DRAFT 2
06/14/84

FILE

SSER

Task: Allegation A-215, A-175, A-239, A-240, A-306i

Reference No.: 4-84-A-06/103, 109, 144, 126, 184i

Characterization: It is alleged that a deficiency report (DR) on welder qualification was destroyed, and that the quality of welding was questionable because welders were not qualified, were not on the project at the time welding was performed, and were not qualified to correct procedures and techniques.

Assessment of Allegation: The implied significance of this allegation is that unqualified welders may have performed welding on safety-related systems, which could place the quality of construction in question. The NRC staff reviewed the welder qualifications for randomly selected Ebasco, Thompkins-Beckwith (T-B), Nisco, and Mercury welders who may have performed safety-related welding on systems.

The NRC staff selected a random sample of 25 Ebasco welders from travelers, weld rod control forms, and the welder qualifications summary. Ebasco welder qualification records were reviewed for compliance with the ASME and AWS Codes and Ebasco procedures. The NRC staff found the Ebasco welders qualified or partially qualified to the referenced weld procedures; in such case the welder qualification status record identified the limitations of qualification for each welder, when partial qualification (thickness range) was required. The NRC staff found Ebasco welder qualifications records and status records to be acceptable.

The NRC staff selected a random sample of 57 T-B welder qualification records. In some cases the staff noted that the T-B welder qualification records for a specific welding procedure specification (WPS) were not included in a welder's file. However, the staff reviewed other WPS, the welder qualification cross-reference lists, and the welders qualification summary, and verified that the

T-B welders were properly qualified in accordance with the ASME and AWS Codes and T-B procedures. The NRC staff found T-B welder qualifications records to be acceptable.

The NRC staff selected a random sample of 11 Nisco welder qualifications records from completed quality records. The staff found that the qualifications for the selected Nisco welders were in accordance with the requirements of the ASME Code and Nisco procedures. The NRC staff found Nsico welder qualifications records to be acceptable.

The NRC staff selected a random sample of 62 Mercury welder qualification records. Of the 62 sampled, the staff initially found problems with 12 welders. Following the NRC staff's identification of these problems, Ebasco issued Non-conformance Report (NCR) W3-7724. However, Ebasco's disposition of this NCR failed to adequately address these problems with Mercury welders and was not acceptable to the NRC staff.

The following problems were identified by the NRC staff, and in some cases were inadequately addressed in the Ebasco NCR. INSERT (A) from p. 3

1. Welder M-44 - It is alleged that an Ebasco DR was destroyed. The alleger supplied to the NRC staff a copy of an unnumbered Ebasco DR and a copy of the welder's qualifications record; neither the DR nor the record could be located in Ebasco's file. The allegation specifically addressed the welder's qualifications records, which noted that the welder was originally qualified to WPS-B but that the record had been retyped "for clarity" and incorrectly indicated the welder was qualified to WPS-Y. The NRC staff reviewed the welder's qualification record, but could find no qualification to WPS-Y, and found no documentation concerning the DR. LP&L must determine if this welder performed welds to WPS-Y.

2. Welder M-109 - The NRC staff found that the welder's WPS-Y qualification record was dated November 26, 1982, and voided October 22, 1983; however, the welder qualification status record did not show qualification or

determine if the welder had performed welding to WPS-Y "at any time." Mercury welder qualification status records were not kept current as required, and could not be relied upon as a quality control (QC) record. A re-review of all weld data reports must be performed by LP&L to determine if this welder performed welds to WPS-Y.

welding performed to WPS-Y. Also, the Ebasco NCR disposition did not show changes to records (qualification dates, specific welding procedure specification (WPS)).

These problems included possible falsification of records (changes to qualification dates and to specific WPSs) and have been forwarded to the NRC Office of Investigation (OI) for their review.

3. Welder M-9 - This welder's qualification status record reflected dates different than those recorded on the welder qualification record for WPS-E. This record had been revised to change the qualification test date from December 18, 1979 to December 18, 1978. However, the welder qualification status record indicated the test was performed on December 18, 1979 as originally dated. The actual date of the welder qualification test must be ascertained by LP&L to determine if the welder performed welding on safety-related systems prior to this date.

4. Welder M-101 - The NRC staff found that this welder was originally qualified to WPS-B but that the welder's qualification test record had been revised "for clarity" and the qualification changed to WPS-Y. Ebasco issued NCR W3-7724 to address this change but the disposition of this NCR was unacceptable to the NRC staff. LP&L must review 100% of weld data reports to determine if this welder performed welds to WPS-Y.

5. Welder M-129 - This welder's qualification test record indicated qualification for WPS-D but was not signed by a Mercury representative. The NRC staff reviewed the welder's qualification records and determined that this welder was qualified to WPS-G, which also qualified the welder to WPS-D. The NRC staff found this acceptable.

6. Welder M-142 - The NRC staff found that this welder's qualification status record showed welds performed to WPS-D and WPS-Y; however, the welder's file contained no welder qualification records. The welder qualification records were later located, reviewed by the NRC staff, and found acceptable.

7. Welder M-85 - This welder had performed a qualification test to WPS-D, but the test report had been subsequently "voided" for an unspecified reason. A Welder Testing Laboratory test report for qualification to WPS-D was in the welder's file, but the NRC staff found no Mercury welder qualification ~~status~~ record. In addition, the welder's qualification status record indicated that welds were performed during periods when the status record did not include the welder's name; the NRC staff learned that the welder had a break in employment with Mercury. The welder had performed welds for Mercury while employed by Fischbach & Moore; he had been "loaned" to Mercury, and his WPS-D qualifications were current. The NRC staff discovered that the welder's qualification record had been "voided" because of improper changes to the form. Ebasco issued NCR W3-7724 to address these changes but the disposition of this NCR was unacceptable to the NRC staff.

8. Welder M-190 - The welder's file showed a termination date in late November 1982; however, the welder's qualification status record indicated t' welder had performed welds through mid-January 1983. The welder's qualifi ion records did not indicate why this welder had performed welds since his termination. Subsequent to the initial review, LP&L supplied the NRC staff with employment records for this welder, which indicated that he had been rehired in late December 1982. The NRC staff reviewed these records and determined that this welder was employed at the site and was qualified during the time he performed welds.

