

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-454/85011(DRS); 50-455/85008(DRS)

Docket Nos. 50-454; 50-455

License Nos. NPF-37; CPPR-131

Licensee: Commonwealth Edison Company
P. O. Box 767
Chicago, IL 60690

Facility Name: Byron Station, Units 1 and 2

Inspection At: Byron Site, Byron, IL
Sargent & Lundy, Chicago, IL

Inspection Conducted: March 18-21, 25-27, April 3-4, 9-11, 16-19, 22-23,
May 15-16, 28, and July 1-3, 16-17, 1985

Inspectors: *J. Jacobson*
J. Jacobson

8/5/85
Date

D. Jones
D. Jones

8/5/85
Date

D. Danielson
for K. Ward

8/2/85
Date

J. Muffett
J. Muffett

8/2/85
Date

Approved By: *D. Danielson*
D. Danielson, Chief
Materials and Processes Section

8/2/85
Date

Inspection Summary

Special Inspection on March 18-21, 25-27, April 3-4, 9-11, 16-19, 22-23,
May 15-16, 28, and July 1-3, 16-17, 1985 (Report Nos. 50-454/85011(DRS);
50-455/85008(DRS))

Areas Inspected: Special inspection by regional inspectors of construction
allegations. The inspection involved a total of 221 onsite inspector-hours
and 97 offsite inspector-hours by four NRC inspectors.

Results: Two violations were identified (two examples of failure to control
special processes - Paragraphs 2.p and 2.z; failure to promptly identify and
correct conditions adverse to quality - Paragraph 2.hh).

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DETAILS

1. Persons Contacted

a. Commonwealth Edison Company (CECo)

- *G. Sorenson, Project Construction Manager
- *R. Klingler, Project QC Supervisor
- *M. Lohmann, Assistant Construction Superintendent
- *R. Tuetken, Startup Superintendent
- *K. Hansing, Director of QA
- *R. Moravec, Project Mechanical Supervisor
- *E. Briette, QA Engineer
- *T. Hibst, QA Engineer
- *S. Stimac, QA Engineer
- *M. Dellabetta, QA Engineer

b. Reliable Sheet Metal Works (RSM)

- *R. Irish, Corporate QA Manager
- *R. Bambach, Project Superintendent

The inspectors also contacted and interviewed other licensee and contractor employees.

*Denotes those attending the exit meeting on May 16, 1985.

2. Allegation Followup (RIII-84-A-0178)

The allegations addressed in the following paragraphs were extracted from the transcript of an NRC Region III staff interview of an individual who was previously employed as a Quality Assurance Auditor by Reliable Sheet Metal (RSM). RSM is the heating, ventilation and air conditioning (HVAC) contractor for Commonwealth Edison Company (CECo) at the Byron Nuclear Station.

There are several references in this inspection report to a "100% reinspection effort." In September 17, 1982, the licensee placed a stop work order on RSM due to inadequate inspection procedures and the "100% reinspection effort" was subsequently completed by the licensee and RSM of all installed HVAC ductwork, hangers, and accessories. For additional details on the "100% reinspection effort" refer to Inspection Report Nos. 50-454/84-06; 50-455/84-05.

a. Allegation

(Closed) Associate auditors were not qualified to ANSI N45.2.23 and performed final documentation review audits in the same capacity as auditors.

NRC Review

The NRC inspector reviewed RSM procedure No. 6A, "Training and Certification of Site Q.A./Q.C. Personnel," Revision 6, dated September 15, 1983, and ANSI N45.2.23-1978. Procedurally, associate auditors were authorized to perform the same activity as auditors in the area of final documentation review.

RSM qualified and certified the associated auditors in accordance with RSM Procedure 6A, Paragraph 5.6 which complies with the requirements of ANSI N45.2.23-1978, Paragraph 2.2. The area of assignment for associate auditors is further specified in the certification, such as, associate auditor/final documentation review and acceptance. The NRC inspector reviewed the personnel certification and qualification records of all the QA associate auditors employed by RSM, and determined that the associate auditors met the qualification requirements for the job descriptions and functions they were allowed to perform. No evidence of improper qualification was noted.

Conclusion

This allegation could not be substantiated in that associate auditors were found to be qualified, in accordance with ANSI N45.2.23, to perform final documentation review.

b. Allegation

(Closed) Auditor A was not properly qualified.

NRC Review

The NRC inspector reviewed the personnel certification and qualification records of Auditor A. These records revealed that Auditor A met the educational, experience and training requirements for the job description and function the auditor was performing. Auditor A was qualified as a formal program auditor/final review coordinator per the requirements of RSM Procedure No. 6A, Revision 6, "Training and Certification of Site QA/QC personnel," which is in accordance with ANSI N45.2.6 (1978). No evidence of improper qualification was noted.

Conclusion

This allegation could not be substantiated in that Auditor A was found to be properly qualified in accordance with the RSM approved procedure.

c. Allegation

(Closed) RSM QA manual does not assign job responsibilities per 10 CFR 50 Appendix B.

NRC Review

The NRC inspector reviewed RSM's QA manual and determined that although detailed job duties were not described general responsibilities were outlined.

Conclusion

This allegation could not be substantiated. Although each specific detailed task an individual was required to perform was not described in the RSM QA Manual, general duties and responsibilities were outlined in sufficient detail to satisfy 10 CFR 50, Appendix B, Criterion I requirements.

d. Allegation

(Closed) Partial work releases were authorized on safety-related systems during the stop work order that was initiated in September 1982.

NRC Review

Two examples given by the allegor of systems which were partially released were the Control Room (VC) and Diesel-Generator Room Ventilation (VD) systems.

The NRC inspector reviewed documents concerning the RSM stop work order and partial release requests of the order. The documentation revealed that work was performed on the VC and VD systems. CECO had properly granted RSM a partial release, in accordance with CECO criteria, of the stop work order for these systems before the entire order had been lifted.

Conclusion

This allegation was substantiated. While the allegation that work was performed on safety-related systems during the stop work order is correct, work was only performed on those systems properly released under partial releases of the stop work order.

e. Allegation

(Open) Material with incomplete Certified Material Test Reports (CMTR) was used (i.e., missing tensile strength and missing coating designation).

NRC Review

Deficiencies concerning actual physical test results not being reported on CMTRs was identified in 1983 by CECO QA. RSM NCR No. 83-32 was issued to document the issue. Although it goes beyond standard industry practice, actual test results were required for sheet steel by the S&L Project Specification for HVAC. To resolve

the issue for installed material, a sample of heat numbers of materials already fabricated and installed was selected by S&L for testing. The test results indicated that physical properties exceeded the minimum requirements in all cases. Sargent and Lundy accepted the resolution of the issue as "use-as-is" based on the test results. Subsequently, all material received without physical test results was sent to a laboratory for testing before release for production.

CECo Audit No. 6-85-201 conducted on April 22 and 23, 1985, addressed material certifications for both structural and sheet steel used by RSM. This audit verified that either physical test results were available or the lack of test results had previously been identified on an NCR. Therefore, the corrective action taken to resolve missing tensile strength results was considered adequate.

CECo Audit No. 6-85-201 also found that certification for the galvanized coating of structural steel to ASTM A123 was not available onsite. Further, the audit found that certification for the coating of sheet steel to ASTM A525, G90 was not available for approximately 30% of the sheet steel. During the audit, RSM stated that some of the missing documentation may be on file in the RSM corporate office. Nonconformance Report No. 97 was initiated by RSM to resolve this deficiency.

Conclusion

This allegation was substantiated in that documentation for the galvanized coating on structural and sheet steel was not available onsite. Pending RSM's resolution of NCR No. 97 and a review of that resolution by the NRC inspector, this is considered an open item (454/85011-01(DRS)).

f. Allegation

(Closed) Replacement control room ventilation dampers were released to the field that were supposed to be on hold.

NRC Review

Nine balancing dampers for the control room ventilation system were fabricated by RSM in lieu of purchasing the dampers from the designated vendor. The designated vendor, American Warming Ventilation, was aware of RSM's intent to fabricate these dampers and had no objections.

The dampers were installed and inspected, and RSM Shop NCR No. 83-22 was initiated (May 17, 1983) to document fabrication discrepancies. At the time the NCR was initiated, a CECO surveillance (No. 4520, dated April 27, 1983) being conducted also found documentation deficiencies concerning RSM Shop inspections. In view of these RSM and CECO findings, RSM made a decision to fabricate replacement dampers.

