VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

April 22, 2004

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Serial No.: 03-373C
NL&OS/ETS: R3'''
Docket Nos.: 50-280/281
License Nos.: DPR-32/37

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)
SURRY POWER STATION UNITS 1 AND 2
GENERIC LETTER 2003-01 - CONTROL ROOM HABITABILITY
CONTROL ROOM TESTING AND TECHNICAL INFORMATION SUBMITTAL

On June 12, 2003, the NRC issued Generic Letter (GL) 2003-01, "Control Room Habitability," to all operating reactors. This generic letter requested information that demonstrates that the control room at each facility complies with the current licensing and design bases as well as applicable regulatory requirements. Furthermore, the generic letter requested information that ensures that suitable design, maintenance and testing control measures are in place for maintaining this compliance. In an August 11, 2003 letter (Serial No. 03-373), Dominion provided the NRC an alternate schedule for providing the applicable information and the bases for that schedule. The attachment to this letter provides that information.

License amendments for use of the Alternate Source Term (AST) methodology were approved on March 8, 2002. Tracer gas testing was accomplished in January of 2004 to support the Surry response to the NRC's generic letter. Specifically, testing was performed in the non-pressurized mode.

If you have any questions, please contact Mr. Thomas Shaub at (804) 273-2763.

Very truly yours,

David A. Christian
Senior Vice President – Nuclear Operations and Chief Nuclear Officer

Attachment

Commitments made by this letter:

> Submit an amendment request to incorporate a control room habitability program into the Technical Specifications within six months following either the approval of TSTF-448 or TSTF-448 being made available for adoption in the Consolidated Line Item Improvement Process (CLIIP) by the NRC, whichever is later.

cc: U.S. Nuclear Regulatory Commission
Region II
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Suite 23 T85
Atlanta, Georgia 30303-8931

Mr. S. R. Monarque
NRC Project Manager - Surry
U. S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Mail Stop 8-H12
Rockville, MD 20852

Mr. G. J. McCoy
NRC Senior Resident Inspector
Surry Power Station

Attachment

Surry Units 1 and 2

Response to Generic Letter 2003-01
Control Room Habitability

Virginia Electric and Power Company (Dominion)
Surry Power Station Units 1 and 2

Surry Units 1 and 2 Response to GL 2003-01, Control Room Habitability

This letter is provided in response to Generic Letter (GL) 2003-01 for Surry Units 1 and 2. The NRC requested information is in bold, followed by the Dominion response.

NRC Question 1

Provide confirmation that your facility's control room meets the applicable habitability regulatory requirements (e.g., GDC 1, 3, 4, 5, and 19) and that the CRHSs are designed, constructed, configured, operated, and maintained in accordance with the facility's design and licensing bases.

Dominion Response:

Control Room Facility Habitability Design Features

The Surry Control Room Envelope (CRE) consists of a common Main Control Room (MCR), two separate Emergency Switchgear Rooms (ESGR) located directly beneath the MCR, and four battery rooms in the ESGRs. Poured concrete walls, floors, and ceilings, door and penetration seals, pressurization systems, and a few system components outside the CRE (emergency supply fans and associated duct) minimize the infiltration of unfiltered outside air. The CRE, associated ventilation systems, and fire protection systems are described in detail in the Surry Updated Final Safety Analysis Report (UFSAR) (Ref 3,4). Pertinent features of the applicable systems are described below.

Fresh air supply and exhaust for normal and accident conditions are provided by separate and independent systems. During normal operation, fresh air is supplied to the CRE by a non-safety related (NSR) fan unit. Two safety-related (SR) isolation dampers are located in series in the supply duct just inside the CRE. Downstream of the dampers, the duct splits into two paths, one supplying the MCR; the other supplying the ESGRs. Exhaust from the CRE is provided by a NSR exhaust fan. Ductwork from the MCR and ESGRs combines into a single exhaust duct containing two SR isolation dampers located in series just inside the CRE boundary. An excess of supply over exhaust is maintained. The normal exhaust and supply fans are located outside the CRE (Ref 3,4).