9. Welder M-177 - This welder's name was typed over that of another welder qualified to WPS-G. There was no WPS-Y qualification record, but the welder qualification status record indicated that he had performed welds to WPS-Y. The WPS-Y qualification record was eventually located and filed with the welder's records, resolving the NRC staff's question concerning the welder's qualification. However, the document with the name retyped over has also been submitted to ~~the NRC Office of Investigation~~ for their review as a good example of possible falsification of records.

10. Welder M-197 - This welder's file contained a record of test results which indicated failure to meet WPS-D qualification. However, the welder's qualification status record ~~indicated that WPS-D qualification was met, yet the NRC qualification status record~~ indicated that WPS-D qualification was met, yet the NRC staff found no qualification record to this effect in the welder's file. WPS-D qualification records were eventually located and inserted into the welder's file. The NRC staff subsequently verified the welder's WPS-D qualification, and the welder's qualification status record was found to be acceptable.

11. Welder M-315 - This welder performed welding to WPS-D, but the NRC staff found no record of WPS-D qualification in the welders' file; however, the staff was able to verify that the welder was not qualified to WPS-D. The staff reviewed Weld Data Report OCR 1020 and discovered that the welder had started one weld to WPS-D which was rejected at fit-up for his being an "unqualified welder" and for his welds being "undercut and cracked," and that the defective weld had been removed and rewelded by a qualified welder. LP&L must review 100% of weld data reports to assure that this welder did not perform any welds for which he was not qualified.

12. Welder M-55 - The NRC staff reviewed examples supplied by the alleger of welder qualification records alleged to contain improper utilization of combined welding processes [gas tungsten arc weld (GTAW) and ~~shielded~~ submerged metal arc welding (SMAW)] to qualify welders beyond the thickness actually welded. In this welder's case, the staff found that the welder qualification records clearly indicated that the correct process was utilized to qualify this welder to WPS-Y. The staff also reviewed Procedure Qualification Record No. Y1679, and verified that procedure WPS-Y was in accordance with the ASME Code. The Code does not ~~not~~ required that thickness range for each welding process be specified on the welder qualification record, because these ranges are specified in the weld procedure specification to which the welder is qualified.

(4P) Additionally, the NRC staff observed low hydrogen electrode E-7018 being issued from the rebake ovens. Controls do not provide for issuance until the rebaking process is complete.

In the review of the 62 Mercury welder qualification records, the NRC staff identified the 12 problems cited above and found the disposition of Ebasco NCR W3-7724 inadequate. In addition, the NRC staff found that welding filler material was not being controlled as required by the ASME or AWS Codes for low hydrogen welding electrodes (e.g., E-7018) for the rebaking process. The staff observed that low hydrogen welding electrodes were being baked at temperatures of 180°F to 220°F for a period of 8 hours. The staff learned that this was a common site practice. The ASME and AWS Codes require that low hydrogen welding electrodes which exceed the 4-hour issue time constraint, or in the case of loss of power which exceed the 4-hour time period, be rebaked between 450°F to 800°F for 4 hours. Ebasco and site contractor procedures allowed the lower temperatures at the longer holding time, but proper justification could not be furnished to the NRC staff during the review. The welding electrode holding ovens on site did not have the rebake capability. Low hydrogen electrode coating is susceptible to absorbing moisture, which is a major contributing cause of underbead cracking.

→ insert 4P (see above)

Based on the review of this allegation, the NRC staff concluded that Ebasco, T-B, and Nisco welder qualifications were in compliance with ASME and AWS Code requirements. However, the staff found that Mercury welder qualification records were not in accordance with ASME or AWS Code requirements due to improper maintenance of records, inadequate documentation of supervision of the Welders Testing Laboratory where the welders performed some of the qualification tests, and the discrepancies in welder qualifications cited previously. In addition, the staff found that the low hydrogen electrode rebake process on site was not in accordance with the ASME and AWS Codes.

This allegation has safety significance and generic implications.

Potential Violations: The presence of incomplete and incorrect records is a violation of 10 CFR 50, Appendix B, Criterion XVII, and of the ASME Code.

The use of unqualified welders and improper control of welding electrodes is a violation of 10 CFR 50, Appendix B, Criterion IX, and of the ASME and AWS Codes.

Action Required: LP&L shall, prior to fuel load:

1. Review 100% of Mercury welder qualification records to assure proper conformance to the ASME and AWS Codes, and take corrective action as required. Also, enter the unnumbered Ebasco DR in the system, and resolve the DR.

2. Assure that all Mercury discrepancies in welder qualification identified by the NRC staff, and those noted on the Ebasco NCR, are properly dispositioned and adequately closed.

3. Review 100% of Mercury weld qualification records to assure that unqualified welders did not perform welding on safety-related systems.

4. Review the improper control of low hydrogen electrode for rebaking requirements and for proper issuance control for compliance with the ASME and AWS Codes, and take corrective action as required. Variance from the ASME Code requires ASME approval.

References

1. ASME Section IX, Section III NB, NA.
   AWS D1.1
   10 CFR 50 Appendix B, Criterion XVII and Criterion IX

2. Mercury Procedure:

   MCP-2100-N49720 - Welding Control Procedure, Revision 13.
   WPS-E-N49720 - Welding Procedure Specification, Revision 11.
   WPS-Y-N49720 - Welding Procedure Specification, Revision 9.
   WPS-D-N49720 - Welding Procedure Specification, Revision 13.