The nine replacement dampers were received on site, inspected on October 7, 1983 by CECQ QA, and placed on "hold" due to a weld detailed on the drawing not being included in the fabrication. These dampers were released to the field for installation per a telephone memo dated October 25, 1983, from C. Nagel (CECQ QA) to R. Irish (RSM QA) when it was found that the additional weld detail did not apply to this job.

Conclusion

This allegation could not be substantiated in that the replacement control room ventilation dampers were properly released to the field after being put on hold.

g. Allegation

(Closed) Receipt inspections were performed by unqualified inspectors and subsequently signed off and released by qualified individuals.

NRC Review

The NRC inspector reviewed the qualification records of two receipt inspectors and one ex-receipt inspector, and interviewed one receipt inspector and one ex-receipt inspector out of a total of three that were certified by RSM under the current program. The qualification records revealed that the receipt inspectors were qualified for their positions per RSM Procedure No. 6A, "Training and Certification Of Site QA/QC Personnel." The interviews revealed that a preliminary receipt inspection may be performed by a trainee or other uncertified individual to satisfy experience requirements prior to certification, but that a certified receipt inspector would perform the receipt inspection prior to releasing the item.

Conclusion

This allegation was substantiated in that some receipt inspections were performed initially by inspectors not fully qualified; however, a qualified receipt inspector would follow-up and inspect the items before signing off and releasing them.

h. Allegation

(Closed) Welder coupon material is not properly received and identifiable.

NRC Review

The NRC inspector reviewed RSM Procedures No. 9, Revision 7, "Field Material Receiving And Inspection," No. 30, Revisions 0 and 1, "Control Of Construction Processes," and field receipt inspection checklists (RSM Form 9-1, Revisions 1 and 2). The NRC inspector also interviewed RSM associate auditors and others, and inspected welder coupon material for traceability and material control.

Review of RSM procedures and field receipt inspection checklists revealed that RSM has a program for the receipt and identification of welder coupon material. The interview with the RSM associate auditors and NRC inspection of welder coupon material for traceability and material control revealed that RSM's program is fully implemented. Other interviews revealed that prior to the implementation of RSM's present program, coupon material would be cut from stock in the field and was possibly utilized without transferring the heat number marking. This method of control is consistent with the general industry practice of identifying test material at the time of use and is sufficient to assure that the proper materials are utilized for welder qualification.

Conclusion

This allegation could not be substantiated in that the control of welder test coupon material was found to be adequate to assure that the materials used for qualification were identifiable.

i. Allegation

(Closed) Unit 1 stainless steel filter housings near the South Purge System elevation 451-459 were patch welded without removing welds.

NRC Review

Unit 1 Filter Housings were visually inspected by the NRC inspector from elevation 451 to 467. No evidence of patch welding was found.

Conclusion

This allegation could not be substantiated.

j. Allegation

(Closed) Auxiliary building filter housings contain transverse cracks which were welded over.

NRC Review

Due to modifications, some filter openings were blanked off with patch plates. The stainless steel welds attaching the plates were inspected by RSM and base metal cracks on the side opposite the welds were found. Also, the welds attaching the filter racks to the angle supports were found by RSM to have base metal cracks on the side opposite the weld. Reliable Sheet Metal NCR No. 55 (initiated August 22, 1983, and closed July 31, 1984) was issued to document repairs.

Early attempts to repair the cracks were made by welding over the cracks. This was a reasonable approach due to the thinness of the stainless steel material. This approach, however, was not successful due to additional cracking occurring during the repairs. In the case

of the blank off plates, the cutouts were enlarged to remove the cracked base metal and new plates were installed using improved welding techniques. The attachments of the filter racks to angle supports were removed and similar repairs made using larger angle iron members.

Field Change Requests were used to document the repair instructions. The following inspection/repair packages were reviewed by the NRC inspector: OVA06FC, OVA05FC, OVA04FF and OVA06FF. The following filter compartments were entered and repairs examined by the NRC inspector: 05FI, 04FI and 09FB. All documentation, corrective action and final repairs were found to be acceptable.

Conclusion

This allegation was substantiated; however, adequate corrective action had been taken by RSM prior to the NRC review.

k. Allegation

(Closed) Welds were added to a penetration assembly without any drawings or approvals (Discrepancy Report No. 1073).

NRC Review

Discrepancy Report No. 1073 was issued on July 8, 1983, to document that a fabrication ticket could not be located for penetration VA441. (It was not recognized that this is a seismically designed, nonsafety-related penetration and therefore did not require a fab ticket.) To correct this matter, angle and welds were removed, reinstalled and documented. The penetration was examined by the NRC inspector and compared to the detail drawing. The 3½" angle required by the drawing was found to have been replaced with 4" angle per FCR 17562. One inch corner welds were observed on the penetration. These welds were placed due to an interpretation of the weld spacing requirements on the drawings by the RSM weld inspector.

Conclusion

This allegation was substantiated in that at the insistence of the RSM weld inspector the welder added additional welds on the corners. This welding was found to meet the requirements of the drawing.

l. Allegation

(Closed) Missing horizontal welds were dispositioned by an NCR as inaccessible; however, they are accessible (Discrepancy Report No. 2103).

NRC Review

Discrepancy Report No. 802 was issued April 6, 1983 on Hanger H-2200 to document weld deficiencies such as weld size, lack of fusion, a missing weld, and improper hanger member size (i.e., 1½" angle was used instead of 2"). The resolution was to "remove the existing hanger and reinstall per the design drawings." The reinstallation was completed and reinspected. This reinspection resulted in DR 2103 (initiated June 2, 1983, and closed August 9, 1983) and DR 2820 (initiated August 3, 1983, and closed August 12, 1983) being issued documenting weld deficiencies including an unacceptable three sided connection. The DR resolution was to "rework the deficient welds and provide documentation." The required rework was performed and reinspected. The unacceptable three sided connection was accepted as a two sided connection per S&L Drawing M 1261, sheet 13. All other deficiencies were corrected and documented. The NRC inspector examined the hanger and found it acceptable.

Conclusion

This allegation could not be substantiated in that no NCR was issued indicating the acceptance of missing welds due to accessibility problems.

m. Allegation

(Closed) Elbow M-1285-2-9 on drawing 1285 has cracks and has not been repaired.

NRC Review

A cracking problem due to fatigue was identified by RSM with turning vane installations in duct elbows. This problem was first identified in the Auxiliary Building Ventilation (OVA) system (Drawing 1317, sheet 2, elbow 2) on elevation 451' near the South Purge System area. During operation, vibration of the turning vane caused fatigue cracks to develop. Sargent & Lundy issued ECN 2447 dated February 22, 1982, modifying the installation to alleviate the vibration problem. Leading and trailing edges of the turning vane as well as the tie rod connections were modified and repaired. During this 1982 time frame, S&L determined that a problem with additional turning vane installations might exist. Drawing 1320, sheet 12 was subsequently issued to modify all suspect elbow turning vane installations.

Elbow M-1285-2-9 in the Switchgear Ventilation (VX) system was renumbered for modification purposes as M-1286-1-7. This particular elbow was modified before operation and therefore was found not cracked when the modification took place since the cracking was attributed to vibration during operation.

The NRC inspectors visually examined both of the elbows noted above and found no evidence of cracking.

Conclusion

This allegation could not be substantiated in that a cracking problem with elbows was identified and acceptable repairs were made. Furthermore, elbow M-1285-2-9 was modified before operation and did not exhibit cracking.

n. Allegation

(Closed) Nonconformance reports do not accurately describe the actual hardware condition, with respect to corrective action taken.

NRC Review

The NRC inspector reviewed the 12 closed NCRs that were identified by the allegor as being in question, related documentation, and performed a visual inspection of the affected hardware.

The NCR review revealed that the 12 NCRs were properly closed and that nine of the 12 NCRs had been 100% reinspected subsequent to the closure of the NCR. The three NCRs that were not covered by the 100% reinspection involved hardware items that were dispositioned to "remove and replace" for closure.

The visual inspection by the NRC inspector of the affected hardware revealed that the dispositions of the NCRs had been properly completed.

Conclusion

This allegation could not be substantiated in that the corrective action taken for the closure of the NCR was verified by the inspector to accurately reflect the disposition of the NCR.

o. Allegation

(Closed) Welds were buffed and blended instead of being removed and replaced (NCR No. 56).

