Commonwealth Edison
72 West Adams Street, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690 - 0767

October 2, 1989

Dr. Thomas E. Murley, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Quad Cities Station Units 1 and 2
Updated Final Safety Analysis Report
NRC Docket Nos. 50-254 and 50-265

References (a): Letter from T.M. Ross to T.J. Kovach dated June 7, 1989, transmitting Review of UFSAR Revisions 5 and 6.

(b): Letter from E.G. Greenman to Cordell Reed dated July 19, 1989, transmitting Inspection Report Nos. 50-254/89012 and 50-265/89012.

Dr. Murley:

Reference (a) transmitted the conclusion to the review of Revisions 5 and 6 to the Quad Cities Station Updated Final Safety Analysis Report (UFSAR). A response to the findings was requested. In addition, Reference (b) included an example of an error in the UFSAR which was discovered during a routine resident inspector's safety inspection. Region III requested that the response to the example cited be included in the response to Reference (a).

Attachment A provides an overview of the enhancements which are planned to improve the quality of UFSAR for Commonwealth Edison Nuclear Power Stations. Attachments B and C provide responses to the conclusion of the review and the findings contained in the enclosure to Reference (a). The response to the discrepancy described in Reference (b) is included in Attachment C.

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An extension to the response due date was requested and subsequently granted from the Quad Cities Project Manager

If there are any further questions or comments regarding this response please direct them to this office.

Very truly yours,

R. Stols
Nuclear Licensing Administrator

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Attachments

cc: A.B. Davis - Regional Administrator, Region III
T.M. Ross - Project Manager, NRR
R.M. Lerch - Region III
P R. Rescheske - Region III
R.L. Higgins - Senior Resident Inspector, Quad Cities

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ATTACHMENT A

OVERVIEW

In response to the June 7, 1989 letter from the NRC's Office of Nuclear Reactor Regulation, Quad Cities Station conducted a review of the FSAR Update process. The review revealed that enhancements to the FSAR Update program are warranted. The enhancements are described in the Attachment "B" responses.

The June 7, 1989 letter validated concerns which were identified by Commonwealth Edison during the conduct of self-initiated Safety System Functional Inspections (SSFI). Commonwealth Edison's findings regarding FSAR issues were presented at the March 23, 1989 meeting held at the Region III Office. In response to the concerns identified in the SSFIs, Commonwealth Edison was evaluating the feasability of Engineering assuming the responsibility of the update process and performing a comprehensive update for other Commonwealth Edison Stations, similar to that performed for Byron and Braidwood.

As a result of that evaluation and in response to the concerns identified in the June 7, 1989 letter, Commonwealth Edison is undertaking a program to rebaseline the UFSAR for Dresden, Quad Cities and Zion. The following provides a summary of the UFSAR Rebaseline Project:

Phase I: Rebaseline Planning

Phase I of the Rebaseline Project will establish the criteria, guidelines, procedures and processes for performing a detailed review and rewrite of the current Updated FSAR. Information resources (i.e., modifications and licensing correspondences) to be considered during the rebaseline will be identified. Phase I of the Project will also include a root cause analysis of the concerns identified with the current UFSARs, and incorporation of appropriate corrective actions in the Project procedures.

Phase I of the Rebaseline Project is currently underway and will be completed by January 31, 1990.

Phase II: Rebaseline Effort

Phase II of the Rebaseline Project begins with the review of the information resources identified in Phase I of the Project. Information that meets the criteria developed in Phase I will be included in the revised section of the UFSAR. Draft sections of the UFSAR rewrite will be routed to the Station and appropriate subject matter experts for review and comment.

The format of the rebaselined UFSAR will be consistent with Regulatory Guide 1.70; however, no new studies or calculations will be performed to augment the current licensing basis.

Finally, the Corporate Directive for the FSAR update process will be revised to incorporate the methodologies of the Rebaseline Project as well as include any lessons learned through the rebaseline process.

The schedule for completion of Phase II is tentatively planned for two years after the initiation of Phase II. The schedule will be finalized after the completion of Phase I which will determine the detailed scope of Phase II.

