available online in the NRC Library at http://www.nrc.gov/reading-rm/adams.html. From this page, the public can gain entry into ADAMS, which provides text and image files of the NRC’s public documents. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC’s PDR reference staff at 1–800–397–4209, 301–415–4737, or by e-mail to pdr.resource@nrc.gov. The Regulatory Analysis is available electronically under ADAMS Accession Number ML03190466.

Federal Rulemaking Web Site: Public comments and supporting materials related to this notice can be found at http://www.regulations.gov by searching on Docket ID NRC–2011–0096.

Comments would be most helpful if received by June 26, 2011. Comments received after that date will be considered if it is practical to do so, but the NRC is able to ensure consideration only for comments received on or before this date. Although a time limit is given, comments and suggestions in connection with items for inclusion in guides currently being developed or improvements in all published guides are encouraged at any time.

Electronic copies of DG–1197 are available through the NRC’s public Web site under Draft Regulatory Guides in the “Regulatory Guides” collection of the NRC’s Electronic Reading Room at http://www.nrc.gov/regreading-rm/doc-collections/. Electronic copies are also available in ADAMS (http://www.nrc.gov/regreading-rm/adams.html), under Accession No. ML081560507. Regulatory guides are not copyrighted, and Commission approval is not required to reproduce them.

Dated at Rockville, Maryland this 19th day of April, 2011.

For the Nuclear Regulatory Commission.

Harriet Karagiannis,
Acting Chief, Regulatory Guide Development Branch, Division of Engineering, Office of Nuclear Regulatory Research.

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NUCLEAR REGULATORY COMMISSION

[Docket No. 50–338; NRC–2010–0246]

Virginia Electric Power Company, LLC, North Anna Power Station, Unit No. 1; Exemption

1.0 Background

Virginia Electric Power Company (VEPCO, the licensee) is the holder of Facility Operating License No. NPF–4, which authorizes operation of North Anna Power Station (NAPS), Unit No. 1. The license provides, among other things, that the facility is subject to all rules, regulations, and orders of the Nuclear Regulatory Commission (NRC, the Commission) now or hereafter in effect.

The facility consists of a pressurized-water reactor located in Louisa County, Virginia.

2.0 Request/Action

Title 10 of the Code of Federal Regulations (10 CFR), Part 50, Section 50.48(b) requires nuclear power plants licensed before January 1, 1979, to meet 10 CFR Part 50, Appendix R, Section III.O. NAPS Unit No. 1 was licensed on April 1, 1978. Appendix R, Section III.O requires a reactor coolant pump (RCP) oil collection system (OCS) that is capable of collecting lube oil from all potential pressurized and unpressurized leakage sites in the reactor coolant pump lube oil system.

The licensee requested an exemption from the requirements to the extent that minor oil misting may not be captured within the OCS. This applies to all three Unit 1 RCPs.

In summary, by letter dated April 23, 2010 (Agencywide Documents Access and Management System (ADAMS), Accession No. ML101160376), as supplemented by letters dated May 13, 2010 (ADAMS Accession No. ML101380270), October 11, 2010 (ADAMS Accession No. ML102870109), and November 15, 2010 (ADAMS Accession No. ML103200451), the licensee requested an exemption from 10 CFR Part 50, Appendix R, Section III.O because small amounts of oil from the RCP were misting, were being transported by the ventilation system, and were condensing on the RCP motor stator coolers (hereafter referred to as coolers). The exemption would allow the licensee to install features to collect any oil that accumulates on the coolers instead of preventing the oil mist from escaping the OCS. As stated above, 10 CFR 50.12 allows the NRC to grant exemptions from the requirements of 10 CFR Part 50. The NRC staff has determined that granting the licensee’s proposed exemption will not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission’s regulations. Therefore, the exemption is authorized by law.