NRC Review

Discrepancy reports were initiated between February and May 1983 to identify missing documentation for silicon bronze welding and were dispositioned to "rework and provide documentation." The intent was to remove existing welds lacking documentation and replace with new welds. Because the extent of rework was not clearly stated, not all welds were completely removed. To resolve this problem, RSM NCR No. 56 was written on September 6, 1983, and closed March 20, 1984. A field investigation was performed by RSM during May 1983 on all DRs that had been reworked due to lack of documentation. As a result of this investigation, RSM concluded that 43 hangers had questionable rework. Those 43 hangers were subsequently properly reworked and documented.

During this time frame S&L approved an alternative to complete weld removal and replacement. This alternative was documented on ECN 4206 (April 13, 1983) and FCR 15690 (March 28, 1983) and consisted of adding new welds and leaving the old welds in place provided no visual discontinuities existed. Often the old welds were buffed and blended to achieve visual acceptability. After May 23, 1983, the 100% reinspection effort would have identified any additional missing documentation problems. These problems would have been dealt with by complete weld removal or by using the alternate method. Both methods were acceptable.

Hangers 014, 004, 1671 and 002 (list by allegor) were visually inspected by the NRC inspector and documentation packages reviewed. All were found acceptable.

Conclusion

This allegation was substantiated in that some welds were buffed, blended and left in place; however, the issuance of RSM NCR No. 56 effectively addressed the problem and acceptable corrective action was taken.

p. Allegation

(Closed) No procedure for welding preheat exists. Also, the weld procedures do not address preheat.

NRC Review

RSM welding procedures dated prior to August 1982 did not address preheat as required by AWS D1.1 and the current welding procedures do not address the AWS D1.1 required 150° F preheat for members with thickness greater than 1½" up to 2½". RSM has welded to structural steel members in this thickness range. In accordance with AWS D1.1, exclusion of an essential variable such as preheat requires qualification of the welding procedures. Since the welding procedures were not qualified, RSM initiated NCR No. 93 as a result of this NRC inspection to resolve the deficiency by qualifying the procedures. NCR No. 93 was closed by RSM on June 24, 1985, following successful qualification of the procedures.

Conclusion

The allegation was substantiated. The licensee was informed that failure to assure compliance of special process procedures with governing codes and standards is an example of a violation of Criterion IX of 10 CFR 50 Appendix B (454/85011-02(a)(DRS)).

q. Allegation

(Closed) Vendor drawings and Duct Construction Manuals were not maintained as required by ANSI N45.2.9-1974. Also, vendor drawings used for installation were not approved by the AE.

NRC Review

The NRC inspector reviewed RSM QA surveillance reports, vendor drawings, Duct Construction Manuals, RSM Procedure No. 14, "Collection, Storage And Maintenance Of Quality Assurance Records," and interviewed the RSM document control coordinator.

Review of RSM QA Surveillance Reports QAS-017, QAS-032 and QAS-065 revealed that the Duct Construction Manuals were under surveillance to insure that they were updated and properly maintained. The RSM document control coordinator indicated that at the beginning of the revised QA Program (September 1982) there had been problems encountered with updating and distributing the Duct Construction Manuals but these problems were resolved by the revised QA Program.

The vendor drawings for fan units and dampers were reviewed by the NRC inspector and were found to have been approved by the AE. The interviews revealed that the vendor drawings were not used as an installation drawing, but only as a reference drawing.

Conclusion

This allegation was substantiated in that prior to the CECco stop work (September 1982) there had been problems with updating and distributing the Duct Construction Manuals. However, RSM identified the problem and appropriate corrective action was taken.

r. Allegation

(Closed) Improper control of portable rod caddy temperatures.

NRC Review

The NRC inspector interviewed two rod issue attendants and reviewed RSM surveillance reports concerning this item. The interviews revealed that the control of portable rod caddy temperatures was adequate. The surveillance reports revealed that a small fluctuation of caddy temperatures was noted. This fluctuation would be expected since the rod caddies are opened and closed to obtain the welding rod. AWS D1.1 permits low hydrogen welding rod (those used by RSM) to remain at ambient temperatures, exposed to the atmosphere, outside of a rod caddy for four hours. Therefore, minor fluctuations in temperature of the rod caddy is of no technical concern.

Conclusion

This allegation could not be substantiated in that the control of the portable rod caddy temperatures was found to be proper.

s. Allegation

(Closed) No evaluations performed on pocket thermometers removed from use due to calibration problems.

NRC Review

The NRC inspector reviewed CEC Co Audit No. 6-84-130 dated April 13, 1984, CEC Co Surveillance Report No. 6307 dated July 16, 1984, RSM Procedure No. 18, Revision 8 dated April 24, 1984, "Control Of Measuring And Test Equipment," Pocket Thermometer Logs, RSM Pocket Thermometer Evaluations for Thermometers No. PT-1, 2, 3, 5, 10, and 12, and discussed thermometer calibration and control with the associate auditor in charge of M&TE.

The review revealed that CEC Co Audit No. 6-84-130 identified, as a finding, that RSM had not performed an evaluation on thermometers found to be lost, damaged or stolen. The corrective action was to revise Procedure No. 18 to incorporate the requirement to perform evaluations of M&TE found to be lost, damaged or stolen.

RSM Procedure No. 18, Revision 8, dated April 24, 1984, was approved for the use by the AE on June 1, 1984. Thermometers No. PT-10 and 12 were taken out of service June 26, 1984, and September 10, 1984, respectively. Evaluations were performed on PT-10 on August 1, 1984, and on PT-12 on October 8, 1984. Thermometers No. PT-1, 2, 3, and 5 were taken out of service in 1983. A historical evaluation was undertaken in an effort to retrofit these thermometers into the current program. Thermometer No. PT-1 was taken out of service August 19, 1983, and an evaluation was performed August 10, 1984, thermometer No. PT-2 was taken out of service June 2, 1983, and an evaluation was performed April 3, 1985, thermometer No. PT-3 was taken out of service August 31, 1983, and an evaluation was performed October 29, 1984, and thermometer No. PT-5 was taken out of service November 9, 1983, and an evaluation was performed September 19, 1984. The results of the evaluations indicated that the thermometers while in service did not compromise the integrity of the welding materials.

Conclusion

This allegation was substantiated; however, the lack of an RSM program to perform an evaluation on thermometers removed from use due to calibration problems was identified by CEC Co audit and corrected.

t. Allegation

(Closed) Items 5, 7, 9, and 11 of QAS-35 were addressed in the response as being corrected; however, the documentation did not reflect these corrections.

NRC Review

The NRC inspector reviewed RSM Surveillance Report QAS-35 (dated September 13, 1983), RSM response letter No. RSM-100 (dated September 30, 1983), related documentation, and interviewed auditors concerning this item.

The review revealed that RSM Surveillance Report No. QAS-035 concerned the qualification of welders. Items 5, 7, 9, and 11, of Surveillance Report QAS-035 addressed deficiencies in the welder qualification records. The NRC inspector reviewed the response letter RSM-100 to Surveillance Report QAS-035 and the associated welder training and qualification records. It was found that adequate documentation existed to support the corrective action addressed in the response.

Conclusion

This allegation could not be substantiated in that it was found that the documentation reflected the corrections addressed in the response.

u. Allegation

(Closed) Inaccurate welder test coupon log as documented by RSM Surveillance Report No. QAS-086.

NRC Review

The NRC inspector reviewed RSM Surveillance Report QAS-086, RSM response letter No. RSM-222, and interviewed the QA welding quality coordinator concerning this matter. The review revealed that although test coupon log discrepancies were identified in the surveillance report (RSM QAS-086), they were adequately resolved in the RSM response letter.

Conclusion

This allegation was substantiated in that problems existed at one time with the log; however, acceptable corrective action had been taken and documented by letter No. RSM-222.

v. Allegation

(Closed) The RSM QA Supervisor's Level III certification is dated June 1983. Prior to this he had certified Level II inspectors.