During a radiological emergency, two separate systems – the Control Room Emergency Ventilation System (CREVS) and a bottled air pressurization system (BAPS) - provide fresh air and minimize unfiltered inleakage. The BAPS includes redundant and SR compressed air cylinders, which contain enough breathing-quality air to maintain the CRE at a positive pressure for the first hour after the event. When the compressed air is depleted, four CREVS supply fans and associated HEPA/charcoal filter assemblies are available to provide filtered outside air and pressurize the CRE indefinitely. The fan/filter assemblies are located in the Turbine Building, just outside the CRE, and each fan pulls outside air from the turbine building through a separate duct. Charcoal filters

are located approximately one foot upstream of the fans. Each duct includes a SR isolation damper, located just inside the CRE boundary.

A safety injection (SI) signal stops the normal supply/exhaust fans and closes the isolation dampers, shuts down ventilation systems in adjacent areas, and initiates discharge of the compressed (bottled) air system. The bottled air may also be manually started from the control room at any time. As the bottled air supply is depleted, one CREVS fan is manually started. Each unit's fans are powered from a different emergency bus, and only one fan is necessary to be operating for CRE pressurization. The CREVS fan ductwork is completely separate from that of the normal supply/exhaust system described above (Ref 3,4).

Temperature and humidity control in the CRE is provided by redundant SR chillers and 100% recirculating air handling units (AHUs). There are eight AHUs and five chillers. During normal and accident conditions, only one of the two AHUs in each of the four major zones in the CRE (Unit 1 MCR, Unit 2 MCR, Unit 1 ESGR, and Unit 2 ESGR) is required to operate. The AHUs provide air through separate supply ductwork dedicated for each area. The ductwork for each AHU set is contained within its respective area and is not connected to any other area's ductwork, the normal supply/exhaust system, or the CREVS ducts. Only one chiller is necessary for normal operating heat load. Depending on accident or environmental conditions, a second chiller may be started. The chillers and AHUs are powered from SR emergency busses (Ref 3,4).

Protection from fire and smoke events in the CRE is provided by detection sensors, fire barriers, and suppression systems. Smoke detectors are provided in the MCR and ESGRs. Fire dampers and gas dampers are provided in the normal supply/exhaust ducts connecting the MCR and ESGRs. Passive fire protection items include three-hour-rated barriers and penetration seals between all adjacent fire areas. Manually-activated Halon fire suppression systems protect the ESGRs. Activation of the ESGR Halon system is possible from the MCR, at each of the ESGRs (just outside the entrance to the respective ESGR) or at the Halon bottle station nearby in the Turbine Building basement (Ref 3).

As a contingency, self-contained breathing apparatus (SCBA) are located in and just outside the MCR for protection against prolonged exposure to smoke and/or noxious vapors. If deemed necessary by the Operations staff, the CRE can be manually isolated to prevent introduction of smoke or toxic gases into the CRE (Ref 3).

General Conformance with General Design Criteria (GDC)

Surry was designed prior to issuance of the draft GDC published in 1966. Construction permits for Units 1 and 2 (CPPR 43 and 44) were issued in June 25, 1968. The GDC, Appendix A to 10 CFR 50, were published February 20, 1971. The Safety Evaluation Report for the Surry Operating License was issued in February 1972.

Specific Conformance with Regulatory Requirements GDC 1, 2, 3, 4, 5 and 19

Criterion 1 - Quality Standards and Records

Structures, systems and components (SSCs) which support Control Room Habitability (CRH) have been designed, fabricated, erected, tested and maintained as SR. The MCR, ESGRs and associated CRH systems are located within a Seismic Category 1 building. Portions of the normal ventilation systems associated with the control room isolation function are classified and maintained as SR. The emergency filtration systems and cooling systems are SR (Ref 3,4). The classification of individual components is noted in an electronic equipment database. Safety-related SSCs are designed, constructed, operated and maintained in accordance with the Dominion Quality Assurance Program Manual.