3. Ebasco Procedure:

   WPS-89R5 - Welding Control Procedure
   WPS-43R18 - Welding Control Procedure
   CP-684, Revision H - Qualification of Welders

4. NISCO Procedure:

   WPS-80.3.2 - Welding Procedure Specification

5. Tompkins-Beckwith Procedure:

   WPS-8.4 - Welding Control Procedure
   WPS-8.6 - Welding Control Procedure
   WPS-1.8 - Welding Control Procedure
   WPS-1.4 - Welding Control Procedure
   WPS-1.7 - Welding Control Procedure

6. Mercury OCR Package 1020.

7. Exhibit 25 (DR and WQR for Welder M-55).

Statement Prepared By: _____ _____
J. Schapker Date

Reviewed By: _____ _____
Team Leader Date

Reviewed By: _____ _____
Site Team Leader(s) Date

Approved By: _____ _____
Task Management Date

Document Name:
SSER X A-215

Requestor's ID:
PATTYN

ECW 6/19
re-edit & proof

Author's Name:

Rec'd Draft 3

CORREX
CHECK EACH PG

Document Comments:
comm from displaywritter 5/29/84

COMMO TO 9 alter re-proof

qual s rec
qual stat rec
↑
sing

Document Name:
SSER X A-215

Requestor's ID:
PATTYN

Author's Name:

Document Comments:
comm from displaywritter 5/29/84

SSER

Task: Allegation A-215, A-175, A-239, A-240

Reference No.: 4-84-A-06/103, 109, 144, 126, 184i

Characterization: It is alleged that a deficiency report (DR) on welder qualification was destroyed, and that the quality of welding was questionable because welders were not qualified, were not on the project at the time welding was performed, and were not qualified to correct procedures and techniques.

Assessment of Allegation: The implied significance of this allegation is that unqualified welders may have performed welding on safety-related systems, which could place the quality of construction in question. The NRC staff reviewed the welder qualifications for randomly selected Ebasco, Thompkins-Beckwith (T-B), Nisco, and Mercury welders who may have performed safety-related welding on systems.

The NRC staff selected a random sample of 25 Ebasco welders from travelers, weld rod control forms, and the welder qualifications summary. Ebasco welder qualification records were reviewed for compliance with the ASME and AWS Codes and Ebasco procedures. The NRC staff found the Ebasco welders qualified or partially qualified to the referenced weld procedures; in such case the welder qualification status record identified the limitations of qualification for each welder, when partial qualification (thickness range) was required. The NRC staff found Ebasco welder qualifications records and status records to be acceptable.

The NRC staff selected a random sample of 57 T-B welder qualification records. In some cases the staff noted that the T-B welder qualification records for a specific welding procedure specification (WPS) were not included in a welder's file. However, the staff reviewed other WPS, the welder qualification cross-reference lists, and the w ders qualification summary, and verified that the

T-B welders were properly qualified in accordance with the ASME and AWS Codes and T-B procedures. The NRC staff found T-B welder qualifications records to be acceptable.

The NRC staff selected a random sample of 11 Nisco welder qualifications records from completed quality records. The staff found that the qualifications for the selected Nicso welders were in accordance with the requirements of the ASME Code and Nisco procedures. The NRC staff found Nsico welder qualifications records to be acceptable.

The NRC staff selected a random sample of 62 Mercury welder qualification records. Of the 62 sampled, the staff initially found problems with 12 welders. Following the NRC staff's identification of these problems, Ebasco issued Non-conformance Report (NCR) W3-7724. However, Ebasco's disposition of this NCR failed to adequately address these problems with Mercury welders and was not acceptable to the NRC staff.

The following problems were identified by the NRC staff, and in some cases were inadequately addressed in the Ebasco NCR.

1. Welder M-44 - It is alleged that an Ebasco DR was destroyed. The alleger supplied to the NRC staff a copy of an unnumbered Ebasco DR and a copy of the welder's qualifications record; neither the DR nor the record could be located in Ebasco's file. The allegation specifically addressed the welder's qualifications records, which noted that the welder was originally qualified to WPS-B but that the record had been retyped "for clarity" and incorrectly indicated the welder was qualified to WPS-Y. The NRC staff reviewed the welder's qualification record, but could find no qualification to WPS-Y, and found no documentation concerning the DR. LP&L must determine if this welder performed welds to WPS-Y.

2. Welder M-109 - The NRC staff found that the welder's WPS-Y qualification record was dated November 26, 1982, and voided October 22, 1983; however, the welder qualification status record did not show qualification or

welding performed to WPS-Y. Also, the Ebasco NCR disposition did not show changes to records (qualification dates, specific welding procedure specification (WPS)).

These problems included possible falsification of records (changes to qualification dates and to specific welding procedure specifications) and have been forwarded to the NRC Office of Investigation (OI) for their review.

3. Welder M-9 - This welder's qualification status record reflected dates different than those recorded on the welder qualification record for (WPS)-E. This record had been revised to change the qualification test date from December 18, 1979 to December 18, 1978. However, the welder qualification status record indicated the test was performed on December 18, 1979 as originally dated. The actual date of the welder qualification test must be ascertained by LP&L to determine if the welder performed welding on safety-related systems prior to this date.

4. Welder M-101 - The NRC staff found that this welder was originally qualified to WPS-B but that the welder's qualification test record had been revised "for clarity" and the qualification changed to WPS-Y. Ebasco issued NCR W3-7724 to address this change but the disposition of this NCR was unacceptable to the NRC staff. LP&L must review 100% of weld data reports to determine if this welder performed welds to WPS-Y.

5. Welder M-129 - This welder's qualification test record indicated qualification WPS-D but was not signed by a Mercury representative. The NRC staff reviewed the welder's qualification records and determined that this welder was qualified to WPS-G, which also qualified the welder to WPS-D. The NRC staff found this acceptable.

6. Welder m-142 - The NRC staff found that this welder's qualification status record showed welds performed to WPS-D and WPS-Y; however, the welder's file contained no welder qualification records. The welder qualification records were later located, reviewed by the NRC staff, and found acceptable.

7. :lder M-85 - This welder had performed a qualification test to WPS-D, but the test report had been subsequently "voided" for an unspecified reason. A Welder Testing Laboratory test report for qualification to WPS-D was in the welder's file, but the NRC staff found no Mercury welder qualification status record. In addition, the welder's qualification status record indicated that welds were performed during periods when the status record did not include the welder's name; the NRC staff learned that the welder had a break in employment with Mercury. The welder had performed welds for Mercury while employed by Fischbach & Moore; he had been "loaned" to Mercury, and his WPS-D qualifications were current. The NRC staff discovered that the welder's qualification record had been "voided" because of improper changes to the form. Ebasco issued NCR W3-7724 to address these changes but the disposition of this NCR was unacceptable to the NRC staff.