NRC Review

The NRC inspector reviewed the RSM QA Supervisor's ANSI Level III certification, and interviewed the RSM and CEC Co QA supervisors. The review revealed that the RSM QA Supervisor was certified by RSM as a Level III on August 25, 1982, and that the due date for recertification is August 25, 1985. Therefore, the QA Supervisor was adequately certified and could certify Level II inspectors as early as August 25, 1982. CEC Co letter No. BY9049 (April 22, 1983) allowed non-NDE inspectors Level IIIs, as one option for qualification, to take a CEC Co prepared and administered test. CEC Co letter No. BY9669 (September 1, 1983) stated that the QA Supervisor had successfully completed and passed the CEC Co test.

Conclusion

This allegation could not be substantiated in that the QA Supervisor was found to be properly certified to perform his duties during employment with RSM, and that his certification was dated August 25, 1982, not June 1983.

w. Allegation

(Closed) The RSM QA Supervisor's Level III certification does not meet ANSI N45.2.6.

NRC Review

The NRC inspector reviewed the QA Supervisor's certifications, and RSM Procedure No. 6A, "Training and Certification Of Site QA/QC Personnel." The review revealed that the QA Supervisor was certified as an ANSI Level III as required by RSM Procedure 6A which complies with the requirements of ANSI N45.2.6-1978.

Conclusion

This allegation could not be substantiated in that the QA Supervisor's certifications were found to meet the requirements of ANSI N45.2.6.

x. Allegation

(Closed) Improper weld rod control in that damaged cans were used, electrodes were stored at the wrong temperatures, and oven temperature logs were inaccurate.

NRC Review

The NRC inspector reviewed RSM Procedure No. 2, Revision 15, "Weld Filler Material Control At Issue Stn/Weld Filler Material Issue," oven temperature logs, and surveillance reports. The inspector also interviewed two rod issue station attendants and inspected two rod issue stations.

The inspections of the two rod issue stations and interviews with the attendants revealed that the hermetically sealed rod cans were sometimes slightly dented through handling; however, cans damaged to the extent that the seal was broken were not used.

The review of RSM Procedure No. 2, Revision 15, revealed that the 250° F storage temperature met the requirements of the AWS D1.1 Code and that no maximum storage temperature is imposed by the Code. Minor fluctuations in the rod storage temperatures commonly occurs and is of no consequence to the performance of the weld filler material.

The review of the oven temperature logs, surveillance reports and interviews with the rod issue station attendants revealed no inaccuracies in the oven temperature logs.

Conclusion

This allegation was partially substantiated in that cans with minor damage were used; however, minor damage to the can does not adversely affect weld rod performance.

y. Allegation

(Closed) Welders only ran one test plate when two were required.

NRC Review

The number of test coupons a welder is required to make depends on the code to which he is being tested. The Code used for sheet metal welding is AWS D1.3 which requires that two test coupons be run in each position to which the welder is to be qualified. The welding of hangers and attachments to structural steel is performed in accordance with AWS D1.1 which requires that one coupon be run in each test position; however when a test is failed two coupons must be run for the position failed. This two coupon requirement is waived, by AWS D1.1, if the welder received additional training before retaking the test.

Upon reviewing approximately 25% of the welder test records and interviewing approximately 20% of the RSM welders, no evidence of incorrect testing was identified.

Conclusion

This allegation could not be substantiated in that welder qualification records and interviews indicated that proper testing was performed.

z. Allegation

(Closed) Insufficient welder maintenance records to justify qualification of a wire welder (Welder No. 54) to weld heavy plate.

NRC Review

The NRC inspector reviewed RSM welder qualifications and welder process maintenance records. The AWS D1.1-77 Code requires that a qualified welder use the process to which he is qualified at least once every six months to maintain his qualification.

The review disclosed that welder W-54 was qualified to the GMAW welding process using welding procedure WP-1 on January 17, 1980. This welding procedure was subsequently incorporated into the current welding procedure RSM-FWP-1 Revision 0 (GMAW process-plate

to plate). The welder's original GMAW process qualification was carried over to the current welding program. Justification of the carryover at the time was that:

- (1) Original welding Procedure WP-1 was incorporated into procedure RSM-FWP-1 Revision 0, and the
- (2) Previous welder qualifications to the GMAW process were identified and accepted by RSM NCR No. 047 (initiated February 17, 1983, and closed May 9, 1983) and CEC Co NCR No. F794 (initiated February 22, 1983, and closed May 4, 1984).

A review of the welder's maintenance of qualification showed that he had not welded to the GMAW process after his qualification in 1980. Since the welder did not maintain his GMAW qualification, a requalification test should have been conducted. Further review of pertinent documents revealed that the welder had actually welded utilizing this process (plate to plate) after his qualification had expired; i.e., 1983, 1984.

Nonconformance Report No. 96 was initiated (April 18, 1985) and closed (May 13, 1985) during this inspection by RSM to resolve the issue. A documentation search by RSM showed that all GMAW welds performed by this welder on plate were fillet welds. The welder was given the qualification test for this type of welding and successfully passed the test. Based on the results of the qualification test, the items welded by this welder were dispositioned "use as is."

Conclusion

This allegation was substantiated. The licensee was informed that failure to assure compliance of special process procedures with governing codes and standards is an example of a violation of Criterion IX of 10 CFR 50, Appendix B, (454/85011-02(b)(DRS)).

aa. Allegation

(Closed) Weld procedures were used before they were approved.

NRC Review

RSM welding procedures were submitted to CEC Co for review. The procedures were then forwarded to S&L for review and approval. The procedure may receive interim approval by CEC Co and be issued for use prior to the S&L review. Several examples of this practice were noted by the NRC inspector. If the procedure did not receive interim approval, it did not go to the field for use until S&L reviewed and approved it (S&L Status 1). If the procedure returns from S&L with a Status 2 approval, the use of the procedure is allowed upon incorporation of S&L's comments, and a new revision with the comments incorporated is then issued by CEC Co for use. Subsequently, this new revision is forwarded to S&L for review and approval.

Under the system being used by CECo and RSM, a new revision could be in the field before S&L approval. This system is acceptable and no misuse of the system was noted.

Conclusion

This allegation was substantiated in that procedure revisions were used before S&L approval; however, the revisions always received interim CECo approval before use.

bb. Allegation

(Closed) RSM FWP-9, Revision 0 was rescinded by the RSM QA Supervisor's letter 110 and given reject status by the AE. However, the procedure was still used in the field.

NRC Review

Procedure FWP-9, Revision 0, was written for the purpose of post-qualifying some non-safety-related and non-seismic work. This procedure is for welding stainless steel to carbon steel using silicon-bronze filler material and was given interim approval by CECo on October 11, 1983. On October 21, 1983, RSM rescinded the procedure by the RSM QA Supervisor's letter 110 upon discovering that the thickness range in the procedure did not cover the thickness range of materials in the field. The procedure was revised as Revision 1 and was approved by S&L on October 25, 1983.

RSM procedure FWP-9, Revision 0 was never used on safety-related or seismic work. FWP-9, Revision 0 was not used to perform welding after it was rescinded on October 21, 1983.

Conclusion

This allegation could not be substantiated in that use of RSM FWP-9, Revision 0 after it was rescinded on October 21, 1983, could not be established. Furthermore, the differences between Revisions 0 and 1 are of no technical significance.

cc. Allegation

(Closed) ANSI N510 references N509. Reliable Sheet Metal did not comply with ANSI N509-N510 regarding welder qualification.

NRC Review

Sargent & Lundy Specification F-2782 references ANSI N509 and N510 in S&L Standard Form 341. These ANSI documents are only applicable to the extent specified within the specification.

The leakage test procedure in ANSI N510 is specified as one of the acceptable methods of leakage testing. However, the use of alternate qualified procedures is also permitted by the specification. RSM's subcontractor submitted alternate procedures which have been reviewed and accepted by S&L.

No reference to ANSI N509 was made in the approved procedure with regard to welding. Furthermore, Article 7.3 of ANSI N509 provides the designer with the ability to specify alternate requirements for the qualification of welding. No requirement for RSM welders to comply with Article 7.3 of ANSI N509 exists since the Sargent & Lundy Specification F-2782 specifies AWS D1.3 as the governing Code for sheet metal welding.

Conclusion

This allegation could not be substantiated in that no commitment for RSM to comply with ANSI N509 exists, and that RSM complied with the requirements specified by AWS D1.3 regarding welder qualification.

dd. Allegation

(Closed) Ninety-nine weld procedures were condensed into seven. Welder qualifications were altered and show evidence of "white out" being used.