No Undue Risk to Public Health and Safety

The underlying purposes of 10 CFR Part 50, Appendix R, Section III.O is to ensure that failure of the RCP lube oil system will not lead to fire during normal or design basis accident conditions and that there is reasonable assurance that the system will withstand the Safe Shutdown Earthquake. The regulation intends licensees to accomplish this by extending the concept of defense-in-depth to fire protection in fire areas important to safety, with the following objectives:

(1) To prevent fires from starting;
(2) To rapidly detect, control, and extinguish promptly those fires that do occur;
(3) To provide protection for structures, systems, and components important to safety so that a fire that is not promptly extinguished by the fire suppression activities will not prevent the safe shutdown (SSD) of the plant.

In their request, as supplemented, the licensee described elements of their fire protection program that provide their justification that the concept of defense-in-depth that is in place in the affected important to safety fire area (FA), FA 1–1, is consistent with that required by the regulation. The licensee states in their request, as supplemented, that the modification to install oil collection trays on the coolers with piping connected to the RCP OCS is scheduled to be installed during the next Unit 1 refueling outage. Operating experience based on a similar design for Unit 2 has indicated that the oil mist primarily condenses on the coolers and the oil collection tray collects oil dripping from the coolers. This will reduce the potential for significant quantities of oil pooling to occur outside the OCS. The remaining oil sheen that may develop due to misting does not present a safety
concern due to the small volume of oil. The licensee further states in their request, as supplemented, that the purpose of their request was to address expected, minor RCP oil misting. The collection of the oil in the tray below the coolers and the piping to the OCS is in addition to the protective measures installed to meet Section III.O of 10 CFR Part 50, Appendix R.

In the licensee’s request, as supplemented, an analysis was provided that described how fire prevention, detection, control, extinguishment and preservation of safe shutdown capability is addressed for FA 1–1 in the Unit 1 containment, as summarized below.

**Fire Prevention**

The licensee states that administrative controls are in place to control combustibles in the plant. No transient combustible materials are normally allowed in the containment while the unit is at power. This is ensured by implementing a Unit 1 containment checklist prior to placing the unit into operation. Hot work does not occur within the RCP cubicles during power operations. The RCP cubicles are concrete compartments that are open to the containment on the top and house the RCPs, the steam generators and the reactor coolant system piping.

NRC Information Notice 94–38, “Reactor Coolant Pump Lube Oil Fire” (ADAMS Accession No. ML031060498), alerted industry that a credible ignition source by the installed OCS. The other potential ignition source is the cold leg loop stop valve (LSV) motor operated valve (MOV), which is in close proximity to the RCP. Due to the size of the LSV MOV actuator motor, it could also be considered an ignition source. However, power is removed from the cold leg LSV MOVs by opening the supply breakers prior to startup and administratively verified open throughout the cycle. Therefore, the ignition source is effectively eliminated. In addition, guidance in the “Station Lubrication Manual” outlines the procedural controls that ensure that RCP oil of different properties is not used. The Station Lubrication Manual is procedurally controlled and requires authorization to be changed.

With the exception of the oil contained within the RCP motor, combustibles within each cubicle and loop room are negligible. Furthermore, containment is maintained at a sub-atmospheric pressure and not routinely occupied during operation. As a result, the introduction of transient combustibles into this area at power is negligible.

Each RCP motor has a dedicated OCS tank that is designed to contain the entire oil inventory of the motor. A vent and flame arrestor are provided on top of the tank. Operations procedures verify the oil collection tanks are empty prior to unit start-up from Mode 5. In addition, tank drain lines were extended in the mid-1990’s to allow draining the tank from outside the loop rooms (lower radiation dose area).

A design change to enhance the baffle ventilation openings of the RCP oil lift pump enclosure that ensures that all oil will be contained in the event of pressurized oil leakage inside these enclosures has been installed on NAPS Unit No. 1.

A design change to install oil collection trays on the coolers with piping connected to the RCP OCS tank is scheduled to be installed on NAPS Unit No. 1 during the next refueling outage. This piping will direct the oil in the cooler collection trays to the RCP OCS tank. The oil collection trays will be placed in the areas where the most oil outside the OCS has been found.

