

07/10/84

SSER

Task: Allegations *A-302; A-307; A-303b; A-306s; A-306x

Reference Nos.: 4-84-A-06/180; 4-84-A-06/185; 4-84-A-06/181b;
4-84-A-06/184s & x

Characterization: The allegation is that lower tier corrective action documents were not being upgraded to NCRs. Also, FCRs, DCNs, and EDNs were issued after-the-fact for nonconformances in lieu of NCRs.

Assessment of Allegation: The implied significance of this allegation is that without proper identification of nonconformances, the proper disposition, timely corrective action, determination of root causes and actions to prevent recurrences cannot be taken; that quality trending cannot be accomplished; and that the requirement of 10 CFR 50 for the reporting of Construction Deficiencies (50.55(e)), cannot occur without the identification provided in an NCR.

This allegation was addressed by an NRC staff review of selected Field Change Requests (FCRs), Design Change Notices (DCNs), and Engineering Deficiency Notices (EDNs). The methodology used in this evaluation included an evaluation of random FCRs, DCNs, and EDNs for the Reactor Coolant, Safety Injection, and Component Cooling Water Systems. Additionally, FCRs, DCNs, and EDNs were selected at random and evaluated from the various document issuance logs. The selected design change documents were then reviewed for content and for the basis of issuance; that is, for whether they were issued "before-the-fact," as a design change or "after-the-fact," as a nonconformance report. Finally, the staff conducted a system walkdown to verify proper identification and change control completion. The NRC staff also reviewed Tompkins-Beckwith Discrepancy Notices (DNs) for proper review and upgrading to Ebasco Nonconformance Reports (NCRs). This review was conducted by selecting DRs from the DR log and the QA records vault. The NRC staff also reviewed Request For Information (RFI) records and responses to those requests. (See Allegation A-187.) The following is a summary of the NRC review.

Field Change Requests (FCRs)

The NRC staff reviewed 63 FCRs and 21 revisions to those FCRs. Of the 63 FCRs reviewed, 35 should have been NCRs (55%). An additional four may have reflected conditions that warranted an NCR, for a total of 39 (61%). Ebasco procedure ASP-I-4, Design Control dated June 7, 1983, states in paragraph 6.1.4, "FCRs shall not be generated in place of nonconformance reports." The practice of issuing FCRs in lieu of NCRs not only occurred in the past but continued during the staff review, as in the following examples:

1. F-MP-1818 (May 25, 1984). Miscellaneous piping; incorrect weld rod was used; the weld was removed and replaced with correct material.
Contractor - T-B.
2. F-AS-3698 (January 6, 1984). Reactor Coolant (RC) Pipe Seismic Support; bolts and embed documentation changed to reflect as-built.
Contractor - NISCO.
3. F-AS-3648 (December 2, 1983). Miscellaneous pipe supports; changed drawings to reflect as-built embed plate size and weld size.
Contractor not indicated.
4. F-AS-2338 (February 2, 1982). RC supports; unacceptable weld gap between beam and embed, because embed was cut too short; disposition was to change design; seismic review may be required.
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5. F-MP-1434 (February 8, 1981). RC spool piece installed backwards in pipe chase; disposition was to leave as installed.
Contractor unknown.

6. F-AS-1631 (December 20, 1979), and Revision 1 (October 10, 1980). Reactor Coolant pipe support. "Despite many attempts at repair and rewelding, these welds continue to crack." Design changed. Contractor - NISCO.
7. F-E-3089 (June 21, 1983). Combustion Engineers (CE) supplied enclosures on Reactor Coolant pump speed sensor pulse amplifiers. The enclosures were replaced with a different enclosure but without CE concurrence. FCE was issued to replace the enclosure gasket with a "qualified" gasket. The gasket was installed on unapproved housing and was noted to be high in chlorine content. The housings were installed without seismic or environmental qualifications. Apparently CE discovered the change during a system walkdown. Contractor - NISCO.
8. F-MP-2138 (September 26, 1982). Replaced broken 1-inch valves (cracked seats) in the RC system. Contractor - T-B.
9. F-MP-2151 (October 1, 1982). Replaced a valve because it would not hold pressure for cold hydrostatic test in the RC system. Contractor T-B.
10. F-E-2288 (August 14, 1981). Five cables were pulled through wrong conduit. The corrective action was to change documentation; that is, to reflect cable routing as-built, in lieu of correct routing. Contractor - Fischbach & Moore.