NRC Review

Initially RSM had a total of 99 weld procedures (prior to February-March 1983). These procedures each consisted of a single joint detail. A decision was made by RSM to combine as many of these details as possible within the rules of AWS D1.1 or D1.3. An outside consultant, Nuclear Welding Inc. (NWI), was contracted to review the procedures and combine them where possible. A review by the NRC inspector of the seven procedures resulting from the NWI effort indicated compliance with the welding codes.

In addition to reviewing welding procedures, NWI was also requested to review welder qualifications. During that review, NWI discovered that documentation deficiencies existed. Investigations were made by RSM to obtain the data necessary to correct the documentation deficiencies. In the process of correcting the documentation, "white out" correction fluid had been used by RSM on the file copies. Commonwealth Edison QA Surveillance Report 4022 (Audit 6-82-60) addressed this issue in 1982. As corrective action, instructions were issued by RSM to date and initial all corrections to file documents.

Conclusion

This allegation was substantiated in that the number of weld procedures was condensed and "white out" had been used on file copies; however, the condensation of weld procedures is an acceptable practice and the "white out" issue had been corrected.

ee. Allegation

(Closed) Welder qualifications were performed in areas other than those designated by procedure. Also, welder "A" performed test coupons for other welders.

NRC Review

The NRC inspector reviewed RSM Procedure No. 1, Revision 6, "Qualification Of Welders," interviewed nine welders including the Hunter test shop supervisor, and witnessed a weld test demonstration performed by 13 RSM welders. The NRC inspector selected the 13 RSM welders and actual field procedures to be followed in the performance of the weld test demonstrations. Each of the 13 welders demonstrated adequate skills to justify certification to the procedures to which they were qualified.

The review of RSM Procedure No. 1, Revision 6 revealed that the procedure does not designate a specific test area for welder qualification. The only procedural requirement (from current and past revisions) is that the welder have "adequate facilities available for welding the test sample." The current practice is to utilize the Hunter (mechanical contractor) weld test shop for welder qualification under the supervision of the Hunter weld test supervisor. Prior to this, RSM had no specific test area and welders could perform their test samples at any adequate location.

Interviews with the nine welders, Hunter's weld test shop supervisor, and welder "A" concerning welder(s) performing test coupons for other welders revealed no evidence of improper welder qualification.

Conclusion

This allegation could not be substantiated in that welder qualification tests were performed in the procedurally approved areas and no evidence of a welder performing test coupons for other welders could be found.

ff. Allegation

(Closed) The Hunter test shop supervisor was not qualified to perform visual examinations of welder test coupons.

NRC Review

Review of the applicable codes, standards, and procedures revealed that no qualifications or certifications are specifically required for visual examination of welder test coupons. The coupons are bend tested and witnessed by CECO subsequent to the initial visual examination.

The interview with the test shop supervisor revealed that he had prior experience as a welder and that he had supervised the test shop for several years.

Conclusion

This allegation could not be substantiated in that the Hunter Weld Test Shop Supervisor was found to have adequate experience to perform the visual examinations of the welder test coupons.

gg. Allegation

(Closed) Auxiliary Building HVAC (VA) system hangers above the fuel pool have broken welds, caused by an RSM foreman shaking the hanger. No reinspection was performed.

NRC Review

The NRC inspector interviewed three RSM foremen, inspected accessible hangers in the fuel handling building, and verified hanger reinspection.

The interview of the three RSM foremen, who were responsible for work performed in the fuel handling building, revealed that they had no knowledge of hangers being "broken." The NRC inspection consisted of visually inspecting all of the accessible hanger welds in the fuel handling building above the fuel pool. The inaccessible welds above the fuel pool were verified to have been inspected under the 100% reinspection effort. No "broken" hangers were identified.

Conclusion

This allegation could not be substantiated in that the NRC inspection and interviews revealed no broken hanger welds.

hh. Allegation

(Closed) Reactor Containment Fan Cooler (RCFC) Welds were not properly repaired or inspected. Also, unqualified materials were used.

NRC Review

The RCFC support drawings were initially issued by Hunter, the mechanical contractor, as non-safety-related between July 1978 and February 1979. However, the S&L structural and mechanical drawings referenced on the Hunter drawings indicated that the supports were safety-related. Hunter NCR No. 185 (initiated December 29, 1980) was written to generate generic weld inspection sheets to use for weld inspection documentation. These inspection sheets were issued to the field without design documents indicating the location of Hunter welds to be inspected. This NCR was dispositioned "use-as-is" and was closed on December 31, 1980. The NCR was improperly handled

in that it was closed before the required inspections had been completed. The actual inspections did not take place until approximately May 1982. The inspection sheets were improperly handled in that they were not transmitted to the QA vault and remained in the possession of Hunter QC until approximately January 1985. Thus, approximately four years elapsed before corrective action was completed.

A review of the inspection sheets revealed numerous weld discrepancies. The majority of the discrepant welds were drain pan and channel attachments.

As a result of this NRC review, the licensee requested S&L to reevaluate the safety significance of the RCFC components in April 1985. This evaluation determined that the channels and drain pans were not safety-related and these components were subsequently classified as non-safety-related.

The channel members and drain pans span between the tube steel structural members supporting the cooling coils. The channel members do not support the coils and are not required for the stability of the tube sections. The coil loads are carried through the plate angles attached to the coils and directly to the tube sections. The channels were supplied before the final location of the coils were determined. The final layout did not utilize the channels as a support.

Drain pans are provided for collecting condensation during normal operation. During post-LOCA operation, the condensate collection rate is orders of magnitude greater than during normal operation. The large amount of post-LOCA condensate collects on the floor of the RCFC housings and is drained via the check valves provided for that purpose. Since the drain pans are not designed to function under accident conditions, they are not considered safety-related.

If the welds connecting the channels and drain pans to the tube steel are neglected, the safety-related function of the cooling coils will not be impaired.

The remaining structural safety-related welds were inspected by the licensee and properly documented in April 1985. In addition, an inspection of safety-related bolting on the cooling coil installation was performed. Both inspections revealed satisfactory results. The NRC review of the safety-related materials documentation showed that proper materials were used.

The calculations and documents which form the basis for the evaluation of the various weld discrepancies on the RCFC installation and the basis for the reclassification of welds and components as Non-Safety Category 1 were reviewed. The various calculations and documents which were reviewed are as follows:

S&L, Calculation Book 18.1.22, Section 26-27 (Byron Containment Building, FLC-Phase II & III, book 4), elevation 395'-0"

S&L, Calculations for Hunter NCR-1042

CECo SNED procedure Q.6 "System Interaction Checklist"

S&L, Calculation Book 18.1.22, Section 1-15 (Byron Containment Building, FLC-Phase II & III, book 1), elevation 395'-0"

S&L, Post Fuel Load Engineering Change Notice P-174

The calculations were adequate to establish the following conclusions:

- . The remaining Safety Category I welds in question were adequate to perform their intended function.
- . Welds and components which were reclassified as Non-Safety Category I were properly classified per the FSAR commitments.

Conclusion

This allegation was partially substantiated in that documentation of weld inspections and required repairs were not handled properly. The licensee was informed that failure to promptly identify and correct conditions adverse to quality is a violation of of Criterion XVI of 10 CFR 50, Appendix B (454/85011-03(DRS)).

ii. Allegation

(Closed) Hangers 3882 and 3884 were installed with an unapproved welding procedure above the control room.

NRC Review

RSM Nonconformance Report No. 28 (issued April 7, 1982, and closed May 29, 1984) documents that the welding of a particular joint design on Hangers 3882 and 3884 was not included in the welding procedure called out on the fabrication ticket. The procedure on the fab ticket was WP-3 which is a fillet weld procedure to which the welder was qualified; however, the weld installed on the hangers is a partial penetration groove weld. Once the nonconformance was identified, a new procedure (WP-28) was written and qualified for this partial penetration joint. Procedures WP-28 and WP-3 utilize the same electrode and base metal combination. The welder who performed the welds on the hangers also qualified the new procedure. The welder was previously qualified for full penetration groove joints at the time of the hanger fabrication, the welding of these partial penetration groove joints did not require additional welder qualification.

Conclusion

This allegation was substantiated in that the procedure used for the hanger fabrication did not address the joint detail called out on the drawing; however, corrective action taken was acceptable.

jj. Allegation

(Closed) Problems existed when silicon bronze welding was performed with air-arc cutting carbon electrodes.

