



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
SAM NUNN ATLANTA FEDERAL CENTER  
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ATLANTA, GEORGIA 30303-8931**

October 11, 2002

Virginia Electric and Power Company  
ATTN: Mr. David A. Christian  
Senior Vice President and  
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5000 Dominion Boulevard  
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**SUBJECT: NORTH ANNA AND SURRY POWER STATIONS - NRC INSPECTION  
REPORT 50-338/02-10, 50-339/02-10, 50-280/02-10 AND 50-281/02-10**

Dear Mr. Christian:

On September 24, 2002, the NRC completed an inspection regarding your application for license renewal for the North Anna and Surry Power Stations. The enclosed inspection report presents the results of that inspection. The results of this inspection were discussed with members of your staff on September 24, 2002, in an exit meeting at your Innsbrook Technical Center.

The purpose of this inspection was an examination of activities that support your application for a renewed license for the North Anna and Surry facilities. The inspection consisted of a selected examination of procedures and representative records, and interviews with personnel regarding followup of issues from our previous two license renewal inspections.

This inspection concluded that the applicant had made progress toward correction of some of the license renewal documentation issues previously identified by the NRC. The applicant had established a method to track completion of in progress and future corrective actions. Modified plant procedures available for NRC review were adequate and transition plans for completion of the license renewal project were adequately detailed. Plant hardware issues were being tracked in established corrective action systems but little corrective action had been taken since the last NRC inspection.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

VEPCO

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Should you have any questions concerning this report, please contact Caudle Julian at (404) 562-4603.

Sincerely,

**\RA by Kerry D. Landis Acting For\**

Loren R. Plisco, Director  
Division of Reactor Projects

Docket Nos. 50-338, 50-339 and 50-280, 50-281  
License Nos. NPF-4, NPF-7 and DPR-32, DPR-37

Enclosure: NRC Inspection Report

cc w/encl: - See page 3

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos. 50-338, 50-339 and 50-280, 50-281

License Nos. NPF-4, NPF-7 and DPR-32, DPR-37

Report No: 50-338/02-10, 50-339/02-10 and 50-280/02-10, 50-281/02-10

Licensee: Virginia Electric and Power Company (VEPCO)

Facility: North Anna Power Station, Units 1 & 2 and  
Surry Power Station, Units 1 & 2

Location: 1022 Haley Drive  
Mineral, Virginia 23117

5850 Hog Island Road  
Surry, VA 23883

Dates: September 23 - 24, 2002

Inspectors: K. VanDoorn, Reactor Inspector  
Caudle Julian, Reactor Inspector

## **SUMMARY OF FINDINGS**

IR 05000338-02-10, IR 05000339-02-10, 05000280-02-10, 05000281-02-10; 09/23-24 /2002; Virginia Electric and Power Company North Anna Power Station, Units 1 & 2 and Surry Power Station, Units 1 & 2. License Renewal Inspection Program.

This inspection of License Renewal activities was performed by two regional office engineering inspectors. The inspection program followed was NRC Manual Chapter 2516 and NRC Inspection Procedure 71002. This inspection did not identify any "findings" as defined in NRC Manual Chapter 0612. The purpose of this inspection was to follow up on open issues from the two previous license renewal inspections.

This inspection concluded that the applicant had made progress toward correction of some of the license renewal documentation issues previously identified by the NRC. The applicant had established a method to track completion of in progress and future corrective actions. Modified plant procedures available for NRC review were adequate and transition plans for completion of the license renewal project were adequately detailed. Plant hardware issues were being tracked in established corrective action systems but little corrective action had been taken since the last NRC inspection.

The attachment to this report lists the applicant personnel contacted, the documents reviewed, and a list of acronyms used in this report.

## Report Details

### I. Inspection Scope

This inspection was the last in a series of three inspections conducted to support the review by the NRC office of Nuclear Reactor Regulation of the license renewal application for the North Anna and Surry plants. The purpose of this inspection was to follow up on actions taken by the Applicant in response to open issues from the two previous inspections.

### II. Findings

The previous two inspections (2002 - 006 and 2002 - 009 for both North Anna and Surry) on license renewal (LR) activities identified several issues requiring applicant corrective action. There were no issues from inspection 006 requiring NRC inspection follow up. Below are the follow up issues from inspection 009 and the inspectors conclusions from the current inspection 010.