In the interim period, prior to completion of the rebaseline effort, the Corporate Directive on FSAR update requirements will be reviewed and revised to reflect the enhancements developed at Quad Cities. The revision will incorporate the guidance developed during Phase I of the Rebaseline Project. The revision to the Corporate Directive will be completed by March 31, 1990.

Finally, Quality Assurance will conduct an assessment of the FSAR update process for the 1989 update at each Commonwealth Edison Nuclear Station in 1990. This review will include the issues identified by the June 7, 1989 NRR letter.

ATTACHMENT B

RESPONSE TO THE CONCLUSIONS

CONCLUSION:

CECo failed to comply with the annual filing requirement of 10 CFR 50.71(E)(4); Revision 5 was issued five (5) months late.

RESPONSE

Based on the investigation conducted by Commonwealth Edison, the late filing of the 1987 update to the Quad Cities Final Safety Analysis Report is considered to be an isolated occurence.

During the 1987 timeframe, the Nuclear Licensing Department underwent a major Licensing Administrator turnover due to the serious illness of the Dresden/Quad Cities Licensing Administrator. A Quad Cities Licensing Administrator was named; however, turnover time was limited due to prolonged absences of the Dresden/Quad Cities Licensing Administrator. As a result of the limited turnover, the update was inadvertently filed five (5) months late.

A review of the Quad Cities Administrative procedure for updates to the UFSAR revealed adequate administrative controls are in place to assure the update is prepared and submitted to the Nuclear Licensing Department for submittal by June 30.

CONCLUSION

Since no summarized outline or description detailing the scope and context of the UFSAR changes was provided, it could not be determined that the UFSAR revision represented all facility changes completed no later than a maximum of 6 months prior to filing.

RESPONSE

The conclusion does not indicate that the regulations require a summarized outline or description detailing the scope and context of the UFSAR changes. Commonwealth Edison believes adequate controls exist to assure that the update represents facility changes completed no later than a maximum of 6 months prior to filing.

Quad Cities Station, however, does recognize the merit of including a summary of the changes with the annual FSAR update. Quad Cities Administrative Procedure for FSAR updates has been revised to require a summary of the changes involved with the update.

CONCLUSION

Changes made under the provisions of 10 CFR 50.59, but not previously submitted to the NRC, were not identified as required by 10 CFR 50.71(e)(2)(ii). If no such changes were made, this was indeterminate from the submitted UFSAR revisions.

RESPONSE

Quad Cities Station agrees that some changes performed under the provisions of 10 CFR 50.59 were not properly reported to the NRC. In the Fall of 1988, Quad Cities Station recognized that 10 CFR 50.59 changes were not consistently reported to the NRC for non-safety related items. Quad Cities Station took appropriate corrective action to prevent recurrence. Quad Cities has elected to include a description of all changes performed under the provisions of 10 CFR 50.59 in a report which is submitted to the NRC on approximately a monthly basis. This will ensure 10 CFR 50.59 changes are properly reported and avoid dual reporting of such changes under 10 CFR 50.71(e)(2)(ii).

A review of 10 CFR 50.59 changes performed during the period January 1, 1987 through December 31, 1988 will be conducted. 10 CFR 50.59 changes not previously reported to the NRC will be identified in a special report which will be submitted to the NRC in January, 1990.

CONCLUSION

Some applicable facility changes reported to the NRC in accordance with 10 CFR 50.59 were not incorporated in the UFSAR as required by 10 CFR 50.71(e).

RESPONSE

10 CFR 50.71(e) requires that all changes made in the facility or procedures as described in the FSAR be updated. In addition, the NRC provided guidance to the industry in December, 1980 indicating that the updates should be developed in the same detail as the original FSAR. The FSAR updates, therefore, include new additions to the plant configuration; however, for upgraded systems, Quad Cities has elected to maintain the detail of the original FSAR. Quad Cities Station believes that this philosophy is consistent with the NRC guidance as well as the regulations.

The Enclosure of the June 7, 1989 letter cites the example of the temperature monitoring system for the suppression pool as the basis for this conclusion. The specifics of the temperature monitoring system for the suppression pool were not discussed in the original FSAR and therefore since the upgraded temperature monitoring system provided an alternate method to implementing the FSAR discussion, it was determined that no further update was required.