Design Change Notices (DCNs)

The NRC staff reviewed 14 DCNs and 5 revisions to those DCNs; of the 14 DCNs reviewed 4 should have been NCRs (29%). The misuse of DCN, although not as prevalent as the FCR misuse, is a serious problem due to the fact that the NCR system was circumvented and adequate corrective action was not taken. The DCN

system allows the option for the QA review to be determined by Engineering, consequently most of the DCNs were not reviewed by QA. A proper review by QA could have turned DCNs into NCRs, as in the following examples:

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DCN-ME-30, Revision 1 (May 5, 1983). Stated "Revise solenoid model to document As-Built." The NRC could not determine what was actually installed.
4. DCN-E-790 (February 8, 1982). Revised a cable routing list to reflect as-built conditions.

Engineering Discrepancy Notices (EDNs)

The NRC staff reviewed 76 EDNs for proper identification and control. An additional 35 were identified as being improperly "voided" and 1 was noted open with no action ever taken. Of the 76 reviewed, 51 should have been NCRs. Of the total 5 were turned into NCRs, the balance of 46 (60%) should have been NCRs. Additionally 3 EDNs were identified non-safety related that should have been safety related. The 46 EDNs, which should have been NCRs, plus the 14 safety-related EDNs of those incorrectly voided, yield a total of 66% which should have been NCRs, or which were improperly processed. The 35 EDNs "voided" were the result of actions by a clerk via a "speedy-memo" because these 35 EDNs could not be located; they were in effect lost. In accordance with section 6.3.2 of Ebasco procedure ASP-IV-70, Handling of Engineering Discrepancy Notices, "EDNs that are safety-related shall be forwarded to the Quality Assurance Supervisor for his concurrence...and upgrading to an NCR if required..." Since the site engineering group determined what EDNs were routed to QA for this review process, and many were not forwarded to QA, part of the system breakdown appears to have occurred in this area. Also there is no objective evidence that the QA Supervisor reviewed all safety-related EDNs forwarded to him, which accounted for the remaining part of the breakdown. There is also no method in the procedure to void EDNs.

The following examples are evidence of misuse of EDNs in lieu of NCRs:

1. EDN-EC-1476 (September 6, 1983). Stated "Weld No. W101 on Whip Restraint R-BD-2-R23, for System 19-16, that the MT or PT on the weld root pass was bypassed." The disposition was "use-as-is" based on acceptable UT.
2. EDN-E-1548 (November 19, 1983). Stated "Safety related cable was damaged." The disposition was to repair. The approval of the corrective action and reinspection was signed by the same individual. The signatures were later crossed-out and replaced with initials. The approval and reinspection are both indeterminate. Also the signatures were made by an engineer, not by a qualified inspector.