NRC Review

During April 1983, a box of copper coated, carbon electrodes was issued to the field for use. The carbon electrode normally used is not copper coated. Due to apparent porosity problems when using the copper coated electrode, it was not issued again. The porosity problems in the braze joint were corrected by removing and rewelding the joint at the time of occurrence.

Conclusion

This allegation was substantiated in that porosity problems occurred due to the use of a box of carbon electrodes; however, this was an isolated occurrence and the porosity was removed and the joint was rewelded at the time of occurrence. Any other problems with the use of the one box of carbon electrodes would have been identified during the initial weld inspection or during the "100% reinspection effort."

kk. Allegation

(Closed) Hanger No. M-1309-6J, H-31, gusset plate was inaccurately placed.

NRC Review

The NRC inspector reviewed RSM NCR No. 40 (Initiated June 9, 1982 and closed March 19, 1984), RSM DR No. 5247, CECO Field Change Request No. F-31399 (approved February 28, 1984), and related documentation.

The review of RSM DR No. 5247 (initiated February 22, 1984 and closed March 15, 1984) revealed that the east and west gusset plates of Hanger No. M-1309-6 J, H-31 were located 5/16" and 3/8" respectively from the edge of the embed plate (1/2" spacing was required). As a result of the DR, CECO issued Field Change Request No. F-31399 (approved February 28, 1984) which allowed 1/4" minimum between gusset plate and edge of embed. Thus the as-built locations were acceptable.

Conclusion

This allegation was substantiated in that the subject gusset plate did not meet original drawing requirements; however, this discrepancy was found to have been adequately documented and evaluated as acceptable.

11. Allegation

(Closed) Reliable Sheet Metal inspectors did not perform Surveillances of Fluid Control's safety-related testing, adjusting and balancing activities during May 15-16, 21-22, and 24-25, 1984.

NRC Review

NRC interviews with the CEC Co QA Supervisor and review of CEC Co letter No. BY11277 (May 7, 1984) revealed that Fluid Engineering Services (FES) was a subcontractor to RSM performing HVAC testing and balancing. By CEC Co directive, RSM was to conduct surveillances of FES whenever FES personnel performed "hands-on" adjustments and manipulations of the safety-related equipment during preliminary testing, adjusting and balancing.

Review of RSM Surveillance Reports QAS-110, QAS-111, QAS-113 and QAS-114 (list provided by allegor) revealed that RSM surveillances were documented as not being performed on FES for the dates of May 15 and 16, 21 and 22, and 24 and 25, 1984, due to FES not performing safety-related activities.

The allegor claimed that during this time period safety-related activities were performed. Interviews with the FES Superintendent and NRC review of FES work description for the periods of May 14 through May 18 and May 21 through May 25, 1984, revealed that FES did not perform safety-related testing, adjusting and balancing activities during this time period. Therefore, no surveillance was required.

Conclusion

This allegation could not be substantiated in that no safety-related work was performed by FES during the subject dates.

mm. Allegation

(Closed) Dampers were fabricated without authorization from the vendor (American Warming Ventilation) and nonconformance reports were not written.

NRC Review and Conclusion

See Allegation f.

nn. Allegation

(Closed) Reliable Sheet Metal inspectors overrode Pittsburgh Testing Laboratory (PTL) inspectors.

NRC Review

At the direction of CEC Co, PTL performed overinspection of RSM's work to enhance CEC Co QA's overview of RSM's stop-work "100% reinspection effort." PTL would inspect RSM's work and then submit the inspection reports to CEC Co and CEC Co would then issue a Surveillance Report. RSM would then reply to the Surveillance Report. If RSM disagreed with the results of the surveillance, PTL and RSM inspectors, under CEC Co guidance, would reinspect the work and/or review the inspection criteria.

NRC review of the overinspection data revealed that PTL generated 1292 inspection reports. Eighty-nine of those inspection reports noted potential deficiencies - 45 were reevaluated, by PTL and RSM under the guidance and final review by CEC Co, and were found to be acceptable. The 45 inspection reports that were found to be acceptable upon reevaluation included items noted by PTL as a result of misinterpretation of the inspection criteria, and revised inspection criteria (including drawing revisions, and FCR and ENC issuance) subsequent to the original RSM inspection. The NRC inspector reviewed four of the 45 inspection reports and found them to be properly evaluated.

Interviews with RSM and PTL inspectors revealed no evidence of intimidation related to changes of PTL inspection findings.

Conclusion

This allegation could not be substantiated in that the interviews conducted by the NRC and dispositions of PTL overinspection findings by RSM indicated that mutually agreeable resolutions were reached between RSM and PTL.

oo. Allegation

(Closed) Reliable Sheet Metal Auditor was forced by QA Supervisor to sign various documents or be fired. Also, the Auditor was threatened with firing if the NRC was informed of problems.

NRC Review

Seven RSM QA personnel (approximately 50% of the RSM QA staff) were interviewed concerning their freedom to notify the NRC of problems and being forced to sign documents. The interviews revealed that RSM QA personnel had the freedom to notify the NRC of concerns. None of those interviewed had any knowledge of incidents involving themselves or the alleged regarding forced signing of documents. The QA Supervisor was interviewed and stated that he never threatened to fire the alleged if she failed to sign documents or if she approached the NRC about her concerns. Additional interviews of RSM management personnel indicated that they had no knowledge of forced signing of documents.

The NRC inspector also reviewed the following specific examples of documents that the alleged stated were signed under duress:

.RSM-100	.QAS-103
.QAS-035	.QAS-105
.QAS-051	.QAS-106
.QAS-052	.QAS-110
.QAS-062	.QAS-111
.QAS-086	.Thermometer calibration reports
.QAS-102	

The review involved field notes, draft and final surveillances, and other related documents. The objective of the review was to determine the following:

- . If any information in field notes and draft surveillances was excluded from the final surveillances.
- . If any excluded information had any technical significance.
- . If the signing of documents was consistent with applicable procedures.

The NRC review of field notes and surveillance reports revealed that in some cases information contained in either the field notes or draft surveillance reports did not appear in the final surveillance documents. The inspector reviewed the deletions and found that the information was deleted for acceptable reasons. Typical reasons for the deletions were auditor misinterpretation of requirements, items previously identified and in the process of correction, and lack of specificity. No items of a technical concern were identified.

Regarding the alleged forced signing by the alleged (in lieu of the QA Supervisor) of thermometer calibration reports, the NRC review of all revisions issued to date of RSM Procedure No. 18, "Control Of Measuring And Test Equipment", revealed that the QA Supervisor or his designee could review and sign the thermometer calibration reports. The NRC review of the calibration reports indicated that the RSM procedural requirements were met in that the alleged was in this case effectively the QA Supervisor's designee.

Conclusion

This allegation could not be substantiated in that no indication was found of improper signing of documents. Additionally, the interviews indicated that RSM personnel were encouraged to communicate their concerns to management and the NRC if necessary.

pp. Allegation

(Closed) Reliable Sheet Metal QA personnel ignored deficiencies as a result of being frustrated in previous attempts to identify problems.

NRC Review

The NRC inspector's interview of the seven RSM QA personnel discussed in the NRC review of Allegation oo. above included a discussion of this matter. The seven personnel interviewed were selected on the basis that they had worked at RSM during the same time frame as the alleged and had inspection/review responsibilities. The interviews revealed that the personnel did not ignore deficiencies and did not have any knowledge of others ignoring deficiencies. The personnel were satisfied with the corrective action taken on all concerns identified by them and indicated that when a difference of opinion occurred satisfactory resolutions were worked out between the parties concerned.

Conclusion

This allegation could not be substantiated in that no indication was found of ignoring deficiencies.

qq. Allegation

(Closed) Reliable Sheet Metal management and CEC Co QA personnel were informed of the auditors' problems as outlined in Allegations oo. and pp. above but did not take action.

NRC Review

All of the eight CEC Co QA and Construction personnel and all of the three RSM management personnel identified by the alleged were interviewed by the NRC inspector. Four of the eight CEC Co employees recalled that complaints of a general nature had been informally and verbally brought to their attention by the alleged; however, they could not recall specifics. The CEC Co personnel indicated that no followup action was taken on these informal, verbal complaints because the complaints were general, and because previous CEC Co reviews of other complaints by the alleged indicated a tendency to chronically complain about matters lacking significance. The three RSM management personnel stated that at no time did the alleged express concerns of any kind to them.

