

HANGER REPORT

Midland Plant Units 1 and 2

August 9, 1982

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MIDLAND PLANT UNITS 1 AND 2

HANGER REPORT

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I. INTRODUCTION

A. Reason for Overinspection

The NRC conducted an inspection at the Midland jobsite from May 18 to 22, 1981. As a result of that inspection, two items of noncompliance were documented. Item 329/81-12-11; 330/81-12-12 states in part ". . . seven large bore pipe restraints, supports, and anchors were not installed in accordance with design drawing and specification requirements." Item 329/81-12-12; 330/81-12-13 states in part ". . . QC inspectors inspected and accepted 6 of 7 large bore pipe restraints, supports, and anchors that had not been installed in accordance with design drawings and specifications as determined by the NRC inspector."

In the Consumers Power Company response to those items of noncompliance (CPCo letter Serial 14601, 10/30/81), a commitment was made for the Midland Project Quality Assurance Department (MPQAD) to perform an overinspection of a sample of hangers installed before January 1981.

The purpose of the overinspection was to assess the acceptability of the installations and the adequacy of the original inspections performed by Bechtel Quality Control (QC).

B. Overinspection Results

One hundred twenty-three hangers were overinspected by MPQAD. With one exception, all of the hangers were installed before January 1981.

The results of the MPQAD overinspection are summarized as follows:

Hangers overinspected	123
Hangers acceptable (no nonconformances)	68 (55%)
Characteristics overinspected	9,630
Characteristics acceptable	9,504 (98.7%)

The statistics given above, with some variances, were provided to the NRC during an exit meeting held on April 23, 1982 (see Attachment 15).

The nonconformances identified in the overinspection were documented on MPQAD Nonconformance Reports (NCRs) M-01-9-2-007, M-01-9-2-010, M-01-5-2-014, and M-01-5-2-017.

As issued in February 1982, the NCRs listed above identified the 55 nonconforming hangers and grouped the 126 nonconforming characteristics into 88 items. (An item is one or more nonconforming characteristics of the same kind on a single hanger.)

C. Corrective Action and Safety Evaluation of Identified Nonconformances

Upon receipt of the NCR, construction and QC reviewed each nonconforming characteristic and item and performed a reinspection to understand them more fully. On the basis of the review and reinspection, the items were dispositioned to perform one of the following:

- o Rework them (Category A)
- o Accept them as is, based on redline drawings approved by Field Engineering in accordance with Field Procedure FIP-1.112 (Category B)
- o Accept them as is, based on the redline drawing approved by Project Engineering in accordance with Procedure EDPI 4.46.9 (Category C)
- o Reclassify them as conforming to requirements based on the reinspection results and based on agreements with MPQAD (Category D)
- o Submit them for further dispositioning to project engineering (Category E)

The above dispositions were provided to the MPQAD as formal responses to the NCR (see Attachments 7 through 10).

The items dispositioned for Categories A, B, C, and D above were evaluated by Project Engineering to have no impact on safety.

D. Adjusted Reported Results and Dispositions

Based on the reinspection results concurred with by MPQAD and the disposition categories above, the 88 items were dispositioned as follows:

<u>Category</u>	<u>Quantity of Items</u>
A	21
B	31
C	13
D	21
E	<u>2</u>
TOTAL	88

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Based on the foregoing information, for the total number of hangers installed before January 1, 1981, there is 95% confidence that at least 97.5% of the characteristics of the hangers conform to the requirements.

II. POTENTIAL GENERIC EVALUATION OF IDENTIFIED
NONCONFORMANCES

A. Introduction

The 67 nonconforming items remaining after adjusting the overinspection results have been categorized into 14 specific anomaly groups, as shown in Table 1 and further described in Table 2. Additionally, Table 1 provides a rationale as to the generic implications of each anomaly group and as to actions already taken and to be taken.

B. Conclusions

Table 1 lists four anomaly groups that are of generic concern if they should occur elsewhere. To identify these occurrences, various examinations as described in Section IV will be utilized. Once identified during these examinations, any nonconformances will be properly dispositioned.

C. Tables 1 and 2

Tables 1 and 2 categorize and describe the 14 specific anomaly groups. These tables are found on the following pages.

