



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
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ARLINGTON, TEXAS 76011-8064**

July 5, 2002

EA-01-304

C. L. Terry, Senior Vice President  
and Principal Nuclear Officer  
TXU Energy  
ATTN: Regulatory Affairs  
Comanche Peak Steam Electric Station  
P.O. Box 1002  
Glen Rose, Texas 76043

**SUBJECT: NRC REVIEW OF FINAL SIGNIFICANCE DETERMINATION PROCESS  
APPEAL (NRC INSPECTION REPORT NO. 50-445/01-07; 50-446/01-07)**

Dear Mr. Terry:

On December 31, 2001, the NRC issued Inspection Report 50-445/01-07; 50-446/01-07, which documented an apparent White finding and Technical Specification 5.4.1.a violation. The issue was associated with 11 examples in which radioactive material was inadvertently released from the radiologically controlled area. On January 23, 2002, you presented your perspective on the apparent White finding and violation at a regulatory conference conducted in the NRC's Region IV office. On February 21, 2002, the NRC issued its final significance determination for the White finding and Notice of Violation (NOV). On March 6, 2002, following the issuance of the final significance determination and NOV, you appealed the characterization of the White finding.

In accordance with NRC Manual Chapter (MC) 0609, Attachment 2, the NRC has completed its review of the concerns raised in your March 6, 2002, letter. Specifically, the concerns are:

- Assertion that the examples cited by the NRC have minor safety significance and should have been screened out by the use of the Group 1 questions.
- Assertion that, contrary to the staff's assertion, there was not a potentially unmonitored pathway for the release of radioactive material to the public from the radiologically controlled areas at Comanche Peak Steam Electric Station. Instead, the amount of radioactivity involved was so minute it was not detected by the normal and acceptable methods of monitoring.
- Assertion that the cumulative total amount of radioactive material involved in the examples cited are not sufficient to warrant a WHITE finding under the Significance Determination Process (SDP) guidance in MC 0609, Appendix D.

- Assertion that the final significance does not agree with the clear wording of the SDP OBJECTIVE and BASIS statements in that the examples cited did not involve any release of radioactive material to an unrestricted area.
- Assertion that the NRC staff in Region IV appear to have assessed these examples at CPSES differently than similar events have been assessed in other Regions.

After careful consideration of your appeal, as paraphrased in Part B in the Enclosure, "Significance Determination Process Appeal Results," the NRC has concluded that: (1) 8 of the 11 examples were more than minor violations because they were either not isolated or your procedures and practices external to the radiologically controlled area were not sufficient to prevent an inadvertent release of radioactive material to an unrestricted area, (2) there was no basis for assuming that all items were adequately surveyed by radiation detection instrumentation before being released, and even if all items had been surveyed, there is no limit below which unconditional release of solid radioactive material is permitted by regulation, (3) the Public Radiation Safety SDP does not provide a minimum dose threshold for defining what cumulative dose is necessary to determine a White finding when more than five events are identified in an assessment period, (4) statements in the Public Radiation Safety SDP Objectives ("assess the *ability to prevent* [emphasis added] the inadvertent release of licensed radioactive materials to an unrestricted area"), and in the Public Radiation Safety SDP Basis ("*no minimum level* [emphasis added] of licensed radioactive material that can be disposed of in a manner other than radioactive waste...") indicated this portion of the SDP assesses the effectiveness of a licensee's ability to control radioactive material, and (5) NRC regional offices consistently concluded that the release of radioactive material from a radiologically controlled area was a more than minor violation.

Accordingly, the SDP Appeal Panel determined that there were no significant discrepancies in the staff's application of the Public Radiation Safety SDP. However, the appeal panel determined that the 3 examples involving your identification of radioactive material, through a search of modesty clothing bags, should have been considered minor violations. This determination was based on the implementation of additional controls (search of all modesty clothing bags) to provide reasonable assurance that items incorrectly released from the radiologically controlled area would not be inadvertently released to an unrestricted area. However, because there were more than five examples that were more than minor, the significance determination remains unchanged.

Should you continue to contest these conclusions, the guidance contained in Manual Chapter 0609, Attachment 2 applies, which specifies that, "there are no further appeal avenues, other than directly to the NRC Executive Director for Operations . . . ."

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Ellis W. Merschoff  
Regional Administrator

Enclosure: As stated

Docket Nos: 50-445, 50-446  
License Nos: NPF-87, NPF-89

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## ENCLOSURE

### PART A

#### **Summary-Significance Determination Process Appeal Results**

NRC Inspection Report 50-445/01-07; 50-446/01-07, issued December 31, 2001, documented an apparent finding involving the failure to perform proper radiological surveys to detect radioactivity that was not in accordance with technical specification required procedures. The finding was preliminarily determined to be White. The NRC assessed the finding documented in the inspection report using the Public Radiation Safety Significance Determination Process (SDP) and determined that the finding was appropriately characterized as a White finding. The Final Significance Determination for the White Finding and Notice of Violation was issued on February 21, 2002.

In a letter dated March 6, 2002, the licensee appealed the significance determination and provided its basis for the appeal. Following the guidance of Manual Chapter 0609, Attachment 2, Region IV established a panel to review the licensee's appeal. The SDP Appeal Panel consisted of Troy Pruett, Senior Reactor Analyst, Region IV; Larry Ricketson, Senior Health Physicist, Region IV; Steven Orth, Senior Health Physicist, Region III; Roger Pedersen, Senior Health Physicist, NRR; and David Nelson, Senior Enforcement Specialist, Office of Enforcement.

In summary, the appeal panel's consensus determination was that the staff correctly applied the Public Radiation Safety SDP for 8 of the 11 examples associated with the finding involving inadequate radiological surveys to detect radioactive material. In addition, the appeal panel's consensus determination was that the staff correctly determined that the overall significance of the finding was low to moderate (White). The appeal panel determined that the three examples involving the licensee's identification of radioactive material, through a search of modesty clothing bags, should have been considered minor violations. Accordingly, these three examples should not have been evaluated by the Public Radiation Safety SDP.

The licensee's arguments and the SDP Appeal Panel's evaluation are discussed in Part B of this Enclosure.

## PART B

### I. Background

The Comanche Peak Steam Electric Station (CPSES) Public Radiation Safety SDP Appeal Panel was established by Ellis W. Merschoff, Regional Administrator, NRC Region IV, by memorandum dated March 13, 2002. The appeal panel was established in response to the licensee's March 6, 2002, appeal of the NRC's February 21, 2002, final significance determination in a case involving 11 examples of inadequate radiological surveys to detect radioactive material. Mr. Merschoff's memorandum directed the appeal panel to review the licensee's arguments and available docketed information related to the specific application of the Public Radiation Safety SDP at CPSES.

### II Evaluation of TXU Energy's Arguments

In TXU Energy's letter dated March 6, 2002, the licensee stated that while a violation of requirements occurred, the examples cited by the NRC did not provide a sufficient basis for a White finding. The licensee provided the following five areas as the basis for the appeal of the White finding.

#### 1. **The examples cited by the NRC have minor safety significance and should have been screened out by the use of the Group 1 questions of the SDP.**

**Summary of TXU Energy's Argument:** The licensee specified that, "Using the guidance provided in 'Guidance for Classifying Violations as Minor Violations' (Borchardt 1999), TXU Energy believes that the examples are best characterized as minor issues and should not have been cited in the inspection report." The licensee indicated that each example was a minor violation because they were procedural implementation errors that had no actual safety consequences (the items contained only low levels of radioactivity and no member of the public was exposed to the items). The licensee also indicated that the examples were assessed in the aggregate versus individually and that the Public Radiation Safety SDP was evaluated before determining if the examples were more than minor violations.

**Appeal Panel's Evaluation:** The appeal panel concluded that certain licensee procedures and practices external to the radiologically controlled area should be credited for achieving control over the release of detectable radioactive material to unrestricted areas. These controls were evaluated during the appeal panel's determination of whether or not each example should be classified as a minor violation. The appeal panel determined that 3 of the 11 examples concerning the discovery of detectable radioactive material in modesty clothing bags should have been classified as minor violations. This is because the licensee had implemented additional controls (search of all modesty clothing bags) to provide reasonable assurance that items incorrectly released from the radiologically controlled area would not be inadvertently released to an unrestricted area.

The appeal panel concluded that each of the remaining 8 examples were more than minor violations because licensee procedures and practices external to the radiologically controlled area were not sufficient to prevent an inadvertent release of detectable radioactive material to an unrestricted area. For example, the licensee surveyed dumpsters weekly and daily during outages. However, no surveys to detect radioactive material were conducted just prior to the dumpsters being transported offsite. Therefore, there was no reasonable assurance that the licensee could have prevented the inadvertent release of detectable radioactive material to an unrestricted area. The appeal panel determined that the remaining examples had even fewer controls for the potential release of detectable radioactive material to unrestricted areas.

The appeal panel determined that the pertinent NRC Manual Chapter 0610\*, "Power Reactor Inspection Reports," Group 1 question, "Does the issue have an actual or credible impact on safety?" should have been answered "no" for the 3 examples involving the items found during searches of modesty clothing bags. In addition, the appeal panel's consensus determination was that each of the remaining 8 examples had a credible impact on safety in that the licensee's controls were not sufficient to prevent an inadvertent release of detectable radioactive material to an unrestricted area.

The September 29, 1999, Office of Enforcement memorandum, "Guidance for Classifying Violations as Minor Violations," specified that issues which represent isolated failures to implement a requirement and insignificant safety or regulatory impact should normally be categorized as minor violations. The appeal panel's consensus determination was that each of the 8 examples had a more than insignificant safety impact in that the licensee's controls were not sufficient to prevent an inadvertent release of detectable radioactive material to an unrestricted area.

2. **Contrary to the staff's assertion, there was not a potentially unmonitored pathway for the release of radioactive material to the public from the radiologically controlled areas at CPSES. Instead the amount of radioactivity involved was so minute it was not detected by the normal and acceptable methods of monitoring.**

**Summary of TXU Energy's Argument:** The licensee indicated that the finding should not be White because there was no potentially unmonitored pathway through which radioactive materials could reach the public. Specifically, there was no unmonitored pathway because the 11 items were surveyed before leaving the radiologically controlled area. In addition, only minute amounts of radioactive material, which were below the detection capability of the survey instrumentation, were released. The licensee determined that the quantity of radioactive material was minute because monitoring equipment met the detection capabilities of instrumentation described in NRC IE Circular 81-07, "Control of Radioactively Contaminated Material." The licensee also specified that the Public Radiation Safety SDP should use a threshold based on the substantial potential for exposure to a member of the public. Had this threshold

been utilized, then the cumulated dose from the released radioactive material would not have been significant.

**Appeal Panel's Evaluation:** The appeal panel determined that the licensee had not conducted a root cause analysis to determine why and how the detectable radioactive material was released from the radiologically controlled area. Therefore, there was no basis for assuming that all items were adequately surveyed by radiation detection instrumentation before being released. Using survey instrumentation with detection capabilities similar to instrumentation described in IE Circular 81-07 does not mitigate the significance of the release of solid radioactive material to the public domain because the circular established no regulatory limits for the release of radioactive material or the performance of radiation detection instrumentation.

The appeal panel evaluated the licensee's suggestion that the Public Radiation Safety SDP use a threshold based on the substantial potential for exposure to a member of the public. The appeal panel determined that the suggestion was not applicable to their evaluation; however, the staff should evaluate the licensee's suggestion that an increased threshold be used for determining the significance of a loss of the ability to control an item of radioactive material.

**3. The cumulative total amount of radioactive material involved in the examples cited are not sufficient to warrant a WHITE finding under the SDP guidance in IMC 0609, Appendix D.**

**Summary of TXU Energy's Argument:** The licensee specified that the NRC's Public Radiation Safety SDP provided specific dose comparability aspects in describing the greater than 5 occurrences decision criteria. Specifically, if there were more than 5 events in the assessment period where licensed radioactive material was released, there is a potential for the cumulative dose from the occurrences to be 0.005 rem TEDE or greater. The licensee believed that the cumulative hypothetical dose from items released from the radiologically controlled area could not result in a dose of the same order of magnitude as that stated in the Public Radiation Safety SDP. In particular, the licensee calculated a hypothetical dose of 0.0043 mrem TEDE from all of the 11 items. Therefore, the licensee contended that the items did not present a credible potential for the dose to be 0.005 rem TEDE and that the examples did not cumulatively represent a White finding.

**Appeal Panel's Evaluation:** The appeal panel determined that the Public Radiation Safety SDP did not provide a minimum dose threshold for defining what cumulative dose is necessary to determine a White finding when more than 5 events are identified in an assessment period. The Public Radiation Safety SDP clarifies the basis for combining events to develop a White finding; however, it does not impose a minimum absolute dose threshold. Therefore, more than 5 events that are not above 0.005 rem TEDE results in a White finding.

Even though the appeal panel successfully utilized the Public Radiation Safety SDP, the appeal panel recommends that the guidance in the Public Radiation Safety SDP regarding cumulative dose be clarified to obtain a better understanding of the document.

**4. Final significance does not agree with the clear wording of the SDP OBJECTIVE and BASIS statements in that the examples cited did not involve any release of radioactive materials to an unrestricted area.**

**Summary of TXU Energy's Argument:** The licensee referenced statements in the "Objectives" and "Basis" sections of the Public Radiation Safety SDP and concluded that radioactive material must be released to an unrestricted area before it is considered an occurrence that is evaluated by the Public Radiation Safety SDP. Because all of the radioactive material was identified in the restricted or controlled areas, the licensee contended that the staff: (1) incorrectly classified these events as occurrences, (2) considered factors not relevant to the Public Radiation Safety SDP in reaching a White finding, and (3) used a definition of unrestricted area that is different from the one given in 10 CFR Part 20.

**Appeal Panel's Evaluation:** The appeal panel reviewed the Public Radiation Safety SDP and reached a consensus determination that the licensee inappropriately concluded that detectable radioactive material must be released to an unrestricted area before it is considered an occurrence that is evaluated by the Public Radiation Safety SDP. The appeal panel's consensus determination of the statements in the Public Radiation Safety SDP Objectives ("*assess the ability to prevent* [emphasis added] the inadvertent release of licensed radioactive materials to an unrestricted area"), and in the Public Radiation Safety SDP Basis ("*no minimum level* [emphasis added] of licensed radioactive material that can be disposed of in a manner [sic] other than radioactive waste . . . ."), indicated this portion of the SDP assesses the effectiveness of the licensee's ability to control radioactive material. Each of the 11 examples represented a violation of the licensee's procedures for preventing the release of detectable radioactive material from a radiologically controlled area. The significance of such a failure is dependent on whether sufficient defense-in-depth controls existed to prevent the inadvertent release of detectable radioactive material from a licensee controlled area to an unrestricted area. The appeal panel's consensus determination was that for 8 of the 11 examples, the controls implemented by the licensee were not sufficient to prevent an inadvertent release of the items to an unrestricted area. Therefore, the appeal panel's consensus determination was that the staff appropriately implemented the existing Public Radiation Safety SDP for 8 of the 11 examples described in the finding.

Even though the appeal panel was able to reach a consensus determination, the appeal panel recommends that the staff clarify the existing guidance on the release of radioactive material to ensure a more consistent understanding of the Public Radiation Safety SDP.

**5. NRC staff in Region IV appears to have assessed these examples at CPSES differently than similar events have been assessed in other Regions.**

**Summary of TXU Energy's Argument:** The licensee stated that a comparison of inspection findings on the NRC website indicated that NRC Region IV had interpreted the Public Radiation Safety SDP differently and more stringently than other regions.

**Appeal Panel's Evaluation:** The panel reviewed each of the inspection reports referenced by the licensee. The panel determined that the NRC regional offices consistently concluded that the release of detectable radioactive material from a radiologically controlled area was a more than minor violation.

The panel noted that most of the examples were described in Section 4OA7, "Licensee Identified Violations," of the referenced inspection reports. Items described in Section 4OA7 do not require a detailed description of how the significance determination was made. Consequently, the panel concluded that insufficient information was provided in the referenced inspection reports to determine the basis for the significance determination.

The panel concluded that the Public Radiation Safety SDP did not provide explicit guidance on what constituted an occurrence. The panel's review of the referenced reports noted that the inappropriate release of multiple items of detectable radioactive material, which were documented in a single corrective action document, tended to be treated as one occurrence as opposed to several occurrences. In addition, the inspection reports did not indicate if the same or different causes were responsible for the inappropriate release of the radioactive material. Thus, the appeal panel recommends that the staff clarify the existing guidance regarding what constitutes an occurrence in the Public Radiation Safety SDP.

### **III Appeal Panel Recommendations**

The appeal panel recommends that the final significance determination remains unchanged.

The staff should evaluate the licensee's suggestion that the Public Radiation Safety SDP threshold for determining the significance of a loss of the ability to control an item of radioactive material be increased (Appeal Item 2).

The appeal panel recommends that the guidance in the Public Radiation Safety SDP regarding cumulative dose should be clarified to obtain a better understanding of the document (Appeal Item 3).

The appeal panel recommends that the staff clarify the existing guidance on the release of radioactive material to ensure a more consistent understanding of the Public Radiation Safety SDP (Appeal Item 4).

The staff should clarify the guidance regarding what constitutes an occurrence in the Public Radiation Safety SDP (Appeal Item 5).