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Ref: 10 CFR 50.54(f)

CPSES- 200302701
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December 18, 2003

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NOS. 50-445 AND 50-446
60 DAY RESPONSE REGARDING NRC BULLETIN 2003-02, "LEAKAGE FROM REACTOR PRESSURE VESSEL LOWER HEAD PENETRATIONS AND REACTOR COOLANT PRESSURE BOUNDARY INTEGRITY" AND REPORT ON RCS CONOSEAL LEAKAGE

REF: TXU Energy letter logged TXX-03163, from C. L. Terry to the NRC dated September 19, 2003.

Gentlemen:

In accordance with 10CFR50.54(f), attached is the TXU Generation Company LP (TXU Energy) 60-day response to U.S. Nuclear Regulatory Commission (NRC) Bulletin 2003-02, "Leakage from Reactor Pressure Vessel Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity" dated August 21, 2003. In addition, this response fulfills requirements of NRC Order EA-03-009, "Issuance of Order Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors" for reporting results of visual inspections to identify potential boric acid leaks from pressure-retaining components above the reactor pressure vessel head if a leak or boron deposit was found during the inspection.

During refueling outage 2RF07 in October 2003, bare metal visual inspections were performed of the upper and lower RPV heads of CPSES Unit 2. The inspection of the lower head was the first such inspection performed at CPSES since the unit went into commercial operation as reported previously in response to NRC Bulletin 2003-02 (referenced letter). The inspection of the upper head repeated the inspection completed during 2RF06.

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If you should have any questions regarding this submittal, please call Mr. J. D. Seawright at (254) 897-0140 (Email - jseawright@txu.com).

No new commitments are identified in this letter.

I state under penalty of perjury that the foregoing is true and correct.

Executed on December 18, 2003.

Sincerely,

TXU Generation Company LP

By: TXU Generation Management Company LLC,
Its General Partner

M. R. Blevins
Senior Vice President and Principal Nuclear Officer

By: Roger D. Walker
Roger D. Walker
Regulatory Affairs Manager

JDS/js
Attachment

c - B. S. Mallett, Region IV
W. D. Johnson, Region IV
M. C. Thadani, NRR
Resident Inspectors, CPSES

NRC Bulletin 2003-02 Required Action

Within 60 days of plant restart following the next inspection of the RPV lower head penetrations, the subject PWR addressees should submit to the NRC:

- a summary of the inspections performed,
- the extent of the inspections,
- the methods used,
- a description of the as-found condition of the lower head,
- any findings of relevant indications of through-wall leakage, and
- a summary of the disposition of any findings of boric acid deposits and any corrective actions taken as a result of indications found.

CPSES Response

In response to NRC Bulletin 2003-02, TXU Energy performed an inspection of the Unit 2 reactor vessel lower head penetrations on October 6 and 7, 2003. Below is a description of the inspection performed during the recently completed refueling outage for Comanche Peak Unit 2 and a summary of the observed condition of the reactor vessel lower head.

BMI Penetration Bare Metal Visual Inspection

A bare metal visual inspection covering 100% of the bottom mounted instrumentation (BMI) penetrations on the lower reactor pressure vessel (RPV) head was conducted for evidence indicative of potential BMI penetration leakage. The inspection was conducted via remote video camera delivered by robotic crawler but a partial direct visual inspection was also conducted in conjunction with equipment setup and removal. The camera's resolution was demonstrated as adequate to resolve relevant indications over the distances and general conditions encountered in the inspection. The crawler traversed the top surface of the lower RPV head reflective metallic insulation panels. From that vantage point, the annulus area where each tube emerges from the RPV lower head interface was clearly visible and readily inspected in quadrants to ensure 100% coverage.

The lower head was observed to be clean, exhibiting limited evidence of water flow from sources above the BMI penetrations. Such evidence consisted of a small number of inactive flow trails generally grouped in one segment of the vessel circumference and clearly traceable to an unidentified source well above the BMI penetration elevation. These flow trails deposited only a thin two-dimensional film of material as they dried and there was no discernable buildup of this material at any point on the lower RPV head or the BMI penetration tubing.

