

49-72-034

SOUTH CAROLINA ELECTRIC & GAS COMPANY

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E. H. CREWS, JR.  
VICE-PRESIDENT AND GROUP EXECUTIVE  
ENGINEERING AND CONSTRUCTION

October 24, 1979

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Mr. James P. O'Reilly  
U. S. Nuclear Regulatory Commission  
Region II, Suite 3100  
101 Marietta Street, N. W.  
Atlanta, Georgia 30303

Subject: Virgil C. Summer Nuclear Station  
Reported Items in Accordance  
with 10CFR50.55(e)

Dear Mr. O'Reilly:

On 9/12/79 your Mr. Jack Skolds was notified of a potential significant deficiency on the effects of oil on elastomeric materials used in ASCO NP-1 solenoid valves. This notification was followed by an interim report contained in a M. C. Johnson to James P. O'Reilly letter dated 9/27/79.

ASCO NP-1 solenoid valves are used in all BOP applications requiring Class 1E qualified solenoid valves. These NP-1 solenoid valves utilize ethylene propylene elastomers as standard. This ethylene propylene expands or swells when contacted by oil possibly causing the valve to fail. For this reason ASCO specifies these NP-1 solenoid valves for use in "oil free instrument air" systems.

Our instrument air system is oil free by design but our installation specifications (SP-139 and SP-216) specify the use of FEL-PRO N-1000 thread lubricant which uses an oil base. The potential exists for traces of this lubricant from threaded connections in the air system to contact the elastomers in the solenoid valves.

The problem was first identified by construction personnel who found a tag on an ASCO NP-1 solenoid valve which stated: "Important - this valve is equipped with ethylene propylene elastomers which can be attacked by oils and greases. To be used for oil free instrument quality air. Clean pipe threads of cutting oils."

Construction then requested guidance from the resident engineer (utilizing a request for clarification or information form) prior to proceeding further. Construction and Operations were directed to use other approved thread lubricants which do not contain oil for the installation of solenoid valves while this problem is being investigated.

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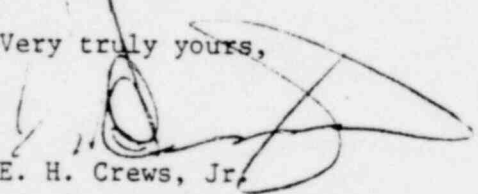
Upon further investigation it has been confirmed by ASCO that FEL-PRO N-1000 thread lubricant does effect the ethylene propylene elastomers, causing excessive swelling, material softness and within several days loss of tensile strength. The degraded elastomers can cause the solenoid valve to fail by sticking, swelling closed flow paths, or rupturing causing leakage across the seat or to atmosphere. Failure of the solenoid to function properly on an active valve could prevent a system from performing its required safety function, therefore we now consider this a reportable significant deficiency.

ASCO offers viton elastomers as an option for their NP-1 solenoid valves. The viton elastomers are not affected by oil or grease. Replacement kits of viton elastomers are available for the NP-1 solenoid valves from ASCO.

As corrective action, the elastomers in all Class 1E qualified ASCO NP-1 solenoid valves will be replaced with viton kits. Approximately 130 valve and damper actuators utilize one or more NP-1 solenoid valves. This replacement process will be complete by hot functional testing. Viton elastomers will be specified on all future orders for NP-1 solenoid valves and replacement parts.

Based on this status, SCE&G considers this report a final report for this item.

Very truly yours,

  
E. H. Crews, Jr.

SMC:EHC:rh

cc: Office of Inspection & Enforcement  
Washington, D. C.

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