Prior to installation of the collection trays on NAPS Unit No. 2, licensee staff identified oil pooling under the coolers. Approximately 6 months after the collection trays were installed, a walkdown of NAPS Unit No. 2 RCP A and B verified that the oil collection trays were performing as designed.

The licensee states that all preventative maintenance tasks are controlled by established preplanned work orders under the recurring task evaluation (RTE) process. Deferral of any of these work orders will require an RTE that will be evaluated by VEPCO on a case-by-case basis. The licensee states that they follow the manufacturer’s recommendations for maintenance of the RCPs and that the RCPs are refurbished every 9 years by an offsite vendor.

**Detection, Control and Extinguishment**

Fire detection within the NAPS Unit Nos. 1 and 2 containment consists of linear heat detection on each RCP, smoke and heat detection within the cable penetration area of containment, heat detection for the residual heat removal pumps, and duct smoke detection on the outlet of each of the three containment air recirculation fans. The RCP linear heat detection alarms at 575 °F. The alarm is received locally in containment at the local control panel, on the control room vertical board, and on the control room fire detection panel.

System trouble conditions are annunciated similarly.

Manual fire suppression equipment for containment consists of a 100 lb.-wheeled CO₂ extinguisher on each floor of containment, three CO₂ and one dry chemical extinguisher at the personnel entrance to containment, and a dry standpipe system with hose stations. Hoses are not normally connected to the hose valves. A fire brigade equipment locker is provided outside of the personnel entrance to containment.

The licensee states that the CO₂ extinguishers and the dry chemical extinguisher are rated for a Class B fire (flammable and combustible liquids). The initial fire fighting attack can be made using either a CO₂ or dry chemical extinguisher. A fire hose can be used if CO₂ is ineffective or does not completely extinguish the fire. In addition, foam is available and can be applied if determined necessary by the fire brigade.

**Preservation of Safe Shutdown Capability**

The licensee states that FA 1–1 is the primary containment for NAPS Unit No. 1. The area is a multi-level structure. The boundary fire barriers for containment are of heavy reinforced
The proposed exemption would allow the licensee to install features to collect any oil that accumulates on the coolers from oil mist condensation instead of preventing the oil mist from escaping the OCS. This change to the plant has no relation to security issues. Therefore, the common defense and security is not impacted by this exemption.

**Special Circumstances**

Special circumstances, in accordance with 10 CFR 50.12(a)(2)(ii), are present whenever application of the regulation in the particular circumstances is not necessary to achieve the underlying purpose of the rule. The underlying purposes of 10 CFR Part 50, Appendix R, Section III.O to ensure that failure of the RCP lube oil system will not lead to fire during normal or design basis accident conditions and that there is reasonable assurance that the system will withstand the Safe Shutdown Earthquake. As described above, the defense-in-depth concept for a fire in FA 1–1 discussed above provides an adequate level of safety through prevention of fire, detection, control and extinguishment of fires that do occur and the protection of structures, systems and components important to safety. In addition, the licensee has provided preventative and protective measures that together demonstrate the ability to preserve or maintain SSD capability in the event of a fire in an RCP cubicle and loop room. Allowing the collection of oil that accumulates on the coolers instead of preventing the oil mist from escaping the OCS does not impact the ability of the OCS to withstand the Safe Shutdown Earthquake. Therefore, since the underlying purpose of 10 CFR Part 50, Appendix R is achieved, the special circumstances required by 10 CFR 50.12(a)(2)(ii) for the granting of an exemption from 10 CFR Part 50, Appendix R exist.

**4.0 Conclusion**

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, the exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. Also, special circumstances are present. Therefore, the Commission hereby grants VEPCO an exemption from 10 CFR Part 50, Appendix R, Section III.O to the extent that minor oil misting may not be captured within the OCS. This applies to all three RCPs for NAPS Unit No. 1. Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will not have a significant effect on the quality of the human environment as published in the Federal Register on July 8, 2010 (75 FR 39285).

This exemption is effective upon issuance.

Dated at Rockville, Maryland this 21st day of April 2011.

For the Nuclear Regulatory Commission.

Robert A. Nelson, Acting Director, Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation.