



8005050 161 Q

bcc to DAC:AD
CENTRAL FILES
PDR:HQ
LPDR
TIC
NSIC
STATE

Public Service Company of Colorado
16805 Rd. 19 1/2, Platteville, Colorado 80651

February 15, 1980
Fort St. Vrain
Unit No. 1
P-80029

Mr. Karl V. Seyfrit, Director
Nuclear Regulatory Commission
Region IV
Office of Inspection and Enforcement
611 Ryan Plaza Drive
Suite 1000
Arlington, Texas 76012

Subject: Safety Related Piping System Audit

Reference: PSC Letter P-79161 dated Aug. 1, 1979
PSC Letter P-79198 dated Sept. 4, 1979
PSC Letter P-79238 dated Oct. 5, 1979
PSC Letter P-79292 dated Dec. 4, 1979
NRC Letter G-79210 dated Dec. 14, 1979

Dear Mr. Seyfrit:

This supplemental reply to I&E Bulletin 79-14 is to satisfy PSC's commitment in the October 15, 1979 letter (P-79238, attached) to report in summary form all discrepancies and corrective actions associated with our seismic review program. In addition, this letter is intended to supply additional information necessary to facilitate the NRC evaluation for further extension of PSC's completion date for this bulletin. The following paragraphs present the program status and the justification for PSC's request for an extension.

To date, 221 Class I isometric packages out of a total population of 589 have been audited of which 200 are sensitive system isometric packages. Sensitive systems are defined as those systems which must remain operable in order to protect the health and safety of the public in the event of an accident as defined in the FSAR, Design Basis Accident Number One. We anticipate completing the sensitive system audit in May, 1980 and completing the audit of the remaining seismic Class I systems in September, 1980. These estimated completion dates are based upon inclusion of the American Institute of Steel Construction (AISC) portion of the hanger structure as part of our field audit program as

defined in SDCC Procedure number 005. Experience has indicated that approximately 75 to 80% of the required audit time is associated with the AISC portion of the hanger support steel. This results from the need to confirm all physical measurements and configuration details pertinent to a given support. These details include verification of weld sizes and types, element lengths and material size and shape, orientation and nature of the attachment between the piping and the support, proper location and identification, plus any other details needed to properly represent the structure for analysis. Discrepancies found during the audit are being resolved, as outlined in SDCC Procedure #012, by returning the discrepant item to its originally intended configuration via a field audit craft action. The process of correcting any discrepancy is started as soon as it is identified by an auditor. Currently we have identified 437 discrepancies and have issued 270 craft actions to construction of which 155 are complete. The numerical difference between "identified discrepancies" and "issued craft actions" reflects the review and approval process required by the seismic program procedures. To date, the majority of craft actions resolve discrepancies in the AISC portion of the hanger structure.

The most common types of discrepancies are as follows:

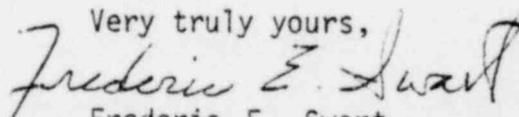
1. Repair of undersized welds.
2. Removal of non-documented attachments to the hanger structure.
3. Replacement of missing nuts, washers and shim plates.
4. Restoration of hanger structure to intended configuration.

NOTE: Table 1 contains a more detailed tabulation of audit discrepancies.

These types of discrepancies are similar to those found in PSC's sample audit completed in the latter part of 1979. The details of the sample audit have been presented in previous correspondence concerning this bulletin and discussed in several meetings with NRC I&E personnel. PSC has concluded from the sample audit that discrepancies between the as-built configuration and hanger documentation would occur on nearly every hanger, but as was demonstrated by the analysis performed on the sample audit discrepancies, the seismic design at Fort St. Vrain is so conservative that hanger discrepancies do not normally result in hanger stress criteria violation. In those instances in the sample audit when hangers were over stressed, the associated piping systems remain within FSAR allowable stress limitations with the over stressed hanger excluded from the piping analysis. As a result, it is PSC's conclusion that even though discrepancies exist, system operability is not in jeopardy.

Following the field audit and associated post audit drafting a 100% QA field verification of the as-built drawings is being performed to ensure that quality documents are being utilized for seismic evaluation. The QA verification of the audit results has progressed to the point where evaluation of the as-built drawings has just begun. This evaluation consists of 1) an analytical engineering evaluation of the piping so as to confirm the piping reactionary loads which are used in the hanger analysis and 2) an analytical engineering evaluation of the hanger when there is a change in the input loads or if a discrepancy exists between the pre-audit and post-audit documentation. This process is required to completely document the seismic acceptability of the Class I piping systems. Computerized analytical methods, which are consistent with the methods used in 10 inch and above piping at Fort St. Vrain, will be used to perform all analytical engineering piping evaluations. Although this represents a change from our previous position, it is necessary because the statements in our October 15, 1979 letter implied use of simplified methods for evaluating 10" and above piping when in fact it was intended to use the original computerized methods. Also minor variations from the simplified analysis technique can not be quantitatively evaluated for the assessment of seismic acceptability. To date the piping evaluation program has not identified any reportable occurrences, however, should any be identified PSC will follow the necessary Technical Specification action statements.

In summary, PSC's audit results to date indicate that Fort St. Vrain does not have a seismic Class I piping configuration problem. Our discrepancies are almost entirely concentrated in the AISC pipe supports. The majority of these discrepancies are minor in nature but will result in craft actions on approximately 90% of the Class I pipe supports. The inclusion of AISC pipe supports details has resulted in a program that is extensive but meets our interpretation of the intent of I&E Bulletin 79-14. PSC has chosen to proceed with our program as originally intended in that we continue to believe that the finished product is in the best interests of both the Commission and the Licensee. Our current project schedule has not changed in that we are projecting a project completion date of December, 1980 with a pessimistic completion date of March, 1981.

Very truly yours,

Frederic E. Swart
Nuclear Project Manager

LMM/RLC/scp

Attachment

TABLE 1
Craft Action Summary

<u>Discrepancy Type</u>	<u>Quantity</u>
1. Repair structural welds	117
2. Remove non-documented attachments from Class I structures.	93
3. Add shim plates	8
4. Modify U-bolt	29
5. U-bolt adjustment	55
6. Restoration of hanger structure to intended configuration	76
7. Install lugs/clips	23
8. Addition of nuts and washers	14
9. Install new hanger	8
10. Install clamps	13
11. Change anchor bolts	1
	437 Total