TABLE 1
CORRECTIVE ACTIONS NECESSARY TO RESOLVE ANOMALIES

<u>Anomaly</u>	<u>Number of Occurrences</u>	<u>Generic Concern</u>	<u>Rationale</u>	<u>Action Required</u>
1. Missing components	4	Yes	Missing components could have an effect on the ability of the support to function properly.	<p>a) Field Engineering and Quality Control are required to perform inspections of each hanger in accordance with the requirements of Specification 7220-M-326 and AAPD/PSP-G-11.1 prior to turnover. This is to verify the hanger configuration conforms to the latest design drawings.</p> <p>These additional inspections will identify any missing components as required by the design.</p> <p>Records of completion will be recorded on the P-119 (small bore) and P-129 (large bore) form as required by Specification 7220-M-326.</p> <p>Quality Control procedure AAPD/PSP G-11.1 will provide additional guidelines.</p>
2. Material substitution	4	No	<p>Substituted material was found to be equal to or better than that specified.</p> <p>Review of existing conditions indicates conditions are acceptable because they are in accordance with the specifications.</p> <p>Field Engineering utilized Section 5.10 of Specification 7220-M-326 when making material substitutions and exercising engineering judgment. The four occurrences do not indicate any further action is warranted.</p>	<p>Field is to utilize field change procedures for future substitutions.</p>

TABLE 1 (continued)

Anomaly	Number of Occurrences	Generic Concern	? Rationale	Action Required
3. Undersize welds				
A) Component supports other than anchors	8	No	<p>Evaluation by engineering has determined that these existing undersized welds do not have an impact on safety.</p> <p>During 1977 and 1978, undersized welds of this type were analyzed and tested extensively as a result of 10 CFR 50.55(e) reports on this subject. (Reference Bechtel MCARs 18, 19, and 21). Welds of this type were found to be acceptable because of design conservatism. This analysis was verified by destructive load testing of worst-case deviations. The analysis and worst-case testing was based on the results of random sample reinspections and random sample drawing reviews. The conditions discovered during the overinspection are no more severe than, and are similar in configuration to, those welds analyzed and tested earlier based on these facts. Any undersized welds that may have not been identified would have no impact on safety.</p>	<p>No further action beyond engineering analysis and a previous analysis and testing is required.</p>
B) Anchors	3	No	Same as above	Same as above
4. Bill of material problem	10	No	<p>The size, shape, and characteristics of the item (e.g., 3 x 3 x 3/8) are critical to the support; however, the amount of the item (e.g., length) is not critical but is only a guide for estimating required quantities.</p>	<p>Revise Specification 7220-M-326 to define "member length" on bill of material as being provided to facilitate shop fabrication only.</p>

TABLE 1 (continued)

Anomaly	Number of Occurrences	Generic Concern	Rationale	Action Required
5A. Dimensional violations (other than anchors)	11	No	If the location of the member point of attachment to building structure and centerline of pipe are within tolerance, there is no effect on the design or structural capability of the support.	Revise Specification 7220-M-326 to clarify the tolerances. With this clarification, the previously identified nonconformances are eliminated.
5B. Dimensional violations (anchors)	2		Same as above	Same as above
6. Clearance between pipe and support				
A) Zero clearance	5	Yes	Binding of pipe by box or U bolt does not allow pipe to move axially.	Zero clearance and excessive clearance are attributes checked during planned engineering functional stress walkdown. This walkdown will cover all Q supports where this condition could exist.
B) Excessive clearance	4	Yes	Clearance is greater than that specified in drawings, but this does not affect the structural integrity of the component. If a seismic event occurs, the integrity of piping system could be compromised (additional impact loads).	
7. Fixed component rotation				
A) WF in tension rotated 90 degrees	1	Yes	As installed, the load (tension) carrying capability of the component was not compromised. This may not be true for other possible rotations of components.	These cases have been found acceptable. The inspections described in the "Action Required" for Anomaly 1 will address this anomaly as well.
B) Angle rotated 90 degrees (only equal leg angles)	1	Yes	An equal leg angle has equal moments of inertia when rotated in increments of 90 degrees. This would not be true for unequal leg angles.	Same as Anomaly 7A

TABLE 1 (continued)

