1003 Rev 000
-FS-090-0400	SHIELD BLDG VT MON SYS SAMPLE LOW FLOW SWITC	S637	03600895-001	BRY280 BOM 1768 rev 0
-FS-090-0404	COND VAC VT NOBLE GAS SAMPLE LOW FLOW SWITC	A501	D420VXTA	CAP631 BOM 1425 REV 0
1-FSV-090-0400A	SHIELD BLDG VT MON SYS LOW RANGE FLOW SOL VL	A609	WPHTX8210B30EMB12	BRX620 BOM 1727 rev 0
1-FSV-090-0400B	SHIELD BLDG VT MON SYS MID/HIGH RNG FL SOL VLV	A610	WPHB8262A152E	BRX610 BOM 1725 rev 0
1-FSV-090-0400C	SHIELD BLDG VT MON SYS LOW RNG AIR SUP FL SOL	A609	WPHB8218C87EMB	BRX405J BOM 1728 rev 0
1-FSV-090-0400D	SHIELD BLDG VT MON SYS MID/HI RNG AIR SUP FSV	A610	WPHB8262B230E	BRX394 BOM 1726 rev 0
1-FSV-090-0402A1	SHIELD BLDG VT MON SYS LOW RANGE SA FLTR A FS	A610	WPHB8210C87EMB	BRX405J BOM 1728 rev 0
1-FSV-090-0402A2	SHIELD BLDG VT MON SYS LOW RANGE SA FLTR B FS	A610	WPHB8210C87EMB	BRX405J BOM 1728 rev 0
1-FSV-090-0402A3	SHIELD BLDG VT MON SYS LOW RANGE GRAB SA 1 FS	A610	WPHB8210C87EMB	BRX405J BOM 1728 rev 0
1-FSV-090-0402B1	SHIELD BLDG VT MON SYS MID/HI RANGE SA FLTR C	A610	WPHB8262B230E	BRX394 BOM 1726 rev 0
1-FSV-090-0402B2	SHIELD BLDG VT MON SYS MID/HI RANGE SA FLTR D	A610	WPHB8262B230E	BRX394 BOM 1726 rev 0
1-FSV-090-0402B3	SHIELD BLDG VT MON SYS MID/HI RANGE GRAB SA 2	A610	WPHB8262B230E	BRX394 BOM 1726 rev 0
1-HS-090-0112A-B	CNTMT BLDG UP COMPT MONFAN A MTR CNTL ON/OF	S345	CLASS 2510	BPV719 BOM 1415 rev 0000
1-HS-090-0112B-B	CNTMT BLDG UP COMPT MONFAN B MTR CNTL ON/OF	S345	CLASS 2510	BPV719 BOM 1415 rev 0000
1-HS-090-0131-B	CNTMT PURGE AIR EXH MON PUMP	S345	CLASS 9001	BPV719 BOM 1415 REV 0
1-HS-090-0452A	SHIELD BLDG VT MON SYS PRI SA FL VAC PMP 1 HS	SI01	3SB02-3MKB	BXX604K BOM 984 Rev 000
1-HS-090-0452B	SHIELD BLDG VT MON SYS PRI SA FL VAC PMP 2 HS	SI01	3SB02-3MKB	BXX604K BOM 984 Rev 000
1-ISIV-090-0452A	SHIELD BLDG VT MON SYS VAC PMP 1 DISCH ISOL	KU01	96-4-RT-4-L	BXV574B BOM 1220 Rev 000
1-ISIV-090-0452B	SHIELD BLDG VT MON SYS VAC PMP 2 DISCH ISOL	KU01	96-4-RT-4-L	BXV574B BOM 1220 Rev 000
1-ISIV-090-0452C	SHIELD BLDG VT MON SYS PRI SA INLET ISOL VLV	KU01	96-4-RT-4-L	BXV574B BOM 1220 Rev 000
1-MTR-090-0014A	MOTOR FOR 1-PMP-90-14	G292	0281-5050-01	BXM141 BOM 387 Rev 000
1-MTR-090-0062A	MOTOR FOR 1-PMP-90-62	B060	L1319TF374	BXM141 BOM 387 Rev 000