Commonwealth Edison does recognize, however, that it may be desirable to include information, exceeding that required by the NRC, to augment the original FSAR contents. As part of the Rebaseline Project, a specification will be developed to include criteria delineating the information which should be included beyond that required by the regulations.

CONCLUSION:

Some changes incorporated in the UFSAR were not evaluated and/or reported in compliance with 10 CFR 50.59.

RESPONSE

Quad Cities Station agrees that some changes performed under the provisions of 10 CFR 50.59 were not properly reported to the NRC. In the Fall of 1988, Quad Cities recognized that only changes for safety related systems performed under the provisions of 10 CFR 50.59 were consistently reported to the NRC. Appropriate correction action to prevent recurrence was initiated and all 10 CFR 50.59 changes are currently being reported on a monthly basis

A review of 10 CFR 50.59 changes performed during the period January 1, 1987 through December 31, 1988 will be conducted. 10 CFR 50.59 changes not previously reported to the NRC will be identified in a special report which will be submitted to the NRC in January, 1990.

For the examples provided in the Enclosure of the June 7, 1989 letter, evaluations were verified to have been performed for the indicated modifications. Quad Cities Station believes that evaluations were performed for changes implemented under the provisions of 10 CFR 50.59. Adequate procedural controls are in place to ensure that evaluations are being performed.

CONCLUSION

Certain UFSAR changes require further clarification to achieve adequate consistency.

RESPONSE

Quad Cities Station concurs that the examples provided demonstrate that clarification of these sections in the UFSAR would enhance consistency.

During the UFSAR Rebaseline Project, the revised text to the UFSAR will be reviewed by a Technical Editor to assure consistency and quality of text.

CONCLUSION

Lists of all current pages, after replacement, were not provided to NRC for the UFSAR Figures and Appendices as required by 10 CFR 50.71(e)(1).

RESPONSE

Quad Cities Station concurs that a list of UFSAR Figures and Appendices is not currently included in the updated FSAR table of contents. A historical review of the table of contents was conducted to investigate the cause. The first FSAR update in 1982 had a table of contents which included a list of figures and appendices. Quad Cities Station believes that the list of appendices and figures were inadvertently omitted from the table of contents in 1985 during the entry of the table of contents into the word processor. Unfortunately, the omission was not identified.

The table of contents will be revised to include a listing of figures and appendices. The revised table of contents will be submitted by June 30, 1990 as part of the 1989 FSAR Update.

CONCLUSION

Some analyses performed by or on behalf of CECo, at the NRC's request for new safety issues were not included as part of the revisions to the UFSAR, as required by 10 CFR 50.71(e).

RESPONSE

Two examples were described as the basis for this conclusion:

a. Analysis of the boraflex degradation of storage racks in the Spent Fuel Pool, and

b. Analysis conducted to resolve safety issues associated with Embedment Plates and Piping Configuration.

Quad Cities Station concurs that the analysis of the boraflex degradation of the high density spent fuel racks was not properly reflected in the UFSAR. The text related to the high density spent fuel racks will be revised to reflect current plant configuration and reference the associated analysis. The revised section will be included in the January, 1990 submittal.

The issues associated with example (b) were identified by Commonwealth Edison and the analyses were not performed at the request of the NRC. The analysis was not updated in the UFSAR since the original analysis was not referenced in either the original FSAR or subsequent updates. Commonwealth Edison believed that this practice is consistent with the May, 1980 NRC guidance for the FSAR updates, i.e., the level of detail for the update should be at least the same as the original FSAR.

During the review of the administrative controls associated with the UFSAR, it was determined that adequate guidance was not contained in the UFSAR procedures. Commonwealth Edison recognizes that augmentation of information discussed in the original FSAR may be beneficial. As part of the Rebaseline Project a governing specification for the rebaseline of the UFSAR will include guidance as to whether of these types of analyses should be included in future updates.

ATTACHMENT C

RESPONSE TO EXAMPLES

EXAMPLE

Figure 3.2.11 was replaced with a new power-flow map. The discussion of the operating characteristics remained unchanged. The new figure used a 20% pump speed line, whereas, the discussion references a 30% pump speed line. This discrepancy should be clarified in subsequent FSAR revisions.

RESPONSE

Quad Cities Station concurs with this observation. Clarification of the FSAR update will be included in the special FSAR update submittal in January, 1990.