#### 1. Inservice Inspection

During inspection 009, the inspectors identified the following discrepancies when comparing the Inservice Inspection (ISI) Program with Section B2.2.11 of the Surry LRA and Table 2.1 of Aging Management Activity Technical Report LR-1732/LR2732:

Section B2.2.11 of the Surry LRA and Table 2.1 of LR-1732/LR-2732 list ASME Section XI Category B-M-1 (Pressure Retaining Welds in Valve Bodies) as a Component Type and Category included in the ISI program. The Surry ISI program does not include this Component Category. Discussions with applicant personnel revealed that there are no Class 1 Pressure Retaining Welds in Valve Bodies (Category B-M-1) at Surry.

Surry LRA Section B2.2.11 and Table 2.1 of LR-1732/LR-2732 list ASME Section XI Category B-M-2 (Valve Bodies) as a Component Type and Category included in the ISI Program. Category B-M-2 is for inspection of ASME Class 1 valve bodies when valves are opened for maintenance. Section B2.2.11 lists the CH and the FW systems as two systems where credit is taken for the ISI Program. LRA Tables 3.3.1-1 (CH system) and 3.4-4 (FW system) take credit for the ISI Program for aging management of cracking in valve bodies. Since the Surry ISI Program does not contain any Category B-M-2 inspections for the FW and CH systems, the inspectors questioned whether the LRA should take credit for the ISI Program inspections for Valve Bodies for these systems. The applicant stated that the LRA was in error for the FW system since the FW system does not contain any Class 1 components. However, for the CH system the applicant considered that reference to the ISI program was appropriate since ASME Category B-P (Pressure Testing) was also included in the LRA tables and would be an appropriate ISI method for managing cracking in valve bodies.

Page B-76 of the LRA states under "Detection of Aging Effects" that, "Volumetric examinations include a region equivalent to one-half of the material thickness on each

side of welds .....” This is incorrect for pipe welds, as the coverage is only ½" on each side of the weld as required by the ASME Section 11 Boiler and Pressure Vessel Code.

Based on the above discrepancies, the applicant agreed to again review the LRA relative to ISI Program credit for various components and make any necessary changes.

The inspectors reviewed the applicant’s revised Aging Management Review (AMR) Technical Report to confirm that credit for the ISI program for Feedwater valve bodies had been deleted. In addition, the inspector confirmed that the applicant had corrected the Aging Management Activity (AMA) Technical Report to describe the examination area to be ½ inch on each side of a weld versus ½ the material thickness. The applicant indicated that a general review of the LRA where the ISI program had been credited resulted in identifying the need to remove ISI inspection credit with respect to a separate category of valve bodies also for the main steam system at Surry and both the feedwater and main steam systems at North Anna. Changes in LR documentation were yet to be implemented but the action was being tracked. The following documents were reviewed:

- Technical Report LR-1400, Aging Management Review Steam and Power Conversion Surry Power Station, Revision 7
- Technical Report LR-1732/2732, Aging Management Activity Inservice Inspection Program Component and Component Support Inspections, Revision 5

## 2. ISI

In addition to the ASME Section XI Reactor Vessel (RV) Internals Inspection that is conducted once per 10 years, the applicant identified an AMA followup item to follow industry events and any new developments regarding RV internals issues and to perform a one-time focused inspection of the RV internals for one Unit at each site between year 30 and the end of the current operating license. Another AMA followup item was identified to follow industry efforts and consider recommendations for enhanced inspections of RV core support lugs. An additional AMA followup item was identified to follow industry activities related to failure mechanisms for small-bore piping and evaluate changes to inspection activities based on industry recommendations.

The inspectors confirmed that each of the three required followup actions were captured in the License Renewal Open Item Commitment List.

## 3. Augmented ISI

In the review of the ISI Augmented Inspection Activities during inspection 009, the inspectors noted that inspection of reactor vessel heads using a modified VT-2 visual inspection technique was included in the Dominion Augmented Inspection Manual (Attachment 36 for Surry and Attachment 18 North Anna). These inspections are in response to NRC Bulletin 2001-01 relative to cracking and leakage at the reactor vessel head penetrations and NRC Bulletin 2002-01 relative to degradation of the reactor vessel head due to boric acid wastage caused by leaks. In response to Bulletin 2002-01, by Letter Serial 02-168 dated April 1, 2002, the applicant committed to perform a bare-metal inspection of the reactor vessel head during each

refueling outage for both Surry and North Anna. The inspectors noted that Attachment 18 (North Anna) of the Dominion Augmented Inspection Manual and the North Anna ISI Plan had been revised to incorporate the bare-metal visual inspection followed by volumetric/surface examinations if leakage is found. However, Attachment 36 for Surry had not yet been revised to incorporate these bare-metal inspections. The applicant stated that revision to Attachment 36 to add the bare-metal head inspection for Surry is planned by June 2002.