1-MTR-090-0099	ABANDONED IN PLACE	G292	ELB281-5050-3 ITE	BYY762L BOM 366 rev 0000
1-MTR-090-0119	MOTOR FOR 1-PMP-90-119	G292	ELB281-5050-3 ITE	BYY762L BOM 366 rev 0000

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106, A, C

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1-MTR-090-0404	MOTOR FOR 1-PMP-90-404	R165	28950	BXV745A BOM 1465 Rev 000
1-PI-090-0452A	SHIELD BLDG VT MON SYS PRI SA FL PRESS IND 1	E010	271950	BXX613H BOM 1444 Rev 000
1-PI-090-0452B	SHIELD BLDG VT MON SYS PRI SA FL PRESS IND 2	E010	271950	BXX613H BOM 1444 Rev 000
1-PLOT-090-0452	SHIELD BLDG VT MON SYS PRI SA FL PRINTER	KU01	155	BXY089R BOM 1769 Rev 000
1-PMP-090-0452A	SHIELD BLDG VT MON SYS PRI SA FL VAC PMP 1	KU01	036104	BXT903 BOM 1049 rev 0
1-PMP-090-0452B	SHIELD BLDG VT MON SYS PRI SA FL VAC PMP 2	KU01	036104	BXT903 BOM 1049 rev 0
1-PS-090-0452A	SHIELD BLDG VT MON SYS PRI SA FL PRESS SW 1	M235	AP-7021-153-33	BWJ246 BOM 1221 rev 0
1-PS-090-0452B	SHIELD BLDG VT MON SYS PRI SA FL PRESS SW 2	M235	AP-7021-153-33	BWJ246 BOM 1221 rev 0
1-PX-090-0405	COND VAC VT NOBLE GAS POWER SUPPLY	P015	PS-12360	CAP544 BOM 2344 REV 0
1-REEL-090-0450	TAKEUP REEL FOR 1-RR-090-0450	D033	APP-TR50	BKN624 BOM 2296 Rev 000
1-RFV-090-0452	SHIELD BLDG VT MON SYS PRI SA FL VAC RELIEF	KU01	4614K12	BXT904N BOM 1050 rev 0
1-RM-090-0106TA-A	CNTMT BLDG LWR COMPT MON ISOLATOR (P)	EM03	175C304	BNQ423 BOM 1403 rev 0000
1-RM-090-0106TB-A	CNTMT BLDG LWR COMPT MON ISOLATOR (G)	EM03	175C304	BNQ423 BOM 1403 rev 0000
1-RM-090-0106TC-A	CNTMT BLDG LWR COMPT MON ISOLATOR (I)	EM03	175C304	BNQ423 BOM 1403 rev 0000
1-RM-090-0112TA-B	CNTMT BLDG UP COMPT MON ISOLATOR (P)	EM03	175C304	BNQ423 BOM 1403 rev 0000
1-RM-090-0112TB-B	CNTMT BLDG UP COMPT MON ISOLATOR (G)	EM03	175C304	BNQ423 BOM 1403 rev 0000
1-RM-090-0112TC-B	CNTMT BLDG UP COMPT MON ISOLATOR (I)	EM03	175C304	BNQ423 BOM 1403 rev 0000
1-RM-090-0130T-A	CNTMT PURGE AIR EXH MON ISOLATOR	EM03	175C304	BNQ423 BOM 1403 rev 0000
1-RM-090-0131T-B	CNTMT PURGE AIR EXH MON ISOLATOR	EM03	175C304	BNQ423 BOM 1403 rev 0000
1-RM-090-0210B	BACKUP SOURCE RNG CHANNEL DRAWER ASSY		6051D50G01	CAF180 BOM 920 rev 0000