8. Welder M-190 - The welder's file showed a termination date in late November 1982; however, the welder's qualification status record indicated the welder had performed welds through mid-January 1983. The welder's qualification records did not indicate why this welder had performed welds since his termination. Subsequent to the initial review, LP&L supplied the NRC staff with employment records for this welder, which indicated that he had been rehired in late December 1982. The NRC staff reviewed these records and determined that this welder was employed at the site and was qualified during the time he performed welds.

9. Welder M-177 - This welder's name was typed over that of another welder qualified to WPS-G. There was no WPS-Y qualification record, but the welder qualification status record indicated that he had performed welds to WPS-Y. The WPS-Y qualification record was eventually located and filed with the welder's records, resolving the NRC staff's question concerning the welder's qualification. However, the document with the name retyped over has also been submitted to the NRC Office of Investigation for their review as a good example of possible falsification of records.

10. Welder M-197 - This welder's file contained a record of test results which indicated failure to meet WPS-D qualification. However, the welder's qualification status record indicated that WPS-D qualification was met, yet the NRC qualification status record indicated that WPS-D qualification was met, yet the NRC staff found no qualification record to this effect in the welder"s file. WPS-D qualification records were eventually located and inserted into the welder's file. The NRC staff subsequently verified the welder's WPS-D qualification, and the welder's qualification record was found to be acceptable.

11. Welder M-315 - This welder performed welding to WPS-D, but the NRC staff found no record of WPS-D qualification in the welders' file' however, the staff was able to verify that the welder was not qualified to WPS-D. The staff reviewed Weld Data Report OCR 1020 and discovered that the welder had started one weld to WPS-D which was rejected at fit-up for his being an "unqualified welder" and for his welds being undercut and cracked, and that the defective weld had been removed and rewelded by a qualified welder. LP&L must review 100% of weld data reports to assure that this welder did not perform any welds for which he was not qualified.

12. Welder M-55 - The NRC staff reviewed examples supplied by the alleger of welder qualification records alleged to contain improper utilization of combined welding processes [gas tungsten arc weld (GTAW) and shielded metal arc welding (SMAW)] to qualify welders beyond the thickness actually welded. In this welder's case, the staff found that the welder qualification records clearly indicated that the correct process was utilized to qualify this welder to WPS-Y. The staff also reviewed Procedure Qualification Record No. Y1679, and verified that procedure WPS-Y was in accordance with the ASME Code. The Code does not not required that thickness range for each welding process be specified on the welder qualification record, because these ranges are specified in the weld procedure specification to which the welder is qualified.

In the review of the 62 Mercury welder qualification records, the NRC staff identified the 12 problems cited above and found the disposition of Ebasco NCR W3-7724 inadequate. In addition, the NRC staff found that welding filler material was not being controlled as required by the ASME or AWS Codes for low hydrogen welding electrodes (e.g., E-7018) for the rebaking process. The staff observed that low hydrogen welding electrodes were being baked at temperatures of 180°F to 220°F for a period of 8 hours. The staff learned that this was a common site practice. The ASME and AWS Codes require that low hydrogen welding electrodes which exceed the 4-hour issue time constraint, or in the case of loss of power which exceed the 4-hour time period, be rebaked between 450°F to 800°F for 4 hours. Ebasco and site contractor procedures allowed the lower temperatures at the longer holding time, but proper justification could not be furnished to the NRC staff during the review. The welding electrode holding ovens on site did not have the rebake capability. Low hydrogen electrode coating is susceptible to absorbing moisture, which is a major contributing cause of underbaked cracking.

Based on the review of this allegation, the NRC staff concluded that Ebasco, T-B, and Nisco welder qualifications were in compliance with ASME and AWS Code requirements. However, the staff found that Mercury welder qualification records were not in accordance with ASME or AWS Code requirements due to improper maintenance of records, inadquate documentation of supervision of the Welders Testing Laboratory where the welders performed some of the qualification tests, and the discrepancies in welder qualifications cited previously. In addition, the staff found that the low hydrogen electrode rebake process on site was not in accordance with the ASME and AWS Codes.

This allegation has safety significance and generic implications.

Potential Violations: The presence of incomplete and incorrect records is a violation of 10 CFR 50, Appendix B, Criterion XVII, and of the ASME Code.

The use of unqualified welders and improper control of welding electrodes is a violation of 10 CFR 50, Appendix B, Criterion IX, an of the ASME and AWS Codes.

Action Required: LP&L shall, prior to fuel load:

1. Review 100% of Mercury welder qualification records to assure proper conformance to the ASME and AWS Codes, and take corrective action as required. Also, enter the unnumbered Ebasco DR in the system, and resolve the DR.

2. Assure that all Mercury discrepancies in welder qualification identified by the NRC staff, and those noted on the Ebasco NCR, are properly dispositioned and adequately closed.

3. Review 100% of Mercury weld qualification records to assure that unqualified welders did not perform welding on safety-related systems.

4. Review the improper control of low hydrogen electrode for rebaking requirements and for proper issuance control, for compliance with the ASME and AWS Codes, and take corrective action as required. Variance from the ASME Code requires ASME approval.

References

1. ASME Section IX, Section III NB, NA.
   AWS 01.1
   10 CFR 50 Appendix B, Criterion XVII and Criterion IX

2. Mercury Procedure:

   MCP-2100-N49720 - Welding Control Procedure, Revision 13.
   WPS-E-N49720 - Welding Procedure Specification, Revision 11.
   WPS-Y-N49720 - Welding Procedure Specification, Revision 9.
   WPS-D-N49720 - Welding Procedure Specification, Revision 13.