EXAMPLE

Section 7.9 describes the Rod Worth Minimizer (RWM). It appears that the RWM was replaced with a new system. The new RWM uses terms like sequence step, sequence array, and latched step. Although, the new terms are defined, some previous descriptions remained unchanged and reference terms from the old RWM, such as, rod group. The definition for the group was deleted in the revision and it is unclear as to whether this term can be used in describing the new RWM. The description appears to be inconsistent with the new RWM and should be clarified in a subsequent FSAR revision.

RESPONSE

Quad Cities Station concurs with this observation Clarification of the FSAR update will be included in the special UFSAR submittal in January, 1990.

EXAMPLE

Comparison of FSAR Table 7.7.3 and Technical Specification Table 3.7-1 (primary containment isolation groupings) identified discrepancies in the group descriptions. This was not due to an FSAR update. It appears that the TS should be revised to reflect the current description.

RESPONSE

FSAR Table 7.7.3 contains a description of six primary containment isolations while the TS Table 3.7-1 contains only five. The isolation which is not listed in the TS Table is the isolation associated with the Atmospheric Containment Air Dilution System (ACAD). The ACAD isolation was added to the UFSAR to reflect current plant configuration; however, NRC approval of the design was not granted. The purpose of the ACAD system was to provide an acceptable alternative to inerting the containment. Following TMI, the NRC ordered all Mark I containments to have inerted containments. The ACAD isolation was therefore not included in the Technical Specifications since approval of the design was not received. The ACAD system is deenergized and the valves which constitute primary containment isolation are closed. There is no automatic initiation signal for the ACAD system. At this time, Commonwealth Edison does not intend to include the ACAD system in the Technical Specifications.

FSAR Table 7.7.3 also contains a description of the high drywell radiation Group II isolation which is not contained in the Technical Specification. Quad Cities Station had previously identified this omission and a Technical Specification change is currently being developed. The Technical Specification change will be submitted to the NRC Staff by December 31, 1989.

EXAMPLE

FSAR Table 7.7.2 was revised to change terms (e.g., steamline high rad changed to hi-hi) and setpoints (e.g., DW hi rad changed from 2000 R/hr to 100 R/hr). No basis (i.e., 50.59 safety evaluation) could be found for these changes.

RESPONSE

The use of "steam line hi-hi rad" instead of "steam line high rad" more clearly distinguishes the instrument setpoint versus the instrument alarm setpoint for the main steam line isolation. This was evaluated to be an administrative change and merely provided clarification to the text. No change to the actual main steam line high radiation alarm or main steam line isolation setpoint was involved.

The setpoint change for the drywell high radiation isolation was determined to be a conservative change. A safety evaluation was performed but not reported under the provisions of 10 CFR 50.59. The evaluation will be included in the 10 CFR 50.59 Report which will be submitted in January, 1990.

EXAMPLE

a) Section 2 ".e was changed to reflect a modification to the Sodium Hypochlorite storage tank. This tank is used for water chlorination of the circulating water and service water systems. The modification changed the underground 30,000 gallon tank to an above ground 6,000 gallon tank. Documents reviewed for information regarding this modification included the monthly operating reports, correspondence, annual reports and performance reports for 1986 and 1987. A 10 CFR 50.59 evaluation or reference to the existance of one was not found.

b) A 10 CFR 50.59 evaluation or reference to the existence of one was not found for the modification to the RWM discussed above in item two.

RESPONSE

Quad Cities Station has verified that 10 CFR 50.59 evaluations were performed for the modifications discussed in these examples. The modifications to these systems were classified as non safety related. As indicated in Attachment A, in 1988, Quad Cities Station recognized that non safety related 10 CFR 50.59 evaluations were not consistently reported to the NRC. These modifications will be reported in the special 10 CFR 50.59 change report which will be submitted by January, 1990.

EXAMPLE

Modification M-4-2-81-24 (Suppression Pool Temperature Monitoring System) reported in compliance with 10 CFR 50.59 by letter dated December 1, 1986, from R. Robey (NRC) to E. Case (NRC) was not described within the UFSAR.