Surry is considered to be in full compliance with Criterion 1.

Criterion 2 – Protection against Natural Phenomena

The Surry SSCs important to safety have been designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, seiches, and floods, as described in Chapters 2 and 3 of the UFSAR. Tsunamis are not applicable to the Surry site. The MCR, ESGRs and battery rooms are in Seismic Class 1 and tornado missile-protected structures. The CRE air-conditioning system, bottled air system, and emergency ventilation system are designed to remain functional following a seismic event. The chiller rooms are located in Seismic Class 1 and missile-protected areas (Ref 1, 2).

Surry is considered to be in full compliance with Criterion 2.

Criterion 3 - Fire Protection

Surry conforms to the guidance of Appendix A to Branch Technical Position (BTP) APCSB 9.5-1 as described in NRC's Fire Protection Safety Evaluation Report dated September 19, 1979, and complies with the applicable sections of 10 CFR 50 Appendix R.

Structures, systems and components important to safety are designed and located to minimize the fire hazard. Fire Protection systems are designed to minimize the effects of fires on SSCs important to safety. Adequate means are available to fight the fire hazard encountered in all plant areas.

Non-combustible and fire resistant materials are used wherever practical throughout the CRE and three-hour rated fire barriers are used to isolate the CRE from other areas. Evaluations are performed for other materials. Penetrations of fire barriers, such as doorways, cable tray or conduit penetrations, and ventilation penetrations are protected as required. Three-hour rated dampers and fire doors are installed in ventilation ducts and doorway penetrations of fire barriers. Cable tray penetrations of fire barriers have a

three-hour fire rating. Piping and conduit penetrations are sealed around the piping and conduit to prevent smoke migration. Conduits penetrating fire barriers are sealed internally if the conduit terminates within 5 feet of the fire barrier. Conduits that penetrate the CR pressure boundary are sealed internally in accordance with original plant design specifications and current procedures. Materials used for air sealing of the control room boundary were selected to be compatible with applicable fire barrier requirements.

The Surry control room is equipped with portable fire extinguishers. Each ESGR is protected with a manually-actuated total flooding Halon fire suppression system.

For Surry, "Alternate Shutdown" is generally intended to describe that series of manual actions that are taken independently of the control room to achieve safe shutdown for a postulated exposure fire in the control room. Procedures are provided for alternate shutdown of either unit using the respective Alternate Shutdown Panels in each ESGR. Appropriate procedures and equipment are available and staged for use by the station fire brigade in coping with a fire in either the control room or ESGRs.

Surry is considered to be in full compliance with Criterion 3.

Criterion 4 - Environmental and Missile Design Bases

The MCR and ESGRs are located within the CRE, which is designed for missile impact. In addition, all MCR entrances are protected by missile barriers. Concrete walls and slabs surrounding the MCR are at least 24 inches thick and also serve as radiation shielding. With the exception of the emergency supply fans and filters, the control room habitability systems are protected against missiles through similar building design features. Both MCR and ESGR emergency supply fans and filters are located in the Turbine Building, just outside the CRE wall. The MCR fans/filter assemblies are located on the mezzanine level. The ESGR fans are located on the next level below. The MCR emergency supply fans are approximately 50 feet apart horizontally. The ESGR emergency supply fans are about 110 feet apart. The Unit 1 and Unit 2 emergency fans are in different fire areas.

During any postulated Design Basis Accident (DBA), the SR air conditioning systems maintain the CRE temperature and humidity within limits for both emergency equipment operability and personnel occupancy. The system design is based on the combined Unit 1 and Unit 2 heat gain from SR control room and ESGR equipment, occupancy, wall transmission, and lighting load.