The inspectors confirmed that the Augmented Inspection Manual, Attachment 36, Revision 32 had been changed to add the Surry bare metal inspection requirement.

#### 4. Augmented ISI

The applicant had identified followup actions for the ISI Augmented Inspection Activities relative to: (1) implementation of an augmented inspection of the pressurizer surge line connection to the reactor coolant system hot-leg loop piping, and (2) implementation of an augmented inspection of the core barrel hold-down spring.

The inspectors confirmed that the required changes to the Augmented Inspection Manual were captured in the License Renewal Open Item Commitment List.

#### 5. Reactor Vessel Integrity

During inspection 009, the inspectors noted that, although the various aspects of the Reactor Vessel Integrity Activities were in place and had been implemented, there was no overall procedure to tie the five individual activities together in a single program procedure. The applicant agreed to create an administrative procedure to describe the relationship between the five aspects of the program.

The inspectors confirmed that the applicant had issued a new procedure to describe the various RV activities to be performed. The new procedure was NAF-243, Reactor Vessel Integrity Program, Revision 0.

#### 6. Chemistry Control Program

While reviewing the Chemistry Control Program during inspection 009, the inspectors discovered that the AMA for fuel oil (LR-1770) referenced procedure VPAP-2201, Nuclear Plant Chemistry Manual, as containing the information on fuel oil program. Since the AMA was last changed, a new procedure (VPAP-2205, which is applicable to both stations) had been issued to cover that program. The applicant planned to change the AMA to reference the newer procedure.

The inspectors reviewed Revision 3 to the AMA document LR-1770/LR-2770 Fuel Oil Chemistry Surry and North Anna Power Stations. Reference section 6.1 now refers to the shared administrative procedure VPAP-2205, Diesel Fuel Oil Testing Program.



## 7. Buried Piping and Valve Inspection

This yet-to-be-described program will be a one time inspection of several types of buried pipe. The systems included are: condensate (Surry), containment spray (Surry), fire protection, diesel fuel oil, recirculation spray (North Anna), quench spray (North Anna), residual heat removal, safety injection (high and low head, Surry), and service water. The applicant stated they had issued a follow up action item to accomplish this plan.

The inspectors confirmed that the required action to develop a buried piping inspection program is included in the License Renewal Open Item Commitment List.

Additionally, at North Anna the applicant had issued an open item (PM task evaluation request) to inspect the cathodic protection system for the carbon steel culvert in the flood wall west of the main turbine building. This drainage path keeps hydraulic pressure from building up against the Unit 2 turbine building wall.

The inspectors verified that work order task 447400 01 was initiated as an electrical preventive maintenance task to annually verify proper operation of the cathodic protection system.

## 8. Battery Rack Inspection

During inspection 009 the inspectors learned that the AMA for Battery Rack Inspection partially used existing plant procedures to accomplish the rack inspections. During the AMA preparation, the applicant recognized that three batteries' types did not have rack inspections (fire pump, AAC, and security diesel) at North Anna and initiated an outstanding action items to change or generate procedures.

The inspectors reviewed in process procedure changes to the following procedures.

0-EPM-0107-03, Monthly Service Inspection of 12- and 24- volt Battery Systems, Rev 11 (Inspects security diesel battery.)

1-PT-86A, Quarterly DC Distribution System Test for Battery 1-I, Rev 32 (Inspects diesel driven fire pump battery.)

0-PT-82.16, AAC Diesel Battery Category A Inspection, Rev 3 (Inspects the alternate AC diesel battery.)

The inspectors observed that steps had been added to each of these procedures to inspect the condition of the battery racks and spacers between the battery cells.

## 9. Cranes

For the Load Handling Cranes Activity, the applicant chose to utilize existing programs for the evaluation via inspections activities. The applicant has stated they would implement one-time internal inspections of a representative sample of the box girders of the containment polar crane.

At the time of the inspections, the AMA did not list the existing overall Crane and Hoist program controlling corporate procedure, VPAP-0810, nor did it list the existing operations procedures at both sites (Controlling Procedure for Refueling) that would require all crane and hoist preparatory inspections and maintenance to be complete prior to refueling commencement. The applicant agreed to review and update the subject AMA with the additional procedures.