The lower head appeared to have been painted with a gray coating. A review of construction photographs clearly show both RPV bottom heads were black in color when they arrived on-site. However, while performing this BMI inspection, a distinct change in color of the reactor vessel was noted just outside the outer BMI penetrations with the upper vessel wall exhibiting a brownish-black color and the lower head exhibiting a generally gray color. Around the base of many penetrations there was an angular "ring" with a two-dimensional "hex nut" appearance

where the brownish-black color of the upper vessel appears to be exposed suggesting that the tubes were masked in preparation for coating application. A few tubes also had small generally horizontal streaks of gray that appeared as though a paintbrush had contacted the tube in a location where masking was inadequate or non-existent. Finally, in local areas the gray coating is peeling, particularly where the penetration numbers were handwritten on the lower head with some type of marker. However, the presence of the coating and its current condition neither impeded inspection of the BMI tubes nor reduced inspection effectiveness.

In summary, no indications of through-wall leakage were observed in any area of the lower head.

During the inspection, three specific tubes, #8, #44, and #55 were identified with small white marks located near the tube base. During the initial inspection, these marks were judged non-relevant but were noted for further investigation following completion of the initial crawler inspection. The marks on tubes #8 and #44 are similar in appearance and located near but physically separated from the tube annulus. These marks were investigated more closely with a second crawler attached magnetically (upside down) to the RPV lower head providing a view directly at the location along the RPV head surface.

These two marks clearly do not connect to the annulus and are two-dimensional in nature. They each have a well-defined shape with sharp, smooth edges but within these edges the marks are neither continuous nor solid. These features are more likely associated with some manual process and are not suggestive of a deposit emanating either from the penetration annulus or from a tight crack through the base metal. Industry experience has consistently demonstrated that leaks from the tight cracks observed in A600 type materials and from penetration tube annuli have definite three-dimensional, irregular geometrical characteristics and display an obvious association with the flaw location. These marks observed on tubes #8 and #44 do not display these characteristics.

Tube # 55 exhibited a collection of small, somewhat scattered, two-dimensional, and generally randomly shaped white marks in a band around approximately one half the circumference of the tube and within approximately two inches of the vessel head. The most notable portion of this location consists of two thin straight lines at right angles that are strongly suggestive of tape adhesive residue left on the tube. Although less regular than the well defined shape of the previous two locations described, these do individually exhibit geometric features such as straight edges that are also more indicative of creation by manual processes rather than an uncontrolled natural process.

Similar white marks were also present on other tubes but were further removed from the tube annulus area and were uniformly judged to be non-relevant. While the origin of the white marks is not explicitly known, they were dispositioned as non-relevant. This determination was based on the lack of characteristic three-dimensional features, the clear lack of connection to the annuli, and the general appearance of regular geometric features not typical of a naturally developing deposit from a pressurized leak.

In conclusion, as stated previously, no indications of through-wall leakage were observed in any area of the lower head.

NRC Order EA-03-009 Required Action

For each inspection required in Paragraph C [Bare metal visual examination of 100% of the RPV head surface], the Licensee shall submit a report detailing the inspection results within sixty (60) days after returning the plant to operation.

For each inspection required in Paragraph D [visual inspections to identify potential boric acid leaks from pressure-retaining components above the RPV head], the Licensee shall submit a report detailing the inspection results within sixty (60) days after returning the plant to operation if a leak or boron deposit was found during the inspection.

CPSES Response

In response to NRC Order EA-03-009, a description is provided below of the inspection results and as left conditions for Unit 2, Cycle 8 operation.

CRDM Penetration Bare Metal Visual Inspection

Although not required by NRC Order EA-03-009, TXU Energy voluntarily performed a second bare metal visual inspection of 100% of the Unit 2 reactor pressure vessel upper head. This inspection was conducted via video camera delivered by a remotely controlled crawler employing similar equipment and techniques as used for the baseline bare metal visual inspection conducted during the preceding refueling outage. Still images of the inspection areas from the baseline inspection were available for comparison and no relevant changes were identified.

Leak Inspection above the RPV Head

As part of the TXU Energy process for returning CPSES Unit 2 to operations from the recently completed refueling outage, a visual inspection of the pressure-retaining components above the reactor pressure vessel head was performed. During heatup a minor leak was observed emanating from the upper mechanical Conoseal joint on penetration #75 used for core exit thermocouple leads. The leak was identified early prior to any consequential accumulation of boric acid deposits and there was no transport of boric acid to the reactor pressure vessel head. The joint was tightened at normal operating temperature and pressure. TXU Energy determined through visual inspection of the joint that the leak had stopped. However, a conical catch containment was installed to impede such transport to the reactor pressure vessel head should the leak reinitiate. This location has been periodically monitored remotely via video camera since the return to power operation and no further evidence of leakage has been observed.