The effects of various pipe breaks outside containment on the CRE and associated facilities are discussed in Appendix 14B of the Surry UFSAR. In all cases, the CRE will remain habitable and provide the capability for safe shutdown and cooldown of the plant.

Surry is considered to be in full compliance with Criterion 4.

Criterion 5 - Sharing of Structures, Systems and Components

As noted previously, Surry Units 1 and 2 share a common control room. The ESGRs, although in the CRE and adjacent to each other, are separate rooms and fire areas, and have separate AHUs for air cooling and recirculation. The MCR and ESGRs share common normal supply/exhaust ventilation systems. These systems are not needed for accident mitigation and automatically isolate the CRE from the adjacent areas post-accident. However, the normal supply/exhaust ducts (within the CRE) that connect the ESGRs and the MCR to each other are not automatically isolated in the event of a MCR fire. There are two dampers in series (fire damper and gas damper) in the ducts connecting the MCR to the ESGRs. A severe fire in either ESGR will close the fire dampers in these ducts. A Halon discharge in either ESGR will close the gas dampers, and the Halon system can be manually actuated from the MCR, pull-stations just outside of each ESGR, or at the Halon bottles. In addition, switches on the Fire Protection (FP) Panel in the Turbine Building basement enable operators to quickly close the gas dampers manually. The FP panel is on the path taken by an operator going from the MCR to the ESGR via the Turbine Building. Finally, each of the four major areas in the CRE (Unit 1 MCR, Unit 2 MCR, Unit 1 ESGR, and Unit 2 ESGR) is equipped with an emergency supply fan/filter system. Only one of these fan/filter assemblies is required to be operating for the entire CRE following radiological events (Ref 1).

Surry is considered to be in full compliance with Criterion 5.

Criterion 19 - Control Room

The control room habitability systems include radiation shielding, redundant emergency air filtering and air conditioning systems, radiation monitoring, lighting, and fire protection equipment.

The Surry control room is common to both units. Sanitary facilities and potable water are located in the control room, and food can be brought to the control room as needed. Radiation protection is provided by shielding (concrete walls and ceiling/roof slabs), radiation monitoring, emergency filtration, and separate and independent control room isolation and pressurization systems.

The control room is designed to operate the nuclear power units safely under normal conditions and to maintain them in a safe condition under accident conditions. Adequate radiation protection has been provided to ensure that radiation exposures to personnel occupying the control room during the 30-day period following a DBA will not exceed 5 rem Total Effective Dose Equivalent (TEDE). The Large Break Loss of Coolant Accident (LBLOCA) is the limiting radiological event. The design basis accidents, dose analyses, and consequences are described in Chapter 14 of the UFSAR.

In addition, evaluations of the LBLOCA and Fuel Handling Accidents (FHAs), using Alternate Source Term (AST), demonstrate that Surry meets the GDC 19 criterion of

5 rem TEDE with 500 cfm of unfiltered inleakage (Ref 6,7,8). The evaluations illustrate that the thyroid portion of the TEDE dose is the limiting concern for unfiltered inleakage in excess of design basis assumptions. The AST submittal was approved by the NRC on March 8, 2002 (Ref 9). Subsequently, the UFSAR was revised under 10 CFR 50.59 to include AST for the Main Steam Line Break (MSLB), Steam Generator Tube Rupture (SGTR) and (Locked Rotor) LR with at least 500 cfm of unfiltered inleakage assumed for these accidents.

Toxic Chemicals and Smoke - The design of the Surry CRE meets the guidance outlined in Regulatory Guides 1.78, Rev. 0 and 1.95, Rev. 0. The compliance of Surry with these documents is described below, and also discussed in Section 2.1 of the UFSAR (Ref 10,11).

No gaseous chlorine is stored on site. Liquefied chlorine is not stored on site except in small quantities for laboratory use, which is limited to 20 pounds or less, consistent with Regulatory Guide 1.95. Therefore, Surry complies with the guidance of Regulatory Guide 1.95.