The inspectors reviewed AMA document LR-1722/LR-2722 Inspection Activities: Load Handling Cranes and Devices, Surry and North Anna Power Stations. The document now references administrative procedure VPAP-0810, Crane and Hoist Program and ½-OP-4.1, Controlling Procedure for Refueling for North Anna. The applicant stated that the comparable refueling procedure for Surry does not address crane inspections therefore it was not included in the AMA. The inspectors confirmed that the requirement to perform a polar crane girder internal inspection is captured in the License Renewal Open Item Commitment List.

#### 10. General Condition Monitoring Activities

In addition to providing training to appropriate personnel, the applicant planned to enhance site procedures for the radiation survey activities and engineering activities. One minor inconsistency was noted, in that, the AMA report stated that surveys are performed at least weekly. The applicant's procedure allows some areas to be surveyed less frequently for practical reasons. For example, high radiation areas are only surveyed when required for entry. The applicant plans to correct the inconsistency and an open item was initiated to track completion.

The inspector also noted that several other documents warranted consideration for inclusion regarding license renewal. These included procedures ENAP-0001, Station Engineering Organization, Responsibilities, and Authorities and C-HP-1032.010, Radiological Survey Records; and the System Engineering Handbook. The applicant agreed that these procedures should be considered and open items were established for the proposed changes. In addition, the applicant stated that outage walkdowns would be added to this program.

The inspectors confirmed that the required training and procedure enhancements were captured in the License Renewal Open Item Commitment List. In addition, the inspectors confirmed that the inconsistency regarding the frequency of radiation survey activities had been corrected in Technical Report LR-1766/2766, Aging Management Activities General Condition Monitoring Activities, Revision 2. The inspectors also confirmed that the four documents which warranted inclusion in the list of required procedures for license renewal were added to LR-1766/2766.

#### 11. Work Control Process

The applicant had decided to perform an audit for a ten year period of opportunities afforded for inspections by the work control process to assure a sufficient number of inspections will have been performed to assure all systems and material/environment combinations were covered. The applicant determined that procedural enhancements were necessary to assure adequate inspections were performed.

The inspectors noted that general maintenance procedures for the maintenance teams and inspections (MDAP-0025, Quality Maintenance Team Process and VPAP-1001, Inspection

Program) should be considered for changes for license renewal, as well as the corrective and preventive maintenance procedures.

The inspectors confirmed that the 10 year audit requirement had been added to Technical Report LR-1762/2762, Aging Management Activities Work Control Process, Revision 3. Procedures MDAP-0025 and VPAP-1001 had also been added to the required LR procedures list in the AMA. The inspectors reviewed marked up changes for these two procedures. The action to complete the changes to the maintenance procedures and the ten year audit were appropriately captured in the License Renewal Open Item Commitment List.

## 12. Infrequently Accessed Area Inspection Activities

Personnel at North Anna developed an inspection process for infrequently accessed areas. The applicant plans to credit these inspections where appropriate and assure similar inspections are performed at the Surry station. The inspectors determined that the electrical manhole areas for both stations and the Surry Auxiliary Building to Decontamination Building tunnel should be included in the program. The applicant agreed that these areas should be added.

The inspectors confirmed that the action to establish the program and complete the inspection was captured in the License Renewal Open Item Commitment List. In addition, the inspectors confirmed that the additional areas were added to Technical Report LR-1768/2768, Aging Management Activities Infrequently Accessed Area Inspection Activities, Revision 3.

## 13. Transient Cycle Counting

The applicant determined that the pressurizer surge line required further evaluation for the period of extended operation. Therefore, the applicant plans to add the surge line weld at the top of the hot leg piping connection to the ISI augmented inspection program.

The Inspectors confirmed that the pressurizer surge line addition to the Augmented Inspection Manual was captured by the License Renewal Open Item Commitment List.

## 14. Electrical Manholes

At North Anna inspectors examined manhole number 3 and found it damp but not flooded with an operable sump pump. The cable tray supports were very corroded and there was evidence of significant past flooding. The applicant initiated a Plant Issue (PI) to have cable tray supports repaired or replaced.

The inspectors reviewed Plant Issue Resolution document N-2002-0934-R1 initiated 4/29/2002 and Category 3 Root Cause Evaluation Response-N-2002-0918-E1 initiated 4/26/2002. Both documents discuss the rusted structural support members and cable trays. The documents conclude that the supports are still operable and say that work order 469804 was prepared to replace the deteriorated equipment. The inspectors checked the status of the work request and found it to be active in the work control system but not yet scheduled for completion.

At Surry the applicant had examined several manholes prior to the NRC inspection and found some flooded. The NRC inspectors examined three including two near the switchyard that had been previously full of water but had been pumped dry. Those two had no drains or sump pumps so the applicant initiated action to have plant personnel manually empty the manhole daily if needed until a future course of action was decided. Those manholes contained normally energized power cables from the switchyard to the reserve station service transformers and some of the cabling had been replaced in past years due to failure. Surry had not yet established an organized maintenance program like North Anna to periodically inspect manholes for flooding.

The inspectors reviewed the document Plant Issue Resolution S-2002-1670-R1 initiated 5/2/2002 relating to preventing water in the six manholes that carry primary cables to the RSST. The document state that plant personnel currently inspect the manholes semi-weekly and pump water as needed. An engineering action plan was included to install sump pumps in the manholes in the future and to develop a program to manage water intrusion in all manholes at the Surry site. The document states that these actions are expected to be completed by 3/31/2003.

#### 15. Civil Engineering Structural Inspection Program

Technical Reports CE-0087, "Guideline for Monitoring of Structures Surry Power Station," Revision 2, 12/3/97 and CE-0089, "Guideline for Monitoring of Structures North Anna Power Station," Revision 4, 12/1/99 provide the overall guidelines for civil engineering inspections monitoring concrete structures, steel structures, earthen structures, containment structures, masonry walls, and roofing. CE-0087 describes baseline inspections and states that, after the baseline inspection, there will be a routine inspection in 5 years and a detailed inspection in 10 years. The applicant had performed the baseline civil engineering structural inspection in 1996 and 1997 for Surry and North Anna, respectively. The first routine inspections were conducted recently for both North Anna and Surry and the inspectors were told during inspection 009 that the inspection reports were still under preparation. During the current inspections the inspectors were told that the reports are still not complete and thus not available for NRC review.

During civil inspections at North Anna, a VEPCO inspector discovered a cracked steel clip angle in the turbine building. The angle is a connection piece to connect a horizontal beam to a column. VEPCO's engineering department performed an evaluation and found that the angle was under designed. The thickness of the angle is 3/8" and the evaluation found it should be 3/4" thick. During inspection 009 inspectors were told that the applicant is in the process of replacing all the under designed angles with angles of correct thickness but this action had not yet been completed.

During the current inspection, inspectors inquired as to the status of this issue. The inspectors were shown a work request status inquiry document that reflects that WR 77941 to install a permanent repair to the cracked clip angle was closed so the work is done. The inspectors were informed by the applicant that a total of six clip angles were replaced in the Unit 2 turbine building due to being under-sized. Of these six, only one was identified on the work order as being replaced due to being cracked.

## 16. Civil Engineering Structural Inspection Program

During the walkdown of the Surry switchyard, the inspectors noticed that some of the concrete cable stands (posts) are cracked vertically almost the entire length of the stands. The applicant informed the inspectors that the stands are made of prestressed concrete and are used at both sites. When the cracks first appeared in 1992, the applicant developed a North Anna Site Engineering Services Implementing Procedure NASES 2.11, "500 KV Switchyard Concrete Stand Inspection," Revision 0, 3/26/92 to perform inspection, maintenance, and destructive testing of the switchyard concrete stands. Attachment 2 to that procedure contained the destructive test report of cracked concrete stands and concluded that the stands will support the 85 mile per hour maximum design wind load even in the present condition. However, the report did recommend a maintenance program to seal the cracks in the stands to prevent further damages to the concrete or tendons. Attachment 3 to the procedure provided a specification for sealing cracks in concrete.

The cracks at the Surry switchyard were discovered by the applicant in August, 1992. A visual inspection of the concrete stands was performed by the system engineer of Surry on September 24, 1992 in the 34.5KV, 230KV, and 500KV sections of the switchyard. The cracks were documented in a memorandum dated September 28, 1992 from D.L. Riley to T.E. Blaylock to indicate that the North Anna destructive testing applies to Surry and the stands were still capable of performing their intended functions, however, the cracks should be sealed using a similar procedure as that for North Anna. However, ten years later, the recommendation to seal the cracks still had not been implemented at Surry.