1-RM-090-0271T-A	UPR INS CNTMT POST ACD MON ISOLATOR	EM03	175C304	BNQ423 BOM 1403 rev 0000
1-RM-090-0272T-B	UPR INS CNTMT POST ACD MON ISOLATOR	EM03	175C304	BNQ423 BOM 1403 rev 0000
1-RM-090-0273T-A	LWR INS CNTMT POST ACD MON ISOLATOR	EM03	175C304	BNQ423 BOM 1403 rev 0000
1-RM-090-0274T-B	LWR INS CNTMT POST ACD MON ISOLATOR	EM03	175C304	BNQ423 BOM 1403 rev 0000
1-RR-090-0450	RAD MON CNTL RM PRINTER	D033	APP-48A1	CAE828 BOM 1416 Rev 000
1-ZS-090-0107-A	CNTMT BLDG LOWER COMPT MON-ISV POS SW	N007	EA180-12302	BVG941 BOM 564 Rev 000
1-ZS-090-0107B-A	CNTMT BLDG LWR COMPT MON-ISOL VLV POS SW	N007	EA18012302	BVG943 BOM 1044 REV 2
1-ZS-090-0108-B	CNTMT BLDG LOWER COMPT MON-ISV POS SW	N007	EA180-14302	BVG940 BOM 854 Rev 000
1-ZS-090-0109-B	CNTMT BLDG LOWER COMPT MON-ISV POS SW	N007	EA180-14302	BVG940 BOM 854 Rev 000
1-ZS-090-0110-B	CNTMT BLDG LOWER COMPT MON-ISV POS SW	N007	EA180-14302	BVG940 BOM 854 Rev 000
1-ZS-090-0111-A	CNTMT BLDG LOWER COMPT MON-ISV POS SW	N007	EA180-11302	BVG943 BOM 1044 REV 2
1-ZS-090-0111B-A	CNTMT BLDG LWR COMPT MON-ISOL VLV POS SW	N007	EA18011302	BVG941 BOM 564 Rev 000
1-ZS-090-0113-A	CNTMT BLDG UPPER COMPT MON-ISV POS SW	N007	EA180-12302	BVG941 BOM 564 Rev 000
1-ZS-090-0113B-A	CNTMT BLDG UP COMPT MON ISOL VLV POS SW	N007	EA18012302	BVG943 BOM 1044 REV 2
1-ZS-090-0114-B	CNTMT BLDG UPPER COMPT MON-ISV POS SW	N007	EA180-14302	BVG940 BOM 854 Rev 000
1-ZS-090-0115-B	CNTMT BLDG UPPER COMPT MON-ISV POS SW	N007	EA180-14302	BVG940 BOM 854 Rev 000
1-ZS-090-0116-B	CNTMT BLDG UPPER COMPT MON-ISV POS SW	N007	EA180-14302	BVG940 BOM 854 Rev 000
1-ZS-090-0117-A	CNTMT BLDG UPPER COMPT MON-ISV POS SW	N007	EA180-11302	BVG943 BOM 1044 REV 2
1-ZS-090-0117B-A	CNTMT BLDG UP COMPT MON ISOL VLV POS SW	N007	EA18011302	BVG941 BOM 564 Rev 000
2-FCV-090-0113-A	CNTMT BLDG UP COMPT MON-ISOL VLV	K085	TV-D-9957	AWG199 BOM 729 Rev 000
2-FCV-090-0114-B	CNTMT BLDG UP COMPT MON-ISOL VLV	K085	TV-D-9957	AWG199 BOM 729 Rev 000
2-FCV-090-0115-B	CNTMT BLDG UP COMPT MON-ISOL VLV	K085	TV-D-9957	AWG199 BOM 729 Rev 000
2-FCV-090-0116-B	CNTMT BLDG UP COMPT MON-ISOL VLV	K085	TV-D-9957	AWG199 BOM 729 Rev 000
2-FCV-090-0117-A	CNTMT BLDG UP COMPT MON-ISOL VLV	K085	TV-D-9957	AWG199 BOM 729 Rev 000