The potential for offsite toxic chemical events was assessed in 1981 and again in 1994. There are no manufacturing plants, chemical plants, storage facilities, or major rail lines within 5 miles of the plant site. There are only two major transportation routes within 5 miles of the site: the James River shipping channel (2.3 miles) and Virginia highway 10 (4.5 miles). The frequency and amounts of the chemicals shipped along these routes have been evaluated and are not sufficient to affect habitability of the control room. There are several pipelines within 5 miles of the site. These have been evaluated and are not considered a significant hazard to plant operation. A postulated seismic event, concurrent with transport failure of toxic gas offsite, is judged to be a noncredible event.

The Surry UFSAR describes potentially hazardous chemicals stored onsite in quantities greater than 100 lb. These include sulfuric acid, ammonium hydroxide, hydrazine, ethanolamine, and sodium hypochlorite. Evaluations for accidental release of the chemicals indicate that the worst-case control room concentrations would be expected to be less than the respective toxicity limit. These assessments were based on the assumption that no action was taken by the control room operator (i.e., normal or emergency supply system remains operating). The nominal flow of an emergency supply fan is 1000 cfm. In contrast, the maximum allowable unfiltered inleakage for a radiological event is 500 cfm. Therefore, the radiological event, not a toxic gas event, is limiting from an inleakage perspective.

In the event of fire/smoke external to the control room, equipment and procedures are available to maintain habitability of the control room. Smoke detectors are installed in numerous locations in the ESGRs and MCR. If smoke is detected, the normal ventilation supply/exhaust can be manually isolated. Fire response strategies provide guidance for removing smoke from affected areas.

Shutdown Outside the Control Room - In the event that the control room must be evacuated due to internal fire/smoke, equipment is provided at appropriate locations outside the control room, including necessary instrumentation and controls to maintain the unit in a safe condition (Hot Standby). A remote shutdown panel in each ESGR (located in the lower level of the CRE) provides the capability to safely shut down the respective unit outside of the control room. The panel is designed to Seismic Category 1 requirements and is located in a Seismic Category 1 area (Ref 5). Multiple egress paths and SCBAs are available to facilitate evacuation to the ESGRs. Further discussion of the fire/smoke response is contained below in the response to question 1(b).

Surry is considered to be in full compliance with Criterion 19.

Conclusion

The Surry CRE and associated systems meet the applicable requirements of GDCs 1, 2, 3, 4, 5 and 19. No compensatory measures are required.

Administrative Control Programs

Procedural controls are provided to ensure continued compliance with the CRH design and licensing basis. Controlled plant procedures are provided for operation, maintenance, instrument calibration and testing of control room habitability systems. Plant configuration, including design documents, licensing documents, equipment databases, calculations, specifications, reports, etc., is maintained through design control and licensing procedures. CRE barrier breaches are identified and controlled by design control and station procedures.

NRC Question 1(a)

Provide confirmation that the most limiting unfiltered inleakage into your CRE (and the filtered inleakage if applicable) is no more than the value assumed in your design basis radiological analyses for control room habitability. Describe how and when you performed the analyses, tests, and measurements for this confirmation.

Dominion Response:

The Surry CRE was designed to be pressurized to prevent unfiltered inleakage. The original analyses assumed 0 cfm unfiltered in-leakage. The accidents analyzed were the LOCA, FHA, SGTR, MSLB, LR, Waste Gas Decay Tank Rupture (WGDTR), and Volume Control Tank Rupture (VCTR). The WGDTR and VCTR accidents were evaluated for exclusion area boundary dose only. In the late 1980's, the analyses were revised to include 10 cfm to account for ingress/egress door opening. Following issuance of NUREG-1465, the decision was made to reanalyze the DBAs using those methods and change the design and licensing basis to adopt AST (Ref 6,7,8).