Conclusion

This allegation was partially substantiated in that the interviews conducted by the NRC inspector revealed that some general complaints were informally and verbally brought to the attention of some CEC Co personnel which were not acted upon for reasons outlined above. Several of the issues that the alleged stated she brought to the attention of RSM and CEC Co were reviewed by the NRC in the course of addressing Allegations a., aa., kk., oo., and pp. above and no matters of technical significance were identified.

rr. Allegation

(Closed) A Magnaflux auditor was fired for finding too many problems.

NRC Review

Magnaflux Corporation was retained by RSM to perform formal program audits. Audit 4-A, performed on August 1-5, 1983, contained five findings. At the time of the exit meeting RSM did not fully agree with the findings. Disagreement centered around issues such as: significance of findings, items addressed in previous audits with on-going corrective action, items corrected during the audit, and incomplete writeups of findings. At this time the RSM QA Supervisor indicated that this auditor would not be invited back to perform future audits. As a followup, RSM issued a letter (RSM-188) to Magnaflux stating their position on the audit findings. The NRC inspector reviewed the audit and the RSM letter and found nothing improper. Subsequent to the RSM letter, Magnaflux wrote a letter accepting the RSM comments. Based on NRC reviews and interviews, it appeared that differences of personalities and audit techniques were the root causes of the RSM decision concerning this particular Magnaflux auditor.

Conclusion

This allegation was partially substantiated in that the Magnaflux auditor was not asked by RSM not to return for future audits. That RSM decision appears to have been based on differences in personalities and audit techniques and did not appear to be an RSM attempt to minimize legitimate audit findings.

3. CECo Review Prior to NRC Reviews

CECo performed a special surveillance (Report No. 6855, dated January 10, 1985) of allegations concerning the quality of the HVAC installations at Byron. The surveillance consisted of interviewing 20 RSM QA/QC personnel (8 QA, 12 QC) out of a total of 26 RSM employees from these groups.

Portions of the interviews dealt with subjects contained in Allegations a., b., g., q., v., w., y., z., ee., ff., oo. and pp. discussed in Paragraph 2 above. The results of the interviews concluded that only one allegation, concerning the auditor being ordered to overlook certain material defects and job performance of contractors in the plant was partially substantiated. Regarding that allegation, it was determined that in some instances field inspectors were directed to concentrate on RSM work and not be concerned with the quality of the other site contractors. The interviewees stated that the instances were rare and unrelated and that the deficiencies were eventually corrected. CECo took corrective action and concluded that there was no safety-significance to any of the allegations.

4. Item Followup

The majority of the allegations discussed in Paragraph 2 above were based on notes contained in a work diary kept by a former RSM welder. The welder gave the diary to the alleged at the alleged's request. Copies of the diary also had been given by the welder to CEC and RSM when the welder left RSM employment. The NRC inspectors interviewed the welder and obtained a copy of the work diary.

The notes contained in the work diary were commentaries of daily activities and according to the welder were not considered to be allegations. The notes contained opinions as to the adequacy of some construction activities. During the interview the welder acknowledged that corrective action may have been taken on those items.

Based upon the interview of the welder and review of the notes, the following items were selected for review:

a. Item

(Closed) Hangers No. H114 and No. H125 had excessive overlap, lack of fusion and undercut welds.

NRC Review

The date that this note was written was approximately March 1983. The NRC inspector reviewed Hatfield DR No. 540 (the only DR issued against Hangers No. H114 and No. H125) dated October 9, 1982, and it stated that many welded connections have no weld travelers documenting the acceptance of the weld. A correlation of weld traveler inspection data to design drawing cable pan hanger data was established using computer database management techniques to demonstrate accountability of the inspections. This demonstration of accountability of the inspections identified the welders and inspectors who worked on the components. For those components where no correlation existed between component and inspection data, an inspection was initiated therefore repairing Hangers No. H114 and No. H125 during the 100% reinspection effort.

The NRC inspector also reviewed weld travelers, drawings, other related documentation, and also visually examined Hangers No. H114, No. H125 and other hangers in the area and found the hangers to be in accordance with design requirements having no overlap, lack of fusion or undercut welds.

Conclusion

This item was substantiated; however, any deficiencies that existed were identified during the "100% reinspection effort" and all the deficiencies were found by the NRC inspector to have been repaired.

b. Item

(Closed) The welder completed welding on Hanger No. H002 using silicon bronze (SB) and had lots of problems with one SB weld on the bottom. The duct kept cracking as the silica bronze cooled (cracks formed next to the weld in the duct) and the duct seemed very thin.

NRC Review

The date that this note was written was March 25, 1983. The NRC inspector reviewed RSM DR No. 3739 (the only DR issued against Hanger No. H002) dated October 26, 1983, and it stated that the welds were not installed according to detail and that the angle size was incorrect. This item was identified and the RSM DR issued during the "100% reinspection effort."

The NRC inspector also reviewed the final documentation review and acceptance hanger inspection report, other related documentation, and also visually examined welds on Hanger No. H002 and other hangers in the area and found no cracks in either the ducts or the welds. The installation was found to be in accordance with design requirements. The duct was fabricated utilizing 22 gage material which meets the design specifications.

Conclusion

This item was substantiated; however, any deficiencies that existed were identified during the "100% reinspection effort" and all the deficiencies were found by the NRC inspector to have been repaired.

c. Item

(Closed) On completed Hanger No. H004, there was a duct that was bowed inward $\frac{1}{2}$ " when electricians installed a vertical member on this hanger. Also the top of Hanger No. H006 does not conform to details.

NRC Review

The date that this note was written was March 28, 1983. There were four DRs issued against hangers No. H004 and No. H006. For Hanger No. H004 the NRC inspector reviewed RSM DR No. 0919 dated April 8, 1983, and it stated that the angle at the top of the duct welded to the unistrut was not according to detail. The NRC inspector also reviewed RSM DR No. 5752 dated April 12, 1984 and it stated that there was no documentation for welding of the top horizontal member to the duct and unistrut. For Hanger No. H006 the NRC inspector reviewed RSM DR No. 1653 dated May 4, 1983, and it stated that the documentation and the duct-to-hanger weld was unacceptable. The NRC inspector also reviewed RSM DR No. 2703 dated July 19, 1983, and it stated that a weld corner was short by $\frac{1}{4}$ ", no material documentation for top horizontal weld and the angle at the bottom of the duct was unacceptable. The above items were identified and the RSM DR issued during the "100% reinspection effort."

The NRC inspector also reviewed the final documentation review and acceptance reports, hanger inspection reports, and other related documentation. The NRC inspector visually examined Hangers No. H004 and No. H006 and other hangers and ducts in the area and found no bowing and that all components conformed to design details.

Conclusion

This item was substantiated; however, any deficiencies that existed were identified during the "100% reinspection effort" and all the deficiencies were found by the NRC inspector to have been repaired.

d. Item

(Closed) On Hanger No. H010, the welder was unable to complete the bottom since it does not conform to details.

NRC Review

The date that this note was written was March 31, 1983. There were two DRs issued against Hanger No. H010. The NRC inspector reviewed RSM DR No. 2551 dated July 7, 1983, and it stated that there was no material heat numbers of the angle member on the fabrication ticket. The NRC inspector also reviewed RSM DR No. 3860 dated November 2, 1983, that stated that there was no silicon bronze on the bottom of the duct. This was observed during an overinspection.

The inspector also reviewed the final documentation review and acceptance report, hanger inspection report, and other related documentation. The inspector also visually examined the entire Hanger No. H010, the duct and other hangers and ducts in the area and found them to be in accordance with design requirements.

Conclusion

This item was substantiated; however, it was identified during an overinspection by RSM and all the deficiencies were found by the NRC inspector to have been repaired.

e. Item

(Closed) Hanger No. 1951 had bad welds (undercut, overlap, slag pockets).