RESPONSE

As discussed in Attachment B, the original FSAR only discussed suppression pool temperature monitoring and did not discuss the specific of the monitoring device. Since there was no change to the original FSAR and the level of detail of the UFSAR should be consistent with that of the original FSAR, this modification was not included in the update to the FSAR.

The inclusion of this modification in the updated FSAR will be determined during the review of modifications based on the criteria established during the Rebaseline Project.

EXAMPLE

UFSAR Table 6.7.1 "Design Low Level Solution Volume" of 3470 gallons does not correspond with the minimum required Technical Specification tank volume of 3733.

RESPONSE

The amount of Standby Liquid Control solution required is directly dependent on the concentration of boron. The value contained in the FSAR update reflects the amount of boron required to be delivered to the reactor for shutdown at a concentration of 13.4% boron. If the boron concentration increased to 14% the amount required is reduced to 3321 gallons.

The Technical Specification value (3733) includes consideration of the pump suction point. The Technical Specification tank volume requirements is such that 3321 gallons of solution is delivered to the reactor prior to loss of pump suction . The tank and pump suction is configured such that some solution remains after the pump suction is lost.

The text associated with the SLC tank volumes contained in the update to the FSAR will be clarified to include the discussion above. The revised text will be included in the January, 1990 update to the FSAR.

EXAMPLE

Operating modes of the Reactor Water Cleanup System (UFSAR Section 10.3.3.1) were revised without any apparent 10 CFR 50.59 evaluation.

An Additional offsite 345 KV power line (UFSAR Section 8) was connected to the switchyard ring bus without any apparent 10 CFR 50.59 evaluation.

RESPONSE

Quad Cities Station has verified that 10 CFR 50.59 evaluations were performed for the above referenced modifications. As discussed in Attachment A, Quad Cities Station recognized that non-safety related modifications were not consistently reported to the NRC. A special report containing the non-safety related 10 CFR 50.59 evaluations will be submitted to the NRC by January, 1990.

EXAMPLE

a) Analysis of boraflex degradation of storage racks in the Spent Fuel Pool that constituted configuration change: and reductions in the subcriticality margin were not addressed in the UFSAR.

b) Analysis conducted to resolve safety issues associated with Embedment Plates and Piping Configuration Control were not addressed in the UFSAR.

RESPONSE

Quad Cities Station concurs that the boraflex degradation of the spent fuel storage racks was not properly incorporated into the UFSAR. The appropriate text will be revised and submitted to the NRC in the FSAR January, 1990 update.

As discussed in Attachment A, the analyses associated with the embedment plate and piping configuration issues were not updated since the original analyses were not included in the original FSAR or the updated FSAR. The analyses performed were licensee initiated upon discovery of discrepancies.

A review to determine if the embedment plate and piping configuration analyses should be included in the UFSAR will be included in the re-baseline process. Criteria for inclusion of analyses will be developed during Phase I of the Rebaseline Program and will be included in the March, 1990 revision to the Corporate Directive.

UNRESOLVED ITEM (254/89012-03;265/89012-03)

An additional example of a discrepancy is the UFSAR Table 5.2.5 which states that the power to close valves 1601-21, 22, 23, 24, 56, and 60 is a spring. The actual power to close these valves is air.

RESPONSE

Quad Cities Station concurs that Table 5.2.5 "Principle Penetrations of Primary Containment and Associated Isolations Valves" does not accurately describe the closing power source. The UFSAR Table indicates that the power to close for these valves is a spring; however, the actual closing power is air.

A review was conducted to ascertain how the incorrect information was incorporated into the updated FSAR. The review revealed that the incorrect power mechanism, i.e., spring closure, was reflected in the original FSAR. The original design specification for these valves indicated that "each air cylinder valve operator shall be provided with a locally stored energy source (spring or pressure accumulator) for the fail close operation". The root cause for the introduction of the incorrect information in the original FSAR could not be determined.

A review of Table 5.2.5 "Principle Penetrations of Primary Containment and Associated Isolations Valves" has been conducted to assure that primary containment valves with stored energy sources are accurately reflected in the updated FSAR. The revision to this Table 5.2.5 will be included in the January, 1990 special update to the FSAR. During Phase II of the Rebaseline Project, the draft sections of UFSAR will be verified by Quad Cities Station personnel to assure accurate information is contained.