The analyses performed to demonstrate the radiological consequences of various DBAs using the NUREG-1465 (Alternate Source Term – AST) methods are described in Surry's AST license amendment submittal (Ref 6,7,8). The accidents analyzed included the LOCA and the FHA, which constituted full implementation of the AST. The new analyses were performed using the LOCADOSE computer code. The SGTR, MSLB, and LR were not reanalyzed since these three events would not be affected by the change to AST, and the existing analyses were considered bounding. The WGDTR and VCTR were analyzed for Exclusion Area Boundary (EAB) dose only.

Key assumptions and input parameters are described in detail in the attachments to Reference 4 and summarized here. The analyses employ the TEDE calculation method, determined at the exclusion area boundary for the worst 2-hr interval. The TEDE doses for individuals at the Low Population Zone (LPZ) and MCR personnel are calculated for the 30-day duration of the event. The onsite atmospheric dispersion factors were calculated for each accident using the ARCON96 code. The nominal flowrate of the emergency filtered supply fan is 1000 cfm. The values used in the analyses were 1000 and 2000 cfm to demonstrate the insensitivity of the results to variations in this parameter. Subsequently, the SGTR, MSLB and LRA were analyzed using AST assumptions and the UFSAR was revised in accordance with 10 CFR 50.59.

Based on the AST analyses, the GDC 19 acceptance criteria were met for the limiting accident (LOCA) assuming a total unfiltered inleakage of 500 cfm. In response to GL 2003-01, a tracer gas test of the Surry CRE was performed in January 2004 to verify that the actual inleakage was less than that assumed in the AST analysis. This testing was performed consistent with the test methodology proposed by Dominion in a meeting with the NRC in April 2003. The CRE design, proposed test method, and ventilation alignment were specifically discussed during that meeting (Ref 12). Although the design/licensing basis is a pressurized CRE, it was agreed in principle that a test in a non-pressurized condition with adjacent area ventilation in the post-accident alignment (secured) would be bounding for unfiltered inleakage. Accordingly, the test was performed in a non-pressurized alignment, with the acceptance criteria being that inleakage assumed in the AST LOCA analysis. The test data for the CRE boundary indicated an actual unfiltered in-leakage rate of 120 $\pm$ 5 cfm in the non-pressurized alignment. Tracer gas testing of the emergency supply fan suction ducts indicated a maximum inleakage of 27 $\pm$ 2 cfm (the worst of the four fans). Thus, total unfiltered in-leakage is bounded by a worst-case value of 147 $\pm$ 6 cfm (statistically summed). Since the inleakage measured in this conservative alignment is well below that assumed in the AST analyses, the integrity of the CRE is confirmed to be acceptable.

NRC Question 1 (b)

Provide confirmation that the most limiting unfiltered inleakage into your CRE is incorporated into your hazardous chemical assessments. This inleakage may differ from the value assumed in your design basis radiological analyses. Also confirm that the reactor control capability is maintained from either the control room or the alternate shutdown panel in the event of smoke.

Dominion Response:

As noted earlier, hazardous chemical events are evaluated on the basis of no action being taken by the control room operator. The nominal flow provided by either the normal supply or CREVS fan is approximately twice that of the unfiltered inleakage allowed for radiological events. Therefore, the unfiltered inleakage for a toxic gas event is not the limiting value. In addition, SCBAs are required by the Fire Protection program to be available for the control room operators, although they are not necessary for protective action following a radiological or toxic gas event.

There are several combinations of systems available to shut down the reactor and cool the core of either unit during and after a fire, coincident with a loss of offsite power. Safe shutdown analyses have been performed for each fire area using Appendix R guidelines, identifying the safe shutdown systems that would remain unaffected by the worst-case fire in that area. Based on these analyses, Surry complies with the specific requirements of Appendix R Sections III.G, III.J, III.L, and III.O, with exemptions as noted in the 10 CFR 50 Appendix R Report.

