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7590-01-P

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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| In the Matter of | ) | |
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| Virginia Electric and Power Company | ) | Docket Nos. 50-338 |
| | ) | and 50-339 |
| North Anna Power Station, Unit Nos. 1 and 2 | ) | |

EXEMPTION

The Virginia Electric and Power Company (VEPCO, the licensee) is the holder of Facility Operating License Nos. NPF-4 and NPF-7, which authorize operation of the North Anna Power Station (NAPS), Unit Nos. 1 and 2. The licenses provide, among other things, that the licensee is subject to all rules, regulations, and orders of the Nuclear Regulatory Commission (the Commission) now or hereafter in effect.

The facility consists of two pressurized-water reactors at the licensee's site located in Louisa County, Virginia.

II

Title 10 of the Code of Federal Regulations (10 CFR), Section 20.1703, "Use of individual respiratory protection equipment" requires in subsection (a)(1) that "... the licensee shall use only respiratory protection equipment that is tested and certified or had certification extended by the National Institute for Occupational Safety and Health/Mine Safety and Health Administration (NIOSH/MSHA)." Further, 10 CFR 20.1703(c) requires that "the licensee shall use as emergency devices only respiratory protection equipment that has been specifically certified or had certification extended for emergency use by NIOSH/MSHA," and 10 CFR Part 20, Appendix A, Protection Factors for Respirators, Footnote d.2 (d), states that

"... the protection factors apply for atmosphere-supplying respirators only when supplied with adequate respirable air. Respirable air shall be provided of the quality and quantity required in accordance with NIOSH/MSHA certification (described in 30 CFR part 11). Oxygen and air shall not be used in the same apparatus." By letter dated March 3, 1998, as supplemented May 5, 1998, the licensee requested an exemption from certain requirements of 10 CFR 20.1703(a)(1), 10 CFR 20.1703(c) and 10 CFR Part 20, Appendix A, Footnote d.2 (d).

Pursuant to 10 CFR 20.2301, the Commission may, upon application by a licensee or upon its own initiative, grant an exemption from the requirements of the regulations in Part 20 if it determines that the exemption is authorized by law and would not result in undue hazard to life or property.

III

The NAPS 1&2 containments are designed to be maintained at subatmospheric pressure during power operations. The containment pressure can range from 9.0 to 11.0 pounds per square inch absolute (psia). This containment environment could potentially impact personnel safety due to reduced pressure and resulting oxygen deficiency. Such environment requires the use of a Self-Contained Breathing Apparatus (SCBA) with enriched oxygen breathing gas. The licensee initially purchased Mine Safety Appliances, Inc. (MSA) Model 401 open-circuit, dual-purpose, pressure-demand SCBAs constructed of brass components which were originally intended for use with compressed air. The licensee qualified the Model 401 cylinders for use with 35% oxygen/65% nitrogen following the recommendations of the Compressed Gas Association's Pamphlet C-10, Recommended Procedures for Changes of Gas Service for Compressed Gas Cylinders, which established procedures to utilize these devices with an enriched oxygen mixture. The licensee is currently using these SCBAs with

35% oxygen/65% nitrogen instead of compressed air. The MSA Model 401 SCBA has received the NIOSH/MSHA certification for use with compressed air, but has not been tested for 35% enriched oxygen applications. Using these SCBAs without the NIOSH/MSHA certification requires an exemption from 10 CFR 20.1703(a)(1), 10 CFR 20.1703(c) and 10 CFR Part 20, Appendix A, Protection Factors for Respirators, Footnote d.2.(d).

IV

Pursuant to 10 CFR 20.1703(a)(2), SCBAs that have not been tested or certified or for which certification has not been extended by NIOSH/MSHA require a demonstration by testing or reliable test information that the material and performance characteristics of the equipment are capable of providing the proposed degree of protection under anticipated conditions of use. VEPCO contracted with National Aeronautic and Space Administration's (NASA) White Sand Test Facility (WSTF) and Lawrence Livermore National Laboratory (LLNL) to conduct applicable oxygen compatibility testing. WSTF evaluated the compatibility of the MSA Custom 4500 SCBA (testing of the model "MSA Custom 4500" envelops the lower pressure applications of models "MSA Ultralite" and "Model 401") with an oxygen-enriched breathing gas mixture. Based on these evaluations, the licensee concluded that compatibility exists provided 1) all hydrocarbon contamination is removed, 2) the SCBAs are maintained so as to preclude the introduction of hydrocarbon contamination, and 3) the temperature of the system does not exceed 135° F when the regulator is first activated. LLNL also concluded that an MSA Custom 4500, equipped with the interchangeable silicone facepiece, meets the National Fire Protection Association Flame and Heat Test requirements whether operated with 35% oxygen/65% nitrogen breathing gas mixture or with compressed air.

The licensee has indicated that the above conditions are met as follows: 1) the MSA repair guidance stipulates that no hydrocarbon-based compounds are to be used within the pressure boundary during maintenance, 2) the SCBAs are required to be stored and repaired in clean, dry locations free of chemical contamination, 3) containment average temperature is required by Technical Specification to be less than or equal to 120°F at NAPS 1&2, and 4) VEPCO procedural guidance presently requires that SCBAs using 35% oxygen/65% nitrogen breathing gas mixture be equipped with a silicone facepiece. VEPCO has also stated that it has over 20 years of actual safe operating experience using SCBAs with 35% oxygen/ 65% nitrogen mixture with no incidents of oxygen-induced failure or equipment maintenance problems associated with the enriched oxygen operation.

The combination of the existing NIOSH/MSHA certification of the SCBAs (with compressed air), the testing of the SCBA with the enriched oxygen-nitrogen mixture conducted for VEPCO by NASA and LLNL, and VEPCO's safe use history constitutes an adequate basis for granting the requested exemption to permit the use of MSA SCBAs Model 401, Custom 4500 and Ultralite with 35% oxygen-65% nitrogen breathing air mixture in the sub-atmospheric containments of NAPS, Units 1 and 2.

V.

Accordingly, the Commission has determined that, pursuant to 10 CFR 20.2301, the requested exemption is authorized by law, and will not result in undue hazard to life or property. Therefore, the Commission hereby grants an exemption from the requirements of 10 CFR 20.1703(a)(1), 10 CFR 20.1703(c) and 10 CFR Part 20, Appendix A, Footnote d.2.(d), for North Anna Power Station, Unit 1 and Unit 2, provided VEPCO uses SCBAs identified and meeting the formal testing outlined above and follows the above described conditions.

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 (63 FR 40324).

This exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Samuel J. Collins, Director
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland,
this 3lst day of July, 1998