<u>Anomaly</u>	<u>Number of Occurrences</u>	<u>Generic Concern</u>	<u>Rationale</u>	<u>Action Required</u>
8. Location of hangers	5	No	Hanger location dimensions on hanger drawings are reference dimensions for small bore and are so noted on the drawings. The large bore hangers are controlled by hanger drawings. Conditions are unique to skewed pipe.	Relocation of hangers to be consistent with the location of the pipe is not a problem for this type of occurrence. Field will request design changes for all future occurrences. Project Engineering will also judge the acceptability of hanger location during functional walk-down.
9. Gap between wall and baseplate	1	No	Evaluation by engineering indicates that, as installed, this baseplate is acceptable; one occurrence in the total sample does not indicate this is of generic concern.	Same as Anomaly 7A
10. Clevis rotation	2	Yes	Hanger design normally provides for 15 degrees rotation in the direction of least pipe movement. If rotating movement is larger, this could restrict pipe movement.	Same as Anomaly 7A Currently, Specification 7220-M-326(Q), Section 6.1, requires that Field Engineering observe pipe movement during plant heat-up. Restricted motion would be noted at that time.
11. Irregularity in weld (grinding of weld)	1	No	a) Weld is not undersized. b) Structural integrity has not been violated.	Project Engineering review of this case completed all required action.
12. Incorrect weld				
A) Weld in wrong place (weld is east-west instead of north-south)	1	No	Flared bevel groove weld used to hold a shim in place with very low weld loading.	Same as Anomaly 7A
B) Rotated weld	1	Yes	Stress analysis required. Rotated welds may provide strength only in secondary axis.	

TABLE 1 (continued)

<u>Anomaly</u>	<u>Number of Occurrences</u>	<u>Generic Concern</u>	<u>Rationale</u>	<u>Action Required</u>
C) Modification to weld configuration	1	No	The modified weld has been analyzed and found acceptable.	
13. Thread engagement (engagement of rod into sway strut)	1	No	Thread engagement will be set during adjustment of hangers prior to functional turnover.	Same as Anomaly 7A
14. Miscellaneous (angle clip in wrong location)	1	No	Clips are only to facilitate construction.	None

TABLE 2

DESCRIPTION OF ANOMALIES

ANOMALY 1: MISSING COMPONENTS

Description of Anomaly

Missing components, e.g., nuts, bolts, washers, cotter pins, lock nuts

<u>Hanger No.</u>	<u>No. of Occurrences</u>	<u>Ref: CPCo NCR</u>
FSK-M-2ECB-4-4-H5, Rev 2 (Item a)	1	M-01-5-2-014
FSK-M-2EBB-3-4-H1, Rev 1 (Item a, b, c)	3	M-01-5-2-014

TABLE 2 (continued)

ANOMALY 2: MATERIAL SUBSTITUTION

Description of Anomaly

- a. The drawing requires the jam nuts to be SA-307, GR B. On the contrary, jam nuts SA-194, 2H were used.
- b. PGS 104 pipe strap specified; PGS 111 installed.
- c. W5 I-beam specified; W6 I-beam installed.

<u>Hanger No.</u>	<u>No. of Occurrences</u>	<u>Ref: CPCo NCR</u>
FSK-M-1CCB-69-1-H1, Rev 3 (a)	1	M-01-5-2-017
FSK-M-1CCB-69-1-H2, Rev 2 (a)	1	M-01-5-2-017
FSK-M-2HBC-145-1-H5, Rev 2 (c)	1	M-01-5-2-014
FSK-M-2GCB-21-1-H1, (b)	1	M-01-9-2-010

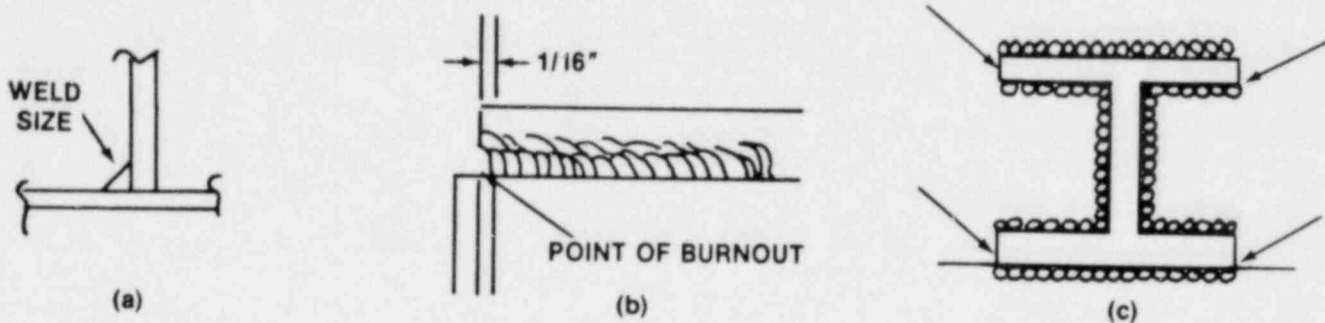
TABLE 2 (continued)

ANOMALY 3: UNDERSIZE WELDS

Description of Anomaly

Undersize welds include: a) weld size which is either entirely or partially less than specified in the drawing, b) undercut (burnout), and c) noncontinuous weldment.