Passive fire protection systems are provided to minimize fire damage. The CRE is divided into three fire areas (MCR, Unit 1 ESGR, Unit 2 ESGR), separated by walls, floors, ceilings, fire doors, fire dampers, and penetration seals rated at 3-hours. Conduits penetrating fire barriers are sealed internally if the conduit terminates within 5 feet of the fire barrier. As noted previously, conduits that penetrate the MCR pressure boundary are sealed internally.

Smoke detectors and fixed and portable fire suppression systems are provided to minimize the effects of smoke and fire. The cable tray rooms above the MCR are protected by a CO_2 system. Full (flooding) Halon systems protect the ESGRs. Both ESGRs and the MCR are provided with smoke detectors. Portable fire extinguishers and air bottles are available in, and just outside, the MCR for operator use.

In the unlikely event of an MCR fire or smoke event, equipment and procedures are available to ensure safe shutdown of the units. In the case of an external fire/smoke event, the CRE normal supply/exhaust systems can be manually isolated. For internal fires or smoke, an auxiliary shutdown panel is located in each ESGR. This panel can be easily reached by way of a stairwell in the CRE or a stairwell just outside the MCR in the Turbine Building. The stairwell in the CRE connects the MCR with the ESGRs below and is provided with fire-rated doors at each end. SCBA are available both in and just outside the control room to facilitate evacuation to the ESGRs. The potential for smoke migration from the MCR to the ESGRs through the normal supply/exhaust ductwork has been reviewed and determined to be inconsequential. Nonetheless, emergency procedures direct the operator to quickly close the normal supply/exhaust internal gas dampers in the event of a MCR fire. Specific smoke and fire response actions (e.g., portable exhaust fans, door and ventilation configuration, etc.) will depend on the nature of the fire and will be taken by the Fire Brigade as necessary.

NRC Question 1 (c)

Provide confirmation that your technical specifications verify the integrity of the CRE, and the assumed inleakage rates of potentially contaminated air. If you currently have a ΔP surveillance requirement to demonstrate CRE integrity, provide the basis for your conclusion that it remains adequate to demonstrate CRE integrity in light of the ASTM E741 testing results. If you conclude that your ΔP surveillance requirement is no longer adequate, provide a schedule for: 1) revising the surveillance requirement in your technical specification to reference an acceptable surveillance methodology (e.g., ASTM E741), and 2) making any necessary modifications to your CRE so that compliance with your new surveillance requirement can be demonstrated.

If your facility does not currently have a technical specification surveillance requirement for your CRE, explain how and on what frequency you confirm your CRE integrity and why this is adequate to demonstrate CRE integrity.

Dominion Response:

The Surry Technical Specifications contain Surveillance Requirements (SR) for the major components in the CRE boundary and ventilation systems. Requirements for the MCR/ESGR Emergency Ventilation System (EVS) include a monthly 15-minute run and CRE pressurization check, flow testing and filter efficiency testing every 18 months, and verification on an 18-month basis that the bottled air pressurization system starts on an actuation signal and maintains adequate pressurization of the CRE for one hour. The pressure in the bottled air pressurization system is verified every 31 days.

Due to the design, maintenance, and testing of the CRE noted previously, the current Technical Specifications are adequate to demonstrate CRE integrity and conformance with the inleakage assumed in the Alternate Source Term analyses. The tracer gas test was performed in a non-pressurized (bounding) alignment, with adjacent area ventilation systems in the post-accident configuration. The measured inleakage was less than one-third of that assumed in the AST calculations. Since all CRE ventilation equipment susceptible to inleakage, with the exception of the emergency fan suction ducts, is located in the CRE, the inleakage in the pressurized alignment would therefore be significantly less than that measured in the non-pressurized mode. Experience has shown that ΔP and flow testing can easily identify CRE changes that affect leaktightness.