3. EDN-EC-1502 (October 5, 1983). Stated " Control room and control panel conduit was not installed per the drawing requirements." The disposition was to issue an FCR to change the drawings.
4. EDN-EC-1479 (September 8, 1983). Stated " A snubber was installed, RCSR-4167 (Reactor Coolant), as a seismic Category 1 and safety classification 1. The snubber was procured on a purchase order as non-safety related (total number ordered on this purchase order was 4)." The disposition was "Install the snubber as received. QA records to review documentation to verify snubbers are acceptable as safety-related items. If documentation does not support safety related requirements, Ebasco Purchasing Department is to obtain documentation from the vendor." This EDN was later voided by a speed memo with no explanation provided. Documents attached to this EDN included Bergen Patterson C of C dated May 4, 1982, certifying hangers "7738-02 and 7838-03 Random Short Form" were manufactured in accordance with B31.1. Also attached was the Bergen Patterson Bill of Lading stating "Inspection Not Required, Standard Travel Stops, CMTR not Required, Project - Nuclear Plant." Status of these snubbers was indeterminate.
5. Thirty-Five (35) voided EDNs - The voiding was accomplished via a speed-memo; 14 of the voided EDNs were identified as safety related. The following chronology outlines this issue:
 - o September 20, 1983 - The Ebasco Construction Administrative Engineer issued a memorandum distributed to 28 individuals stating that "the attached list identifies EDN numbers assigned to you for which we have not received the original EDN for distribution. This is an indication that EDNs have not been written or have been voided." He further states that unless his department received information regarding the EDNs by October 1, 1983, they would be voided.

- o October 27, 1983 - Later the Administrative Engineer issued an additional memorandum stating all EDNs with the exception of those on the page 2 of the attached list (containing 36 EDNs) had been clarified.
- o December 12, 1983 - An engineering clerk, issued a speed-memo to QA Records (Supervisor) stating 35 EDNs were "voided." The clerk had previously received a memorandum from the Administrative Engineer "voiding" the EDNs.

The Administrative Engineer was interviewed by the NRC during the week of April 21, 1984, and he indicated that no one made any effort to review the EDNs for content or safety implication of required corrective action prior to voiding them. Examples of the voided EDNs were as follows:

1. EDN-EC-0630 (October 21, 1982). Stated "Inadequate drainage at -35' elevation floor in the RAB - Reactor Auxiliary Building."
2. EDN-EC-1175 and EDN-EC-1176 (March 18, 1983). Stated "Material on Hold" and "QC Volume AGW QC.1"; the specifics of these EDNs are unknown.

It should be noted that these EDNs were initiated by the Ebasco General Material Administrator who was interviewed and indicated that he had no knowledge of opening any EDNs. Both EDNs were safety related.

3. EDN-EC-1140 (March 2, 1983). Stated "Operators for valves 3FW-V-607A and 6CD-V343 are installed on the opposite valves." Although the EDN was closed, the actual installation was not verified or was incorrectly verified. The NRC inspection of these valves revealed the following:
 - o Valve 6CD-V343 has the operator tagged and identified on the name plate as 3FW-V605B.

- o Valve 3FW-V607A has the operator tagged and identified on the name plate as 6CD-V348. An additional tag was also noted attached to the operator identifying it as 6CD-V348.

Although the EDN only identifies problems with two valves, four valves were actually involved.

Tompkins-Beckwith (T-B) Discrepancy Notices (DNs)

The NRC staff reviewed procedure TBP-12, Nonconformances and Discrepancies, that states in section 6.2 "DNs are required to be upgraded to Ebasco NCRs when the following criteria applies..." (as defined in section 4.1).

Nonconformance - A deficiency in characteristic, documentation or procedure which renders the quality of an item or service unacceptable or indeterminate. Examples of a Nonconformance include: physical defects, test failures, incorrect or inadequate documentation; or deviation from prescribed inspection or test procedures, drawings, Code and Contract requirements.

The NRC review revealed that T-B failed to upgrade DN's as required. The following DN's are examples that fall into this category:

W-6519 The DN was written identifying that a torque required by the flange control record was outside the range of the torque wrench. The disposition stated that an adapter was used but this was not required. Also, it states "accept-as-is" because of the successful hydrostatic test. This does not answer the question of the torque values. The problem is that the bolts were over torqued. This DN should be upgraded to an NCR because of the incorrect documentation and because the quality of the flange is indeterminate. Service conditions were not reviewed for impact.