3. Ebasco Procedure:

   WPS-89R5 - Welding Control Procedure
   WPS-43R18 - Welding Control Procedure
   CP-684, Revision H - Qualification of Welders

4. NISCO Procedure:

   WPS-80.3.2 - Welding Procedure Specification

5. Tompkins-Beckwith Procedure:

   WPS-8.4 - Welding Control Procedure
   WPS-8.6 - Welding Control Procedure
   WPS-1.8 - Welding Control Procedure
   WPS-1.4 - Welding Control Procedure
   WPS-1.7 - Welding Control Procedure

6. Mercury OCR Package 1020.

7. Exhibit 25 (DR & WQR for Welder M-55).

Statement Prepared By: _____ _____
J. Schapker Date

Reviewed By: _____ _____
Team Leader Date

Reviewed By: _____ _____
Site Team Leader(s) Date

Approved By: _____ _____
Task Management Date

DRAFT 1
06/06/84

SSER

Task: Allegation A-215, A-175, A-240, A-239

Reference No.: 4-84-A-06/103, 109, 126, 144

Characterization: ~~The allegation is~~ that welder qualifications were ~~improper as follows: (1)~~ Welders were not qualified; ~~(2) Welders~~ were not on the project at the time welding was performed, ~~(record deviations);~~ ~~(3) Welders~~ were not qualified to correct procedure/technique; and ~~(4)~~ Deficiency Report on welder qualification was destroyed.

Assessment of Allegation: The implied significance of this allegation is that ~~welders may have worked improper welding could have occurred that~~ could place the quality of construction in question.

The NRC staff reviewed the welder qualifications ~~for Ebasco and the following contractors that~~ performed safety-related welding on ~~site:~~ systems. ~~and components.~~

~~1. Ebasco~~

~~A~~ random sample of 25 welders ~~were selected~~ from travelers, weld rod control forms, ~~or~~ the welder qualification summary. ~~The~~ welder qualification records were reviewed for compliance ~~to applicable~~ Codes and procedural requirements. ~~All~~ welders ~~were found to be~~ qualified or partially qualified to the referenced weld procedures; ~~The~~ welder qualification status record identified the limitations of ~~certification~~ for each welder, when partial qualification (thickness range) was required. ~~The~~ welder qualification records ~~files~~ and status records ~~were found~~ to be ~~in compliance to applicable requirements.~~

The NRC staff reviewed a random sample of 57 T-B

~~2.~~ ~~Tompkins-Beckwith (T-B)~~

~~Fifty-seven~~ welder qualification records ~~were randomly selected for review.~~ In some cases ~~it was~~ noted that the welder qualification records for a specific Weld Procedure Specification (WPS) ~~was~~ not included in the welders' file. However, further review ~~of~~ WPSs, welder qualification cross reference list, and Welders Qualification Summary, verified that ~~all~~ T-B welders reviewed were properly qualified ~~in accordance with the ASME~~ and AWS Codes, and T-B procedures.

~~3.~~ NISCO

The NRC staff selected

A random sample of eleven welders qualification records ~~were selected~~ from completed quality records. ~~The weld procedure applicable to this review was NISCO 80.3.2. The welding was performed on large bore pipe (30") on welds identified P4W1 and P5W1.~~ ~~Certifications~~ for the selected welders ~~were~~ in accordance with the requirements of ~~the applicable code~~ (ASME Code ~~Section III and IX~~) and procedure ~~requirements. and were acceptable.~~

NISCO

~~4.~~ Mercury

The NRC staff selected a random sample of 62

Sixty two welders qualification records ~~were evaluated. There were eleven (11) initial discrepancies identified and addressed as stated below:~~

problem with 12 welders. INSERT (1) back of pg 17.

~~2.~~ a. Welder M-109 - ~~problem was weld procedure specification~~ (WPS) ~~WP~~-Y ~~certification~~ dated November 26, 1982, ~~was subsequently~~ and voided on October 22, 1983; however, The welder qualification status sheet did not show qualification or welding performed to WPS-Y. The welder ~~apparently was hired on January 25, 1980, and terminated on February 8, 1980~~ (from information obtained in welders qualification package). ~~Ebasco issued NCR-W3-7724 to address this finding. The NCR was not adequately dispositioned; the disposition does not detail how it was~~ but the NCR was

The EBASCO NCR disposition did not determine that the welder had performed welding to ~~this~~ WPS-Y "at any time."

and could not be relied upon as a quality control records.

determined the welder had not performed welding to this procedure "at any time". The welder qualification status records were not kept current as required by procedure, therefore cannot be depended upon as a QC record. A review of all Quality Control Weld Data Reports (Form 197-2) needs to be performed to determine this welder had not welded to this process. (This applies also, to Welder M-101.)

b. Welder M-44 - An allegation was made specifically addressing this welder's qualification record; "Originally qualified to WPS-B, form record retyped for clarity November 26, 1982 which incorrectly indicates welder qualified to WPS-Y." The welder's qualification record was not reviewed. The retyped form, referenced above, is no longer in the welder's file, the alleger supplied a copy of the welder qualification certification form to the NRC. No documentation concerning the finding or disposition of this error was found. The alleger supplied a copy of a unnumbered Ebasco deviation report (DR) which did addressed this finding. This DR could not be located in Ebasco's file. This item needs to be addressed by the licensee to assure the welder in question did not perform welds for which he was not qualified.

c. Welder M-9 - The welders qualification status record included in this file reflects different dates than that recorded on welder qualification test record for procedure WPS-E. The test record was revised on January 23, 1983 to change the dates from December 18, 1979 to December 18, 1978. The Welder Qualification Status Record indicates the qualification test was performed on December 18, 1979 as originally dated. It appears the date on the welder qualification test record was changed to reflect the date at the top of the form; however, The actual date of welder qualification needs to be ascertained and assurance that the welder did not perform safety-related welding prior to this date.

4. d. Welder M-101 - Welder originally qualified by test to weld procedure specification (WPS)-B, the Welders Qualification Test form (WQT) was "revised for clarity" on November 26, 1988, and the WPS on the revised WQT was changed to WPS-Y. WPS-Y is a combination weld process, Gas Tungsten Arc Welding (GTAW) and Shielded Metal Arc Welding (SMAW). WPS-B is a SMAW weld process only and does not qualify the welder to the WPS-Y procedure. This finding is addressed in Nonconformance Report (NCR) W3-7724, this NRC disposition was inadequate; The method utilized to determine the welder did not weld to this procedure is not stated, 100% review of all Quality Control Weld Data reports made was not performed, to assure the welder did not weld in this process.