However, Dominion has been involved with the NEI Control Room Habitability Task Force and is following the progress of Technical Specification Task Force effort TSTF-448. This proposed change being developed by the Task Force will modify the current Technical Specifications to include a requirement for a CR Habitability Program. The TSTF-448 retains the current TS requirement to verify the flow rate of filtered outside makeup air through the emergency ventilation systems, and adds requirements for inleakage testing in accordance with ASTM E741 or other method that may be approved by the NRC in the future.

Although Dominion anticipates that the finalized TSTF-448 will be acceptable for reference, a commitment to adopt this TSTF without knowing its final content cannot be made at this time. Therefore, Dominion plans to submit proposed changes to the Surry Technical Specifications that will incorporate the intent of the current proposed TSTF-448. The Technical Specification changes will be submitted within six months following either the approval of TSTF-448 or TSTF-448 being made available for adoption in the Consolidated Line Item Improvement Process (CLIIP) by the NRC, whichever is later. Dominion's proposed changes will include the addition of a Control Room Habitability Program in Section 5, incorporating elements described in Regulatory Guide 1.196.

Surry has procedures for monitoring and maintaining the integrity of the control room boundary and has performed a tracer gas test to verify consistency with dose analyses. Delaying TS changes involving Control Room Habitability until TSTF-448 is approved will not adversely affect control room integrity.

NRC Question 2

If you currently use compensatory measures to demonstrate control room habitability, describe the compensatory measures at your facility and the corrective actions needed to retire these compensatory measures.

Dominion Response:

No compensatory measures are needed or used to demonstrate CRH.

NRC Question 3

If you believe that your facility is not required to meet either the GDC, the draft GDC, or the "Principle Design Criteria" regarding control room habitability, in addition to responding to items 1 and 2 above, provide documentation (e.g., Preliminary Safety Analysis Report, Final Safety Analysis Report sections, or correspondence) of the basis for this conclusion and identify your actual requirements

Dominion Response:

Surry Units 1 and 2 meet the GDCs referenced in GL 2003-01, as discussed in the response to question 1 above.

References:

1) Surry UFSAR, Section 1.4 – Compliance with Criteria

2) Surry UFSAR, Section 2.1 – Geography, Demography and Potential External Hazards

3) Surry UFSAR, Section 9.10 – Fire Protection

4) Surry UFSAR, Section 9.13 – Auxiliary Ventilation Systems

5) Surry Technical Specifications 3.19 (MCR Bottled Air Pressurization System), 3.23 (Main Control Room and Emergency Switchgear Room Ventilation and Air Conditioning Systems)

6) Virginia Electric and Power Letter No. 00-123, Docket Nos. 50-280/281, April 11, 2000, Proposed Technical Specifications and Bases Change – Alternate Source Term Implementation

7) Virginia Electric and Power Letter No. 01-037, Docket Nos. 50-280/281, April 11, 2001, Request for Additional Information- Alternate Source Term - Proposed Technical Specification Change

8) Virginia Electric and Power Letter No. 01-037A, Docket Nos. 50-280/281, July 31, 2001, Response to Request for Additional Information - Alternate Source Term - Proposed Technical Specification Change

9) NRC Letter of March 8, 2002, Surry Units 1 and 2 – Issuance of License Amendments 230/230 Re: Alternate Source Term (TAC NOS. MA8649 and MA8650)

10) Surry UFSAR, Section 7.4 – Systems Required for Safe Shutdown

11) Virginia Electric and Power Letter No. 036, Docket Nos. 50-280,-281, January 19, 1981, Response to Item III.D.3.4 of NUREG-0737.

12) Virginia Electric and Power Letter No. 036A, Docket Nos. 50-280,-281, June 30, 1981, Response to Item III.D.3.4 of NUREG-0737

13) NRC Letter of June 9, 2003, Meeting Summary – Discussion of Control Room Habitability Testing at Surry Power Station Units 1 and 2