W-6183, These DN's were written against a torque wrench being used outside of
W-6322, its calibrated range. The disposition stated that the torque wrench
W-6519 was not required because the Code only requires all bolts to be tightened
equally. This does not resolve the problem of the torque wrench use.
The bolts used to make up the flange still have torque requirements
and the question of under torquing has not been resolved. An NCR
covering the torque value of all flanges that have been improperly
torqued should have been issued.

W-3656 Identified a problem with the incorrect heat number being used for
Weld FWII RWIR-1. The disposition of this DN appeared to be invalid
because not all of the disposition required items were addressed;
i.e., the attachments did not show corrected rod slip or the
QC-accepted heat number change on the weld record.

W-5755 This DN identified a problem with the heat number for filler material.
This DN was dispositioned without a justification for the actions
taken. The action taken was changing the heat number on a rod slip
because it was stated to be a clerical error.

W-742 Loss of power to ovens for an unknown length of time. The
disposition was to bring the ovens back to the hold temperature for
eight hours prior to issuance of weld rod. This was a generic
problem and a Code violation because the rod or wire was not rebaked
as required (see allegation A-215).

W-5917 The DN was issued on a heat number problem for filler material.
(See concerns for W-3656 and W-5755 for disposition.) Also, there
was no evidence that the weld record was corrected or that the QC
inspector's failure to note the filler heat number problem, if in
fact it was incorrect.

W-381 Identified the problem that welds were being painted prior to the final visual inspection. The recommended disposition was to comply with Ebasco letter F-33795-E. There was no evidence that the reinspection was performed utilizing the initial inspection criteria. An inspection through paint was unacceptable under ASME and AWS Code requirements. Closure appeared to be invalid.

The following additional DN's should have been upgraded to NCR's:

W-1876, W-5824, W-4112, W-5047, W-5692, W-5416, W-6243, W-5916, W-381, W-6349, W-2105 and W-728.

Note: There appeared to be a systemic problem with heat numbers being entered incorrectly or clerical error being made on rod slips. Examples are W-5824, W-3656, W-4648, W-4968 and W-728. A DN, NCR or CAR was not issued to prevent recurrence.

Request For Information (RFI) or Information Requests (IRs)

The NRC staff also reviewed the various forms of Request for Information and how those requests were resolved; that is, via a clarification, a Nonconformance Report (NCR), a design change, a Field Change Request (FCR) or a Design Change Notice (DCN). The staff conducted the following review by contractor:

NISCO

The NRC staff reviewed the actions taken by Ebasco engineering to resolve 38 selected RFIs. This review was to determine if the response to the RFI was a clarification, an NCR, or an FCR. The NRC staff also reviewed the supporting documentation for work, repair, use-as-is, or the design change. The RFI document was utilized as a tool to correct problems, but it was not issued as a method to resolve design problems. The RFI did make reference to the document used to resolve the problem. The staff review revealed that the actions taken were correct and that the quality records were complete and technically adequate.

Tompkins-Beckwith (T-B)

The NRC staff reviewed the actions taken by Ebasco Engineering to resolve Information Requests (IRs). A sample of 20 IRs were selected from the Ebasco Engineering files. The review revealed that Ebasco responded to the request by clarification (referring to appropriate drawing revision or specification/procedural requirement), NCR, DN, FCR, or DCN. This provided direction to T-B on how to proceed. Design information was not provided on this document; rather to the referenced document containing the required information.

In conclusion, the NRC staff found that the QA program requirements for nonconformance identification, control, and proper corrective action was not complied with. The design change control system was incorrectly substituted to report "after-the-fact" nonconformances and T-B DNs were not properly upgraded to NCRs. Additionally, the QA program was, in effect, circumvented, and the required review for 10 CFR 50.55(e) reportability was not accomplished.

Potential Violations: Misuse of the corrective action system is a violation of 10 CFR 50, Appendix B, Criterion XV and XVI and 10 CFR 50.55(e), Reporting of Construction Deficiencies.

Actions Required: See Item No. 4 of the enclosure to the D. Eisenhower letter to J. M. Cain dated June 13, 1984.