5. e. Welder M-129 - Welder qualification test record for WPS-D was not signed by Mercury representative, Welder was qualified to WPS-G, the same date which also qualified the welder to perform welds to the WPS-D weld process, NRC finds this acceptable.

6. f. Welder M-142 - Welders qualification status record shows welds accomplished to WPS-D and WPS-Y. The welders file contained no welder qualification records, The welders qualification records were misfiled at the time of the review. The records were reviewed by the NRC with no adverse findings.

7. g. Welder M-85 - Welder performed qualification test to WPS-D, on February 16, 1981, The test was subsequently "voided" on November 8, 1983, for an unspecified reason. A Welders Testing Laboratory test report dated August 6, 1982, for WPS-D is included, but no Mercury Company welder qualification record for this test. In addition, the welders qualification status record indicated welds performed during periods when the published welder qualification status record did not include the welders name; The welder was originally

qualified to WPS-D on December 12, 1979, retested on February 16, 1981, after a break in employment. This test record was voided due to improper changes to the form, that is ("tape applied over" for record attributes, "diameter," "thickness range," and changed the numbers. Subsequently, NCR W3-7724 was issued. The disposition of this item was not adequately addressed in the NCR.

The welder did perform welds for Mercury after he resigned and was employed by Fischback & Moore, the parent company for Mercury. He was loaned to Mercury, to perform welding. His qualifications were still current at the time the welds were performed.

8. h. Welder M-190 - The welder file shows a termination date of November 29, 1982. The welders qualification status record shows the welder performing welds thru January 11, 1983. The welder was terminated on November 29, 1982, however employment records which were not in the qualification file indicates the was rehired on December 26, 1982. Therefore, this is not a problem.

9. i. Welder M-177 - The name of the welder is typed over that of another welder for WPS-G. There is no qualification records for WPS-Y, and the welder qualification status indicates welds were performed to this procedure. The typed over document has been turned over to the NRC Office of Investigation. The qualification records for WPS-Y was located and filed with the welders records, Therefore this qualification issued was resolved. However, the document with the name typed over

10. j. Welder M-197 - The welders file contained a report of test results contained a report of test results indicating failure to meet acceptance requirements for WPS-D qualification. The welder qualification status record indicates the qualification was accepted, on June 19, 1981. No qualification record was found in welders file. to substantiate this.

Previous qualification records ~~to this WPS was~~ located and inserted in the welders file. ~~The~~ qualification date, ~~was January 23, 1981~~, the welder qualification status records indicate ~~this process was maintained~~ for 3/8" O.D. and greater diameters. The test the welder had failed was for 1/4" O.D. tubing, ~~The weld records reviewed indicate~~ the welder performed welds within the original qualification only, ~~This issue is no longer a problem.~~

11. ~~k.~~ Welder M-315 - Welder performed welding to WPS-D, no record of qualification ~~to this procedure was~~ in the welder's file, Welder was not qualified to ~~this procedure~~. The welder started one weld to ~~this procedure~~ which was rejected at fit-up for being an "unqualified welder, undercut and cracked tack welds," ~~Subsequently,~~ the defective weld was removed and rewelded by a qualified welder. (Reference - Mercury Quality Control Weld Data Report OCR # 1020 System 52A-2 sheet 2 of 6.) Ebasco ~~needs to undertake an indepth~~ review to assure this welder did not perform any welds for which he ~~was not qualified. This~~ review ~~should~~ include Quality Weld Data reports ~~should be made as the welders qualification status sheets are not reliable QC records to~~ determine this was the only weld performed to ~~this procedure~~.

12. ~~l.~~ Welder M-55 - ~~Allegation of~~ improper utilization of combined welding processes ~~gas tungsten arc welding (GTAW) and shielded metal arc welding (SMAW)~~ to qualify the welder(s) beyond the thickness actually welded. ~~Examples of welder qualification records with information applicable to this alleged deviation was provided. (Allegation exhibit 25.) Review of these record examples and others in the QA records vault were performed.~~ The welder qualification records clearly indicate ~~which weld procedure (WPS)~~ was utilized to qualify the welder. ~~In this case WPS-Y was indicated. WPS-Y for base metal thickness .344 specifies a thickness of .1555 deposit for GTAW and .1875 for the remainder with SMAW as qualified on Procedure~~

Qualification Report ~~(PQR)~~ No. Y1679, ~~The Welder~~ Qualification Record ~~(WQR) is~~ correct ~~as written. The thickness range for the combination process is 1/16 to .688 [2 times thickness of material thickness (Im)]. It is not required~~ to specify ~~the~~ thickness range of each process on ~~the~~ welder qualification record, ~~as this~~ is specified in the weld procedure specification to which the welder ~~performed the qualification and is identified on the WQR.~~

In conclusion, the welder qualifications for all contractors except Mercury were found to be in compliance with ASME Code requirements. Because of improper maintenance of welders qualification records, as required by Mercury procedures; inadequate documentation of supervision of the weld test lab where the welders performed some of the qualification test; problems with welder qualifications as illustrated above were identified and need to be resolved to assure compliance to code. This allegation has safety significance and generic implications pertaining to Mercury Company only.

Potential Violations: The lack of ~~in~~complete and ~~in~~correct records is a violation of 10 CFR 50 Appendix B, Criterion XVII and the ASME Code. The use of unqualified weld is a violation of 10 CFR 50, Appendix B, Criterion IX and the ASME Code.

Actions Required: LP&L shall prior to fuel load:

1. Review 100% of Mercury welders to assure proper qualification to the ASME and AWS codes.

2. Assure all problems previously identified and to be identified on NCR are proper dispositioned (corrective action) and adequately closed.

