




UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

March 15, 2013

MEMORANDUM TO: Robert J. Pascarelli, Chief  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

FROM: Robert E. Martin, Senior Project Manager   
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT (VEGP), UNIT 2, VERBAL  
APPROVAL OF ALTERNATIVE FOR CLASS 1 LEAKAGE TEST  
(TAC NO. MF0673)

On March 15, 2013, pursuant to Title 10 of the *Code of Federal Regulations*, Part 50, Section 50.55a, the U.S. Nuclear Regulatory staff from the Office of Nuclear Reactor Regulation (NRR) granted verbal approval for an alternative to the American Society of Mechanical Engineer Code, Section XI, Article IWA 5241(a) regarding the requirement for visual examination of the external surfaces of pressure retaining components to identify evidence of leakage for chemical and volume control system check valves for the VEGP Unit 2 spring 2013 outage. The details of the verbal approval are in the enclosure to this memo. This memo documents the verbal approval as required by the NRR Office Instruction LIC-102.

Docket No. 50-425

Enclosure:  
Verbal Approval Statement

cc w/ encl: Distribution via Listserv



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U.S. NUCLEAR REGULATORY COMMISSION

VERBAL APPROVAL OF ALTERNATIVE FOR

VOGTLE ELECTRIC GENERATING PLANT, UNIT 2

DOCKET NO. 50-425

**Piping and NDE Branch Chief (Tim Lupold)**

By letter to the U.S. Nuclear Regulatory Commission (NRC) staff dated February 14, 2013, as supplemented by letters dated March 6, 2013 and March 13, 2013, Southern Nuclear Operating Company (SNC), the licensee, requested approval of an alternative to the requirements of Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code). Specifically, pursuant Title 10 of the *Code of Federal Regulations* (10 CFR), 50.55a(a)(3)(ii), the licensee requests approval for an alternative to IWA 5241(a), Class 1 Leakage Test, for eight three-inch check valves located in the chemical and volume control system at Vogtle Electric Generating Plant Units, 1 and 2, on the basis that complying with the specified requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. This authorization provided on March 15, 2013, addresses Vogtle, Unit 2, for the spring 2013 refueling outage. The forthcoming final written safety evaluation will address the entire scope of the SNC request.

This authorization addresses 4 three inch diameter check valves located in the Unit 2 chemical and volume control system. The licensee stated that these valves are fitted with an enclosure designed to contain leakage through the body to bonnet gasket. The staff notes that while the enclosure is designed to contain leakage, it does not function as a pressure boundary; that function is retained by the body to bonnet bolting. The staff also notes that the valve bodies, bonnets and enclosures are constructed from 300 series stainless steel and that the bolting is constructed from A286 stainless steel. The staff further notes A286 stainless steel is subject to intergranular stress corrosion cracking in hot, high purity water environments containing some oxygen. An environment meeting these conditions may be present in the enclosures as a result of leakage of primary coolant past the valve body to bonnet gasket.

Article IWA 5241(a) of Section XI of the ASME Code requires that a visual examination of the external surfaces of pressure retaining components be conducted to identify evidence of leakage. The licensee has determined that to meet the requirements of this article, it is necessary to a) during each refueling outage, remove the seal cap from the affected valves to expose the pressure boundary; b) during each plant restart, with the enclosures removed, conduct the required inspection; and, c) either 1) leave the enclosure off; 2) reinstall the enclosure under Mode 3 conditions; or 3) conduct the inspection at Mode 3 and return the plant to Mode 5 to reinstall the enclosures. The licensee has concluded that option 1, leaving the seal cap off, is technically undesirable as it could result in future uncontained leakage. The licensee has

concluded that options 2 and 3 constitute a hardship due to heat exposure to personnel and extension of the outage. The NRC finds that the licensee's evaluation of these options is reasonable and that options 2 and 3 constitute a hardship.

In its request the licensee stated that during 2R16 (spring 2013), the top of the seal cap enclosure 2-1208-U6-037 will be removed and the bolts examined by VT-3 and UT. The licensee also stated that for the remaining 3 valves, access ports will be drilled into the enclosure and used to identify the presence of either past or present leakage into the enclosure. If such leakage is identified, the top of the enclosure will be removed and the bolts inspected using VT-3 and UT. The presence of water or boric acid, in any form, or in amount, on either the inside or outside surfaces of the enclosure, constitutes evidence of leakage into the enclosure.

In its evaluation of the licensee's request for approval of an alternative to ASME Code, Section XI, Article IWA 5241(a), the staff notes that the seal cap enclosures are designed to contain leakage past the body to bonnet gasket as long as the pressure retaining body to bonnet bolts remain intact. The staff further notes that the inspections planned will provide evidence that the bolts have not been exposed to environments which would lead to cracking or have not yet cracked as a result of exposure to that environment. Due to the relatively slow crack growth rate expected in A286 material exposed to this environment and the short interval planned until re-inspection, repair or replacement, the absence of detectable cracking during the current inspection provides reasonable assurance that bolt failure will not occur prior to the next scheduled inspection.

On the basis of the above evaluation, the NRC staff finds that the licensee has demonstrated that performing an ASME Code compliant pressure test and examination will result in a hardship. Additionally, the staff finds that the proposed alternative will provide reasonable assurance that the structural integrity and leak tightness of the check valves under consideration will be maintained. This indicates that the performance of an ASME Code compliant pressure test and examination does not result in a compensating increase in quality and safety when compared to the proposed alternative. The staff, therefore, finds that the acceptance criteria for the authorization of an alternative to the requirements of the ASME Code, as contained in 10 CFR 50.55a(a)(3)(ii), have been met.

#### **DORL Branch Chief (Robert Pascarelli)**

As set forth above, the NRC staff determines that the proposed alternative provides reasonable assurance of structural integrity and leak tightness of the subject valves and that complying with the specified requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(ii). Therefore, the NRC staff authorizes the licensee's proposed alternative, VEGP-ISI-ALT-09, at Vogtle Electric Generating Plant, Unit 2, until the end of refueling outage 2R16 (spring 2013). Authorization of the proposed alternative for an extended period of time, i.e., until such time as the components under consideration are repaired or replaced so as to make the pressure boundary available for inspections but not later than the end of refueling outages 1R19 (fall 2015) and 2R18 (spring 2016) will be addressed in the written safety evaluation prepared in response to this request.

All other ASME Code, Section XI requirements for which relief was not specifically requested and approved in this relief request remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

Date: March 15, 2013

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