References

1. Ebasco Procedure, ASP-I-4, Design Control.
2. Ebasco Procedure, ASP-IV-73, Processing of Design changes in ESSE.
3. Ebasco Procedure, ASP-IV-70, Handling of Engineering Discrepancy Notices.
4. Ebasco Procedure, ASP-IV-122, Site Control and Processing of Defects/Non-Compliance Conditions to LP&L.
5. Ebasco Procedure, ASP IV-56, Control of Information Request Between Ebasco and Site Contractors.
6. Tompkins-Beckwith (T-B) Procedures:
TBP-17, Design Changes and Field Revisions.
TBP-12, Nonconformances and Discrepancies.
7. NISCO Procedure, Field Information Change Request Procedure.
8. Memorandum dated September 20, 1983, Mr. R. E. Greenwell to Distribution.
9. Memorandum dated October 27, 1983, Mr. R. E. Greenwell to Distribution.
10. Speed-memo dated December 12, 1983, Mr. M. Lambert to L. Lubinski.
11. Speed letter D. McCorkle to J. Tompeck, no date, File No. 0043.

NOTE: All procedure reviews included all revisions.

Statement Prepared By: _____
R. E. Farrell _____ Date

Statement Prepared By: _____
J. J. Harrison _____ Date

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It should be noted that these EDNs were initiated by the Ebasco General Material Administrator who was interviewed and indicated that he had no knowledge of opening any EDNs. Both EDNs were safety related.

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 - o Valve 6CD-V343 has the operator tagged and identified on the name plate as 3FW-V605B.

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Tompkins-Beckwith (T-B) Discrepancy Notices (DNs)

The NRC staff reviewed procedure TBP-12, Nonconformances and Discrepancies, that states in section 6.2 "DNs are required to be upgraded to Ebasco NCRs when the following criteria applies..." (as defined in section 4.1).

Nonconformance - A deficiency in characteristic, documentation or procedure which renders the quality of an item or service unacceptable or indeterminate. Examples of a Nonconformance include: physical defects, test failures, incorrect or inadequate documentation; or deviation from prescribed inspection or test procedures, drawings, Code and Contract requirements.

The NRC review revealed that T-B failed to upgrade DN's as required. The following DN's are examples that fall into this category:

W-6519 The DN was written identifying that a torque required by the flange control record was outside the range of the torque wrench. The disposition stated that an adapter was used but this was not required. Also, it states "accept-as-is" because of the successful hydrostatic test. This does not answer the question of the torque values. The problem is that the bolts were over torqued. This DN should be upgraded to an NCR because of the incorrect documentation and because the quality of the flange is indeterminate. Service conditions were not reviewed for impact.

W-6183, These DN's were written against a torque wrench being used outside of
W-6322, its calibrated range. The disposition stated that the torque wrench
W-6519 was not required because the Code only requires all bolts to be tightened
equally. This does not resolve the problem of the torque wrench use.
The bolts used to make up the flange still have torque requirements
and the question of under torquing has not been resolved. An NCR
covering the torque value of all flanges that have been improperly
torqued should have been issued.

W-3656 Identified a problem with the incorrect heat number being used for
Weld FWII RWIR-1. The disposition of this DN appeared to be invalid
because not all of the disposition required items were addressed;
i.e., the attachments did not show corrected rod slip or the
QC-accepted heat number change on the weld record.

W-5755 This DN identified a problem with the heat number for filler material.
This DN was dispositioned without a justification for the actions
taken. The action taken was changing the heat number on a rod slip
because it was stated to be a clerical error.

W-742 Loss of power to ovens for an unknown length of time. The
disposition was to bring the ovens back to the hold temperature for
eight hours prior to issuance of weld rod. This was a generic
problem and a Code violation because the rod or wire was not rebaked
as required (see allegation A-215).

W-5917 The DN was issued on a heat number problem for filler material.
(See concerns for W-3656 and W-5755 for disposition.) Also, there
was no evidence that the weld record was corrected or that the QC
inspector's failure to note the filler heat number problem, if in
fact it was incorrect.