3. For welders identified specifically on this allegation evaluation, a review of all weld records are required to assure unqualified welders did not perform welding on safety related systems.

References

1. ASME Section IX, Section III NB, NA.

2. Mercury Procedure:

MCP-2100-N49720 - Welding Control Procedure, Revision 13.
WPS-E-N49720 - Welding Procedure Specification, Revision 11.
WPS-Y-N49720 - Welding Procedure Specification, Revision 9.
WPS-D-N49720 - Welding Procedure Specification, Revision 13.

3. Ebasco Procedure:

WPS-89R5 - Welding Control Procedure
WPS-43R18 - Welding Control Procedure
CP-684, Revision H - Qualification of Welders

4. NISCO Procedure:

WPS-80.3.2 - Welding Procedure Specification

5. Tompkins-Beckwith Procedure:

WPS-8.4 - Welding Control Procedure
WPS-8.6 - Welding Control Procedure
WPS-1.8 - Welding Control Procedure
WPS-1.4 - Welding Control Procedure
WPS-1.7 - Welding Control Procedure

Statement Prepared By:	_____	_____
	J. Schapker	Date
Reviewed By:	_____	_____
	Team Leader	Date
Reviewed By:	_____	_____
	Site Team Leader(s)	Date
Approved By:	_____	_____
	Task Management	Date

Document Name:
SSER X A-215

Requestor's ID:
CONNIE

Author's Name:

Document Comments:
comm from displaywritter 5/29/84

SSER

Task: Allegation A-215, A-175, A-240, A-239

Reference No.: 4-84-A-06/103, 109, 126, 144

Characterization: The allegation is that welder qualifications were improper as follows: (1) Welders were not qualified; (2) Welders were not on the project at the time welding was performed (record deviations); (3) Welders were not qualified to correct procedure/technique; and (4) Deficiency report on welder qualification was destroyed.

Assessment of Allegation: The implied significance of this allegation is that improper welding could have occurred that could place the quality of construction in question.

The NRC staff reviewed the welder qualifications for Ebasco and the following contractors that performed safety related welding on site:

1. Ebasco

   A random sample of 25 welders were selected from travelers, weld rod control forms, or the welder qualification summary. The welder qualification records were reviewed for compliance to applicable codes and procedural requirements. All welders were found to be qualified or partially qualified to the referenced weld procedures. The welder qualification status record identified the limitations of certification for each welder, when partial qualification (thickness range) was required. The welder qualification records files and status records were found to be in compliance to applicable requirements.

2. Tompkins-Beckwith (T-B)

Fifty-seven welder qualification records were randomly selected for review. In some cases it was noted that the welder qualification records for a specific Weld Procedure Specification (WPS) was not included in the welders file. However, further review of WPSs, welder qualification cross reference list, and Welders Qualification Summary, verified that all welders reviewed were properly qualified.

3. NISCO

A random sample of eleven welders qualification records were selected from completed quality records. The weld procedure applicable to this review was NISCO 80.3.2. The welding was performed on large bore pipe (30") on welds identified P4W1 and P5W1. Certifications for the selected welders was in accordance with the requirements of the applicable code (ASME Section III and IX) and procedure requirements, and were acceptable.

4. Mercury

Sixty two welders qualification records were evaluated. There were eleven initial "discrepancies" identified and addressed as stated below:

a. Welder M-109 - problem was weld procedure specification (WPS) WP-Y certification dated November 26, 1982 was subsequently voided on October 22, 1983. The welder qualification status sheet did not show qualification or welding performed to WPS-Y. The welder apparently was hired on January 25, 1980 and terminated on February 8, 1980 (from information obtained in welders qualification package). Ebasco issued NCR-W3-7724 to address this finding. The NCR has not been adequately dispositioned. The disposition does not detail how it was

determined the welder had not performed welding to this procedure "at any time." The welder qualification status records were not kept current as required by procedure, therefore cannot be depending upon as a QC record. A review of all Quality Control Weld Data Reports (Form 197-2) needs to be performed to determine this welder had not welded to this process. (This applies also, to Welder M-101.)

b. Welder M-44 - An allegation was made specifically addressing this welders qualification record; "Originally qualified to WPS-B form retyped for clarity November 26, 1982 which incorrectly indicates welder qualified to WPS-Y." The welders qualification record was reviewed. The retyped form, referenced above, is no longer in the welders file; the alleger supplied a copy of the welder qualification certification form to the NRC. No documentation concerning the finding or disposition of this error was found. The alleger supplied a copy of a unnumbered Ebasco deviation report (DR) which addressed this finding. This DR could not be located in Ebasco's file. This item needs to be addressed by the licensee to assure the welder in question did not perform welds for which he was not qualified.

c. Welder M-9 - The welders qualification status record included in this reflects different dates than that recorded on welder qualification test record for procedure (WPS) E. The test record was revised on January 23, 1983 to change the dates from December 18, 1979 to December 18, 1978. The welder qualification status record indicates the qualification test was performed on December 18, 1979 as originally dated. It appears the date on the welder qualification test record was changed to reflect the date at the top of the form. The actual date of welder qualification needs to be ascertained, and assurance that the welder did not perform safety related welding prior to this date.

d. Welder M-101 - Welder originally qualified by test to weld procedure specification (WPS) B, the welders qualification test form (WQT) was "revised for clarity" on November 26, 1982 and the WPS on the revised WQT was changed to WPS-Y. WPS-Y is a combination weld process gas tungsten arc welding (GTAW) and shielded metal arc welding (SMAW). WPS-B is a SMAW weld process only and does not qualify the welder to the WPS-Y procedure. This finding is addressed in Nonconformance Report (NCR) W3-7724. This NRC disposition is inadequate. The method utilized to determine the welder did not weld to this procedure is not stated; 100% review of all Quality Control Weld Data reports made was not performed to assure the welder did not weld in this process.

e. Welder M-129 - Welder qualification test record for WPS-D was not signed by Mercury representative. Welder was qualified to WPS-G the same date which also qualified the welder to perform welds to the WPS-D weld process. NRC finds this acceptable.

f. Welder M-142 - Welders qualification status record shows welds accomplished to WPS-D and WPS-Y. The welders file contained no welder qualification records. The welders qualification records were misfiled at the time of the review. The records were reviewed with no adverse findings.

g. Welder M-85 - Welder performed qualification test to WPS-D on February 16, 1981, the test was subsequently voided on November 8, 1983 for an unspecified reason. A welders testing laboratory test report dated August 6, 1982 for WPS-D is included but no Mercury Company welder qualification record for this test. In addition, the welders qualification status record indicated welds performed during periods when the published welder qualification status record did not include the welders name. The welder was originally

qualified to WPS-D on December 12, 1979, retested on February 16, 1981 after a break in employment. This test record was voided due to improper changes to the form, that is "tape applied over" for record attributes "diameter," "thickness range" and changed the numbers. Subsequently, NCR W3-7724 was issued. The disposition of this item was not adequately addressed in the NCR.