NRC Review

The date that this note was written was April 11, 1983. The note stated that Hanger No. 1951 had bad welds and when the welder was interviewed by the NRC, he stated that the Hanger No. 1951 tube steel welds had undercut, overlay, slag pockets and other deficiencies. The NRC inspector reviewed the following RSM DRs with discrepancies:

<u>DR No.</u>	<u>Date Issued</u>	<u>Discrepancy</u>
No. 0265	3/23/83	Undersize welds and duct to hanger welds not welded.
No. 0976	4/14/83	Undersize welds
No. 2371	6/22/83	Undersize welds and exceeds length for weld returns
No. 2728	7/21/83	Weld length/returns-FCR is not applicable

After Quality Control accepted the original welding, Hanger No. 1951 was rejected during the 100% reinspection effort and subsequently repaired. The NRC inspector also reviewed the final documentation review and acceptance report, hanger inspection report, and other related documentation. The inspector also visually examined the welds on Hanger No. 1951 and other hangers in the area and found them to be in accordance with design requirements.

Conclusion

This item was substantiated in that QC had originally accepted and then later rejected a hanger during an overinspection by RSM. All weld deficiencies were found by the inspector to have been repaired.

f. Item

(Closed) FCR No. 15575 had only three pages and should have a detail or sketch.

NRC Review

The NRC inspector reviewed the original three page FCR No. 15575 dated March 3, 1983, that was issued to the field which included a detailed sketch. The inspector also reviewed rework requests, inspection reports and other related documentation. The NRC inspector examined the inside and outside of the elbows in question and found the rework to be in accordance with design requirements.

Conclusion

This item could not be substantiated.

g. Item

(Closed) The welder worked on tube steel (TS) for K-brace No. 6449 and Hangers No. 1449 and No. 1450 which was not to detail.

NRC Review

The date that this note was written was November 15, 1982. There were two DRs issued against Hanger No. 1449 and two DRs issued against K-brace No. 6449. No DRs were issued against Hanger No. 1450. For Hanger No. 1449 the NRC inspector reviewed RSM DR No. 1212 dated April 19, 1983, and it stated that there were undersize welds, underlength welds and missing welds. The NRC inspector also reviewed RSM DR No. 3632, dated October 18, 1983, and it stated that a weld joint, size and length did not agree with CEC Co FCR No. 16603.

Hanger No. 1450 was found to be acceptable during the 100% reinspection effort.

For K-brace No. 6449 the NRC inspector reviewed RSM DR No. 4422 dated December 15, 1983, and it stated that there were wrong hanger weld joint configurations, dimensions out of tolerance and no documentation for brace materials. The NRC inspector also reviewed RSM DR No. 5138 dated February 14, 1984, and it stated that there was no field weld documentation for the brace. The DRs were issued against the Hanger and K-brace because of the "100% reinspection effort."

The NRC inspector also reviewed drawings, and other related documentation and visually examined K-brace No. 6449, hangers No. 1449 and No. 1450, and other braces and hangers in the area and found them to be in accordance with design requirements.

Conclusion

This item was substantiated for the K-brace and Hanger No. 1449. Hanger No. 1449 was identified during the "100% reinspection effort" and the K-brace was identified during an overinspection by RSM. All the deficiencies were found by the NRC inspector to have been repaired.

h. Item

(Closed) A hole was cut in a beam with a cutting torch. (Auxiliary building elevation 451, near south purge section A thru D)

NRC Review

The inspector along with RSM and CEC Co personnel visually examined the entire area noted above and no beam was found with holes that were cut with a cutting torch. Additionally there was no evidence observed of repairs to any hole that may have existed in the past.

Conclusion

This item could not be substantiated.

i. Item

(Closed) The welder worked on Hanger No. 1462 and found that a duct was cut down, improperly spliced together and gussets were installed wrong.

NRC Review

The date that this note was written was October 26, 1982. There were two DRs against Hanger No. 1462. The NRC inspector reviewed RSM DR No. 1622 dated April 21, 1983, and it stated that Hanger No. 1462 was not installed per design. The NRC inspector also reviewed RSM DR No. 2913 dated August 3, 1983, and it had 13 discrepancies. RSM DR No. 2913 addressed discrepancies in Hanger No. 1462 but the problems were different than those described above.

The NRC inspector also reviewed drawings, inspection reports, and other related documentation. The inspector visually examined Hanger No. 1462, other hangers, ducts and gussets in the area and found them to be in accordance with design requirements.

Conclusion

This item was substantiated; however, any deficiencies that existed were identified during the "100% reinspection effort" and all the deficiencies were found by the NRC inspector to have been repaired.

j. Item

(Closed) Hanger No. 1451, undercut; Hanger No. 1470 undercut and 4" x 4" gusset plates installed wrong.

NRC Review

Although this item was included in the copy of the welder diary provided to the NRC, the welder stated that he did not make the note and that he did not know who wrote the note or when it was written. There was one DR each issued against Hanger No. 1451 and No. 1470. The NRC inspector reviewed RSM DR No. 1373 dated April 21, 1983, for Hanger No. 1451 which addressed undersize welds, short weld length, lack of fusion, undercut, and exceedance of distance tolerance. The NRC inspector also reviewed RSM DR No. 1448 dated April 25, 1983, for Hanger No. 1470 and it stated that there was insufficient documentation and that it was out of tolerance. The item was identified and the DR was issued during the "100% reinspection effort."

The NRC inspector also reviewed inspection reports, final documentation review and acceptance reports and other related documentation. The inspector visually examined Hangers No. 1451 and No. 1470, gusset plates, and other hangers and gusset plates in the area and found them to be in accordance with design requirements.

Conclusion

This item was substantiated; however, it was identified during the "100% reinspection effort" and all the deficiencies were found by the NRC inspector to have been repaired.

k. Item

(Closed) In the Auxiliary Building above elevation 426, there were several hangers that are attached wrong and have very substandard welds.

NRC Review

This note was written was October 4, 1982. The NRC inspector reviewed selected DRs dated from October 25, 1983, to May 7, 1985, and a few DRs stated that welds were not to detail, angles were of an incorrect size and welds were unacceptable. These findings were not the result of an overinspection by RSM or the "100% reinspection effort."

The NRC inspector also reviewed hanger inspection reports, drawings and other related documentation on selected hangers in the Auxiliary Building above elevation 426. There are approximately 1500 welds in the area of concern to the welder and the NRC inspector visually examined approximately 250 welds and found them to be in accordance with design requirements.

Conclusion

This item was substantiated; however, all the deficiencies in the sample inspected were found by the NRC inspector to have been repaired.

l. Item

(Closed) Gravity Damper No. OVA 421Y near Hanger No. 1449 (DWG. M1314-3) installation on east side is junk. (Bad welds, improper spacing, not sealed, holes elongated (bolt up holes)).

NRC Review

The date that this note was written was October 5, 1982. The NRC inspector reviewed RSM DR No. M-1314:3-271TY20VA (the only DR issued against Gravity Damper No. OVA421Y) dated January 3, 1985, and it stated that there was no Type I inspection of welding, a piece was not sealed properly, there was no documentation for welding, etc. Gravity damper OVA 421Y was acceptable except that the holes would not line up with the ducts on each side of the damper. The discrepancies were in the hole pattern on the ducts attached to each side of the damper. New duct pieces were installed. This item was identified during the "100% reinspection effort" and was not finally accepted until March 19, 1985.

Conclusion

This item was substantiated in that duct deficiencies associated with the gravity damper were identified in the DR; however, the deficiencies were identified and corrected by RSM.

m. Item

(Open) The following items were turned over to the licensee for review and evaluation:

- (1) "Filler pieces" were used to plug gaps in the HVAC ducts. According to the welder, gaps of 1/4" to 3/4" in the ducts were plugged with any available material (e.g., "all thread"). Areas that were so plugged were identified as: filter housings; a loop on the containment long wall; a containment flange that went into the elbow; and an auxiliary building filter housing near a 1/2" plate.
- (2) Questionable documentation (e.g., wrong Welder No., heat numbers). The following hangers were identified as being affected: 7079, 2086, 8074, 3093, 3094, 3095, 3096, 3097, 2070 and 3070.
- (3) Questionable documentation of welder training records.

The licensee also committed to review the welder's diary and assure all questionable items have been addressed. Pending completion of the licensee's efforts and a review of the results by the inspector, this is considered an open item (454/85001-04(DRS)).

5. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, and which involve some action on the part of the NRC or licensee or both. Open items disclosed during the inspection are discussed in Paragraphs 2.e and 4.m.

6. Exit Interview

The inspectors met with representatives (denoted in Paragraph 1) during the course of the inspection and summarized the scope and findings of the inspections noted in this report. The inspectors also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee did not identify any such documents/processes as proprietary.