During the current inspection the inspectors reviewed the status of this issue. Regarding Surry, the inspectors reviewed a Plant Issue document S-2002-2447-E1 titled Other Evaluation Response, initiated 7/17/2002 which discussed the issue and noted that it was observed during an NRC inspection. The document states that the cracks in the poles at Surry are similar and are less severe than those evaluated at North Anna, however very few of the cracked poles have been sealed at Surry. The document contains an Engineering response saying that repairs, including sealing and banding of selected structures have been performed in the past but a formal method of inspection and repair of all concrete structures is warranted. The document assigns resolution to the Control Operations group with no due date specified. Regarding North Anna, the inspectors reviewed Plant Issue Resolution document N-2002-0064-R1 initiated 1/10/2002 which describes that cracks were found in the concrete power poles at the RSST which support the overhead power conductors between the RSST and the station. It states that this is not an operability issue at this time and an engineer concluded that the worst pole would still carry its full design load, yet it might as well be replaced as it will continue to degrade. The applicant was still undecided whether the pole will be replaced during their fall 2002 outage. The inspectors reviewed another PI N-2002-0348-R1 initiated 2/13/2002. It references the earlier PI and documents an engineering inspection that the caulking of cracks done 10 to 12 years ago needs to be reapplied due to degrading condition of the old caulk.

Apparently, no recent action has been taken at Surry or North Anna to replace the aging caulking and seal the cracks in the concrete poles. This is not a safety concern because the switchyards are not safety related. However the electrical feeds to the RSSTs have been determined to be in scope for license renewal because they would be needed to recover from a station blackout event. At the end of this inspection inspectors were informed by the applicant that inspections of the poles were performed at Surry and North Anna on September 25, 2002 by a representative from the manufacturer. Identification of corrective action is awaiting receipt of the manufacturer's recommendations.

## 17. Tank Inspection Activities

Since there is no official existing tank inspection procedure, the applicant is planning to develop the newly proposed tank inspection procedure LR-1756/LR-2756, which will enable the applicant to perform a one-time inspection on all tanks that are within the scope of license renewal and may experience aging effects requiring management. The one-time inspections of selected tanks will occur prior to the end of the current operating license. During inspection 009, the inspectors questioned why this inspection will be only a one-time inspection. The applicant responded that it will be actually a baseline inspection. If the inspection finds that a tank shows no degradation, then it will be a one-time inspection, otherwise, periodic inspection would follow.

During the current inspection, the Inspectors confirmed that the action to develop and implement a tank inspection program was captured by the License Renewal Open Item Commitment List.

## 18. Fire Protection

During inspection 009 the inspectors reviewed the AMA document LR-1728/LR-2728 Fire Protection Program Surry and North Anna Power Stations, Revision 3. For fire protection no new activities are created but the AMA credits existing plant fire protection maintenance and surveillance procedures for managing aging of fire protection equipment. At North Anna the inspectors obtained a list of all fire protection periodic test (PT) procedures to compare it to the AMA. The inspectors noted that there were several PTs on the list that were not credited in the AMA but whose titles appeared appropriate as periodic tests for aging management. After consideration of the issue the applicant stated that the AMA will be revised to include four more existing PTs and to correct a number reference of another PT. Similarly at Surry, after review of a similar list of fire protection procedures the applicant agreed to add two more existing procedures to the AMA.

During the current inspection the inspectors reviewed Revision 4 to Fire Protection Program AMA document. The inspectors observed that the six PTs had been added to the AMA document and the number reference correction made.

## 19. Component Cooling (CC) System Piping

During inspection of equipment inside the Surry Unit 2 containment, the inspector noted many areas of significant surface corrosion on CC system piping and valves. During inspection 9 at Surry, the applicant pointed out that the coating degradation and resulting surface corrosion extended to the chilled water sub-system of the CC system and portions of the regular chilled water (CD) system in the auxiliary building. The inspectors observed these areas and noted a similar condition to that of the CC piping inside the Unit 2 containment, except that the condition was less severe. Wall thickness measurements showed thickness to be well above minimum requirements.

The applicant's summary stated that the Surry CC system coating degradation and corrosion was an example of the General Condition Monitoring Activities effectiveness in discovering and initiating corrective actions for potential degradation of plant equipment. However, further

discussions with applicant personnel determined that the CC piping conditions had been identified through outage walkdowns and not through the walkdowns identified in LRA General Condition Monitoring Activities (Health Physics and System Engineering Walkdowns). The applicant stated that the Operations and Engineering outage walkdowns would be added to the list of existing inspection activities taken credit for under the General Condition Monitoring Activities in the LRA.

The inspectors confirmed that the applicant had added the outage walkdowns to the General Condition Monitoring AMA.

