From: David Fischer To: Gilbert Guerra Date: 5/24/04 4:20PM Subject: Fwd: Re: SOUTH TEXAS DESIGN CHANGE PACKAGE

Gil,

Thanks for the information. Attached is a note that documents EMEB/EEIB's review of STP's DCP. As you can see, there are some points we would like to discuss with the licensee. I will work with the licensing project manager here at headquarters to set up a conference call. We will set it up sometime when you are available to listen-in and/or participate, as you wish. As I understand your e-mail, the licensee has installed the Red Hat SOVs in the steam generator blowdown system sample line outside containment isolation valve(s). That is, downstream of penetration M-86 (i.e., FV-4186, -4187, -4188, and -4189). I am not sure but I suspect they are located in either the Isolation Valve Cubicle or in the Mechanical Auxiliary Building. At any rate, they are probably not located in the Turbine Generator Building as documented in the DCP and I don't recognize them from the list of applicable TPNS numbers in the DCP. We are obviously going to need to sort this out with the licensee (e.g., What environment were the safety-related valves designed to withstand and can the Red Hat SOVs reasonably stand up to it?). I will let you know when we are able to set up a conference call to discuss this with the licensee. Dave

>>> Gilbert Guerra 05/21/04 10:20AM >>> Dave,

I have found out that the licensee has installed these ASCO valves in the plant. How many? I don't have that number yet. But, they are installed on some of the steam generator blowdown containment isolation valves. It appears that the stroke time of the valves has increased, but within its design limits. I will ask for the DCP also, and with your findings/input would like to count this as one of our examples for a permanent plant modification review for the baseline inspection program. Please let me know what you find.

Thanks, Gilbert

>>> David Fischer 05/04/04 12:36PM >>> Gil,

This is just for your information.

At a conclusion of a March 23, 2004, public meeting between the NRC and South Texas Project licensee, Glenn Schinzel (STP) showed several NRC staff members a design change package (DCP) supporting the replacement of safety-related ASCO solenoid valves (SOVs) with ASCO's commercial "Red Hat" SOVs for certain specified SOVs that were categorized as low safety significant under their multi-part exemption. The DCP indicated that the Red Hat SOVs would meet certain environmental qualification design requirements based on a telephone call with someone at ASCO. Mr. Schinzel indicated that STP had already purchased about 50 Red Hat SOVs as replacements for safety-related SOVs, but said that he did not think any had actually been installed in the plant yet.

Back in August 2000, the staff and INEEL visited ASCO to get an understanding of the differences between ASCO's safety-related and commercial SOV product lines. During that visit, ASCO personnel indicated that Red Hat SOVs would not meet EQ requirements and could not be commercially dedicated (e.g., because of different coil design, elastomers used, and materials of construction). As documented in NUREG/CR-6752 "ASCO does not endorse or support ASCO commercial grade valves for use in safety related applications."

Right after our meeting with STP, I asked our Projects staff to get a copy of the ASCO SOV DCP "on the docket" so I could follow-up on the licensee's phone call with ASCO and make a better assessment of the risk significance of replacing the safety-related SOVs with commercial grade SOVs. I am still trying to get a copy of the DCP.

I will keep you posted on what I find out.

Regards, Dave Fischer

Quote from NUREG/CR-6752

2.5 ASCO Solenoid Valves

ASCO maintains a different product line for commercial and nuclear components. There are some significant differences in the construction of nuclear and commercial components. Examples include the use of heavier supports for nuclear seismic components, use of metal instead of plastic in nuclear components, the use of different elastomers, and the use of larger coils in solenoid valves used in nuclear applications.

The manufacturer can modify commercial solenoid valves without changing the model number. ASCO believes it would be difficult, if not impossible, to commercially dedicate their commercial solenoid valves for nuclear application due to the materials used and the variability in piece parts. ASCO personnel stated that they do not endorse or support the use of commercial May 24, 2004

Note To:	David Terao, Section Chief Component & Containment Reliability Section Mechanical Engineering Branch
From:	David C. Fischer, Senior Mechanical Engineer Component & Containment Reliability Section Mechanical Engineering Branch
Subject:	REPLACEMENT OF SAFETY-RELATED SOLENOID OPERATED VALVES WITH COMMERCIAL-GRADE SOLENOID OPERATED VALVES AT SOUTH TEXAS PROJECT

By letter dated May 12, 2004, South Texas Project Nuclear Operating Company (STPNOC) forwarded to the NRC Staff Design Change Package #01-19793-10 (Proprietary) and Document Change Notice #JD-885 (Proprietary). Both documents related to the purchase of commercial-grade ASCO solenoid valves (Catalog Number 212-633-1RVF) as replacements for certain low safety significant (LSS) safety-related seismic category 1 ASCO solenoid valves (Catalog Number 206-381-6RF) as allowed by STPNOC's approved multi-part exemption request.

According to the Design Change Package, the replacement solenoid operated valves (SOVs) will be located in the Turbine Generator Building (TGB). The TGB at South Texas Project (STP) is considered to be a harsh environment because it has an abnormal temperature of 147EF (upon loss of TGB HVAC for 24-hours, once each year). The TGB normal temperature is 110EF. The commercial-grade SOV (212-633-1RVF) is temperature rated for continuous operation at 125EF ambient air and 180EF process fluid. According to the Design Change Package, an ASCO engineer stated that 212-633-1RVF SOVs will operate in a temperature environment up to 160EF.

NRC staff review of these two documents found that STPNOC performed a reasonabe evaluation of the environmental and seismic capability of the replacement SOVs. However, the staff noted the following points:

- 1. The 212-633-1RVF commercial-grade SOVs are not qualified for use in the containment environment. The licensee needs to ensure that these SOVs are not used as replacements for SOVs located inside containment or in other locations where the environment might exceed their design capability.
- 2. The 212-633-1RVF commercial-grade SOVs purchased by STPNOC have solenoids with waterproof enclosures and the non-metalic parts inside the valves (e.g., seats and gaskets) are made of heat-resistant Viton. ASCO manufactures the same model number SOV with non-waterproof enclosures and with less heat-resistant Buna "N" seats and gaskets. STPNOC needs to ensure that only SOVs with waterproof enclosures and Viton elastomers are used in the TGB.

- 3. Commercial-grade SOVs manufactured by ASCO are not subject to the same quality controls as their safety-related SOVs. ASCO can substitute or replace materials and parts on their commercial grade SOVs without documenting the change and without changing the catalog number. The licensee needs to ensure that any purchased commercial grade SOVs are configured as represented in the Design Change Package.
- 4. The ASCO engineer referenced in the Design Change Package stated that maintaining the current preventive maintenance frequency that is applied to the 206-381-6RF (safety-related) SOV would be appropriate since the aging is related to temperature and the two valves are similar (presumably replacing the valves every 13 years). STPNOC will need to ensure that the LSS SOVs are adequately maintained (i.e., consistent with the vendor recommendation documented in the Design Change Package).
- 5. The Design Change Package does not address system performance attributes of the original and replacement SOVs. For example, the Design Change Package does not discuss the significance of the difference in flow coefficients.

We plan to discuss these points with the licensee during a telephone conference call. We will give the senior resident inspector and the Region the opportunity to participate in the call.

Staff reviewers:	David Fischer, EMEB 415-2728
	Thomas Scarbrough, EMEB 415-2794
	John Fair, EMEB 415-2759
	Paul Shemanski, EEIB 415-2766

cc: E. Imbro M. Webb R. Gramm G. Guerra, STP SRI M. Johnson, RIV EMEB R/F