W-381 Identified the problem that welds were being painted prior to the final visual inspection. The recommended disposition was to comply with Ebasco letter F-33795-E. There was no evidence that the reinspection was performed utilizing the initial inspection criteria. An inspection through paint was unacceptable under ASME and AWS Code requirements. Closure appeared to be invalid.

The following additional DNs should have been upgraded to NCRs:

W-1876, W-5824, W-4112, W-5047, W-5692, W-5416, W-6243, W-5916, W-381, W-6349, W-2105 and W-728.

Note: There appeared to be a generic problem with heat numbers being entered incorrectly or clerical errors being made on rod slips. Examples are W-5824, W-3656, W-4648, W-4968 and W-4969. A DN, NCR or CAR was not issued to prevent recurrence.

Request For Information (RFI) or Information Requests (IRs)

The NRC staff also reviewed the various forms of Request for Information and how those requests were resolved; that is, via a clarification, a Nonconformance Report (NCR), a design change, a Field Change Request (FCR) or a Design Change Notice (DCN). The staff conducted the following review by contractor:

NISCO

The NRC staff reviewed the actions taken by Ebasco engineering to resolve 38 selected RFIs. This review was to determine if the response to the RFI was a clarification, an NCR, or an FCR. The NRC staff also reviewed the supporting documentation for work, repair, use-as-is, or the design change. The RFI document was utilized as a tool to correct problems, but it was not issued as a method to resolve design problems. The RFI did make reference to the document used to resolve the problem. The staff review revealed that the actions taken were correct and that the quality records were complete and technically adequate.

Tompkins-Beckwith (T-B)

The NRC staff reviewed the actions taken by Ebasco Engineering to resolve Information Requests (IRs). A sample of 20 IRs were selected from the Ebasco Engineering files. The review revealed that Ebasco responded to the request by clarification (referring to appropriate drawing revision or specification/procedural requirement), NCR, DN, FCR, or DCN. This provided direction to T-B on how to proceed. Design information was not provided on this document; rather to the referenced document containing the required information.

In conclusion, the NRC staff found that the QA program requirements for nonconformance identification, control, and proper corrective action was not complied with. The design change control system was incorrectly substituted to report "after-the-fact" nonconformances and T-B DNs were not properly upgraded to NCRs. Additionally, the QA program was, in effect, circumvented, and the required review for 10 CFR 50.55(e) reportability was not accomplished.

Potential Violations: Misuse of the corrective action system is a violation of 10 CFR 50, Appendix B, Criterion XV and XVI and 10 CFR 50.55(e), Reporting of Construction Deficiencies.

Actions Required: See Item No. 4 of the enclosure to the D. Eisenhower letter to J. M. Cain dated June 13, 1984.

References

1. Ebasco Procedure, ASP-I-4, Design Control.
2. Ebasco Procedure, ASP-IV-73, Processing of Design changes in ESSE.
3. Ebasco Procedure, ASP-IV-70, Handling of Engineering Discrepancy Notices.
4. Ebasco Procedure, ASP-IV-122, Site Control and Processing of Defects/Non-Compliance Conditions to LP&L.
5. Ebasco Procedure, ASP IV-56, Control of Information Request Between Ebasco and Site Contractors.
6. Tompkins-Beckwith (T-B) Procedures:

TBP-17, Design Changes and Field Revisions.
TBP-12, Nonconformances and Discrepancies.
7. NISCO Procedure, Field Information Change Request Procedure.
8. Memorandum dated September 20, 1983, Mr. R. E. Greenwell to Distribution.
9. Memorandum dated October 27, 1983, Mr. R. E. Greenwell to Distribution.
10. Speed-memo dated December 12, 1983, Mr. M. Lambert to L. Lubinski.
11. Speed letter D. McCorkle to J. Tompeck, no date, File No. 0043.

NOTE: All procedure reviews included all revisions.

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