## 20. Component Cooling (CC) System Piping

The inspectors concluded that the coating degradation and corrosion of the CC system piping had been identified by the applicant on a number of occasions since 1992 through their existing programs. In all cases where the problem was identified and evaluated, the applicant performed inspections and evaluations to show the pipe wall thickness remained above minimum wall and therefore no operability concerns existed. However, for longer term operations under license extension, the inspectors questioned the need for some type of refurbishment of the CC and CD systems coatings or monitoring to ensure that the required minimum wall thickness is maintained. At the close of the inspection, the applicant was evaluating the best approach to maintain this piping and had drafted a procedure describing a periodic monitoring process.

The inspectors confirmed that the applicant had developed an adequate procedure (SSES-3.13, Controlling Procedure for the Inspection of Component Cooling and Chilled Water Piping External Condition, Revision 0) for monitoring the corrosion condition in the CC and CD systems.

## 21. Additional Corrosion Issues

Some additional material condition observations were noted at Surry Station. This included corrosion of piping and supports in the turbine building to auxiliary building tunnel. The tunnel area was very difficult to access due to hot piping, was damp with standing water, and contained debris such as old insulation. The applicant had included the tunnel in the Infrequently Accessed Areas AMA and was planning to perform an inspection at a later date. Plant Issue S-2002-1792 was initiated to document and track this problem. None of the issues appeared to effect current equipment functionality.

The inspectors reviewed the documentation in the PI of the most recent actions by the applicant. Documentation showed that the applicant had evaluated the current functionality of the equipment, had removed water as much as possible, had cleaned accessible portions of the tunnel, and was periodically removing water from the accessible portions of the tunnel. In addition, the applicant plans to develop a plan for access to the currently inaccessible areas of the tunnel by 11/29/2002.

## 22. Paint on Stainless Steel Pipe

The inspectors noted paint blotches and smears on much of the stainless steel piping in lower portions of the auxiliary building at the Surry station. This included portions of the Chemical

and Volume Control and Safety Injection systems. The applicant had identified this problem and initiated Engineering Work Request (EWR) 89-284A on December 7, 1990 to document an evaluation of the problem. Samples had shown that the paint did not conform to requirements for levels of chloride and halogenated compounds. The applicant had determined that the paint was unlikely to cause stress corrosion cracking because the piping was of relatively low temperature and pressure and the area typically remained dry. The EWR indicated, however, that any areas greater than 1-inch square should be removed. Areas larger than 1-inch square were observed by the inspectors. The applicant initiated PI S-2002-1806 to document reevaluation of this problem.

The inspectors reviewed the documentation in the PI of the most recent actions by the applicant. The applicant reverified that equipment was operable and determined, however, that all paint should be removed when identified. The PI stated that the problem was not believed to be widespread so personnel should be alerted to observe for the condition and to document any such observed condition via the corrective action program to assure removal. The PI failed to assure the known condition in the lower levels of the Auxiliary Building were corrected. The applicant indicated that the PI would be modified to assure the known condition was addressed. At the end of this inspection, inspectors were informed by the applicant that the following information was added to PI S-2002-1806 by the corporate supervisor of ISI/Materials Engineering. "Supervisor Comments:9/25/2002: To be absolutely clear: Any paint fallout, overspray, tape residue, or other foreign material found on stainless steel piping either in or out of containment shall be documented per the corrective action program. The area affected shall be cleaned as described above in the evaluation section. The area shall be examined visually for evidence of pitting or other surface degradation. Any surface degradation noted shall be further explored by surface examination (liquid penetrant testing). The testing results shall be documented as part of the corrective action process. These requirements include the piping identified in this PI as well as any piping exhibiting the same conditions discovered in the future."

### 23. Procedure Changes

The previous inspection on aging management activities found that the applicant had generally described necessary procedure changes needed for license renewal activities, but no procedure changes had yet been developed for review by the inspectors. In addition, the inspectors identified additional procedures which warranted changes to incorporate LR activities. The applicant stated that changes to the upper tier procedures were expected to be completed by late 2002.