The welder did perform welds for Mercury after he resigned and was employed by Fischback & Moore, the parent company for Mercury. He was loaned to Mercury to perform welding. His qualifications were still current at the time the welds were performed.

h. Welder M-190 - The welder file shows a termination date of November 29, 1982. The welders qualification status record shows the welder performing welds thru January 11, 1983. The welder was terminated on November 29, 1982, however employment records which were not in the qualification file indicates he was rehired on December 26, 1982. Therefore, this is not a problem.

i. Welder M-177 - The name of the welder is typed over that of another welder for WPS-G. There is no qualification records for WPS-Y and the welder qualification status indicates welds were performed to this procedure. The typed over document has been turned over to the NRC Office of Investigation. The qualification records for WPS-Y was located and filed with the welders records. Therefore this qualification issued was resolved.

j. Welder M-197 - The welders file contained a report of test results contained a report of test results indicating failure to meet acceptance requirements for WPS-D qualification. The welder qualification status record indicates the qualification was accepted on June 19, 1981. No qualification record was found in welders file to substantiate this.

Previous qualification records to this WPS was located and inserted in the welders file. Qualification date was January 23, 1981, the welder qualification status records indicate this process was maintained for 3/8" O.D. and greater diameters. The test the welder failed was for 1/4"" O.D. tubing. The weld records reviewed indicate the welder performed welds within the original qualification only. This issue is no longer a problem.

k. Welder M-315 - Welder performed welding to WPS-D, no record of qualification to this procedure was in the welders file. Welder was not qualified to this procedure. The welder started one weld to this procedure which was rejected at fit-up for being an "unqualified welder, under cut and cracked tack welds." Subsequently, the defective weld was removed and rewelded by a qualified welder. (Reference - Mercury Quality Control Weld Data Report OCR # 1020 System 52A-2 sheet 2 of 6.) Ebasco needs to undertake an indepth review to assure this welder did not perform any welds for which he was not qualified. This review should include Quality Weld Data reports should be made as the welders qualification status sheet are not reliable QC records to determine this was the only weld performed to this procedure.

l. Welder M-55 - Allegation of improper utilization of combined welding processes gas tungsten arc welding (GTAW) and shielded metal arc welding (SMAW) to quality the welder(s) beyond the thickness actually welded. Examples of welder qualification records with information applicable to this alleged deviation was provided. (Allegation exhibit 25.) Review of these record examples and others in the QA records vault were performed. The welder qualification records clearly indicate which weld procedure (WPS) was utilized to qualify the welder. In this case WPS-Y was indicated. WPS-Y for base metal thickness .344 specifies a thickness of .1555 deposit for GTAW and .1875 for the remainder with SMAW as qualified on Procedure

Qualification Report (PQR) No. Y1679. The Welder Qualification Record (WQR) is correct as written. The thickness range for the combination process is 1/16 to .688 [2 times thickness of meterial thickness (Tm)]. It is not required to specify the thickness range of each process on the welder qualification record as this is specified in the weld procedure specification to which the welder performed the qualification and is identified on the WQR.

In conclusion, the welder qualifications for all contractors except Mercury were found to be in compliance with ASME code requirements. Because of improper maintenance of welders qualification records, as required by Mercury procedures; inadequate documentation of supervision of the weld test lab where the welders performed some of the qualification test; problem with welder qualifications as illustrated above were identified and need to be resolved to assure compliance to code. This allegation has safety significance and generic implications pertaining to Mercury Company only.

Potential Violations: The lace of incomplete and incorrect records is a violation of 10 CFR 50 Appendix B, Criterion XVII and the ASME Code. The use of unqualified weld is a violation of 10 CFR 50, Appendix B, Criterion IX and the ASME Code.

Actions Required: LP&L shall prior to fuel load:

1. Review 100% of Mercury welders to assure proper qualification to the ASME and AWS codes.

2. Assure all problems previously identified and to be identified on NCR are proper dispositioned (corrective action) and adequately closed.

3. For welders identified specifically on this allegation evaluation, a review of all weld records are required to assure unqualified welders did not perform welding on safety related systems.

References

1. ASME Section IX, Section III NB, NA.

2. Mercury Procedure:

MCP-2100-N49720 - Welding Control Procedure, Revision 13.
WPS-E-N49720 - Welding Procedure Specification, Revision 11.
WPS-Y-N49720 - Welding Procedure Specification, Revision 9.
WPS-D-N49720 - Welding Procedure Specification, Revision 13.

Ebasco Procedure:

WPS-89R5 - Welding Control Procedure
WPS-43R18 - Welding Control Procedure
CP-684, Revision H - Qualification of Welders

NISCO Procedure:

WPS-80.3.2 - Welding Procedure Specification

Tompkins-Beckwith Procedure:

WPS-8.4 - Welding Control Procedure
WPS-8.6 - Welding Control Procedure
WPS-1.8 - Welding Control Procedure
WPS-1.4 - Welding Control Procedure
WPS-1.7 - Welding Control Procedure

Statement Prepared By: _____ _____
J. Schapker Date

Reviewed By: _____ _____
Team Leader Date

Reviewed By: _____ _____
Site Team Leader(s) Date

Approved By: _____ _____
Task Management Date