The inspectors reviewed the applicants plans/procedures for completing the LR project and transitioning LR activities into a permanent organization. The inspectors observed that these plans were adequately detailed and that various actions such as required training and procedure changes were being tracked. In addition, the inspectors reviewed a sample of both upper tier and lower tier procedures to assure these procedures had adequately captured LR requirements. The following procedures were reviewed:

- License Renewal Project Closeout Plan, Revision 0
- License Renewal Implementation Transition Plan, Revision 0
- VPAP-0819, License Renewal Rule Program, Revision 0



- STD-GN-0046, License Renewal Engineering Standard, Revision 0
- CH-12.420, Condensate Storage Tank 1-CN-TK-1: Sampling Local, Revision 1
- 0-MPM-1303-04; Frequent and Periodic Inspections of 1-MH-CRN-37, 1-MH-CRN-42, 1-MH-CRN-43, 1-MH-CRN-44, and 1-MH-CRN-54, Revision 8
- 0-PT-109.2, Fire Suppression Water System-System Flush, Revision 2
- 0-EPM-2304-02, RHR Appendix R Equipment Inspection, Revision 6
- 0-MCM-0410-02; Repair of Safety-Related and Non-Safety-Related Yarway Model 515, Model 721, and Model HP80 Steam Traps, Revision 1

**ATTACHMENT**

**SUPPLEMENTAL INFORMATION**

**PARTIAL LIST OF PERSONS CONTACTED**

Applicant

B. Corbin, Director - Nuclear Projects  
M. Henig, Supervisor, Licensing Renewal  
L. Morris, Technical Advisor  
T. Snow, Engineer  
C. Sorrell, Civil Engineer  
L. Wroniewicz, Manager, Licensing Projects

**LIST OF DOCUMENTS REVIEWED**

**Licensing Documents**

Application for Renewed Operating Licenses - North Anna Power Station Units 1 and 2

Application for Renewed Operating Licenses - Surry Power Station Units 1 and 2

Technical Report LR-1400, Aging Management Review Steam and Power Conversion Surry Power Station, Revision 7

Technical Report LR-1732/2732, Aging Management Activity Inservice Inspection Program Component and Component Support Inspections, Revision 5

NAF-243, Reactor Vessel Integrity Program, Revision 0

LR-1770/LR-2770 Fuel Oil Chemistry Surry and North Anna Power Stations, Rev 3

0-EPM-0107-03, Monthly Service Inspection of 12- and 24- volt Battery Systems, Rev 11 (Inspects security diesel battery.)

1-PT-86A, Quarterly DC Distribution System Test for Battery 1-I, Rev 32 (Inspects diesel driven fire pump battery.)

0-PT-82.16, AAC Diesel Battery Category A Inspection, Rev 3 (Inspects the alternate AC diesel battery.)

LR-1722/LR-2722 Inspection Activities: Load Handling Cranes and Devices, Surry and North Anna Power Stations, Rev 4

Technical Report LR-1766/2766, Aging Management Activities General Condition Monitoring Activities, Rev 2

Technical Report LR-1762/2762, Aging Management Activities Work Control Process, Rev 3

Technical Report LR-1768/2768, Aging Management Activities Infrequently Accessed Area Inspection Activities, Rev 3

LR-1728/LR-2728 Fire Protection Program Surry and North Anna Power Stations, Rev 4

SSES-3.13, Controlling Procedure for the Inspection of Component Cooling and Chilled Water Piping External Condition, Rev 0

License Renewal Project Closeout Plan, Rev 0

License Renewal Implementation Transition Plan, Rev 0

VPAP-0819, License Renewal Rule Program, Rev 0

STD-GN-0046, License Renewal Engineering Standard, Rev 0

CH-12.420, Condensate Storage Tank 1-CN-TK-1: Sampling Local, Rev 1

0-MPM-1303-04; Frequent and Periodic Inspections of 1-MH-CRN-37, 1-MH-CRN-42, 1-MH-CRN-43, 1-MH-CRN-44, and 1-MH-CRN-54, Rev 8

0-PT-109.2, Fire Suppression Water System-System Flush, Rev 2

0-EPM-2304-02, RHR Appendix R Equipment Inspection, Rev 6

0-MCM-0410-02; Repair of Safety-Related and Non-Safety-Related Yarway Model 515, Model 721, and Model HP80 Steam Traps, Rev 1

LR-1772/LR-2772 Non - EQ Cable Monitoring Surry and North Anna Power Stations, Revision 1

### LIST OF ACRONYMS USED

AMA	Aging Management Activity
AMR	Aging Management Review
CC	Component Cooling Water
CD	Chilled Water System
CH	Chemical Volume and Control System
EWR	Engineering Work Request
FW	Feedwater
ISI	Inservice Inspection
LR	License Renewal
LRA	License Renewal Application
PI	Plant Issue
PT	Periodic Test
RSST	Reserve Station Service Transformer
RV	Reactor Vessel
VEPCO	Virginia Electric and Power Company