3A - Component Supports Other Than Anchors:



<u>Hanger No.</u>	<u>No. of Occurrences</u>	<u>Ref: CPCo NCR</u>
1-610-4-27, Rev 4(b)	1	M-01-9-2-007
2-604-3-18, Rev 1(c)	1	M-01-9-2-007
2-611-7-33, Rev 1(a)	1	M-01-9-2-010
2-611-6-5, Rev 3(a)	2	M-01-5-2-014
2-613-4-19, Rev 3(a)	1	M-01-5-2-014
2-619-6-11, Rev 3(a)	1	M-01-5-2-014
1-612-2-2, Rev 1(a)	1	M-01-5-2-014

3B - Anchors (see Figure 3a above):

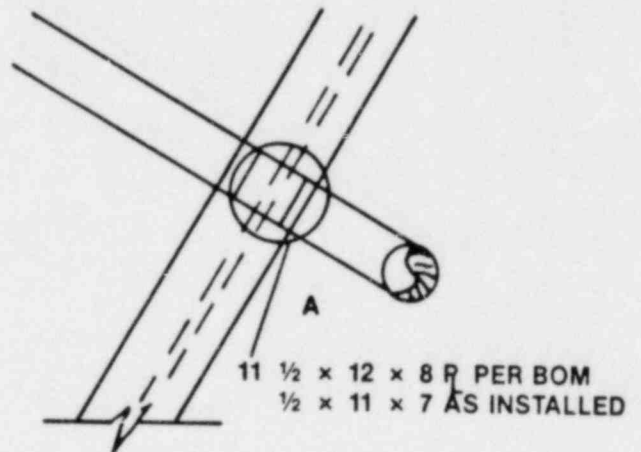
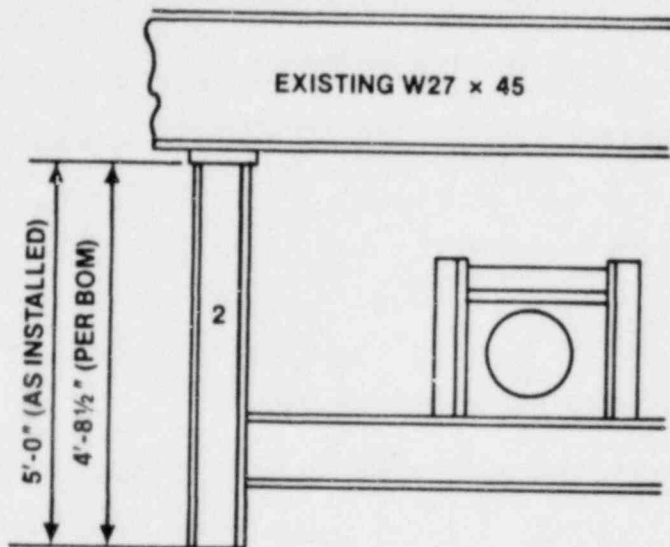
<u>Hanger No.</u>	<u>No. of Occurrences</u>	<u>Ref: CPCo NCR</u>
2-619-1-19, Rev 1(a)	1	M-01-9-2-010
1-612-4-33, Rev 1/F1(a)	1	M-01-5-2-014
1-616-6-28, Rev 1(a)	1	M-01-9-2-007

TABLE 2 (continued)

ANOMALY 4: BILL OF MATERIAL PROBLEM

Description of Anomaly

Component dimensions are not in accordance with the dimensions listed on the bill of materials.



<u>Hanger No.</u>	<u>No. of Occurrences</u>	<u>Ref: CPCo NCR</u>
1-616-10-22, Rev 4	1	M-01-9-2-007
FSK-M-2HBC-216-5-H3, Rev 0	1	M-01-9-2-010
2-604-16-15, Rev 0/F1	2	M-01-9-2-010
2-619-1-19, Rev 1	1	M-01-9-2-010
FSK-M-2HBC-219-1-H1, Rev 0	1	M-01-9-2-010
FSK-M-2HBC-144-1-H8, Rev 1	1	M-01-5-2-014
2-619-6-11, Rev 3	2	M-01-5-2-014
FSK-M-2GCB-22-1-H3, Rev 0	1	M-01-5-2-014

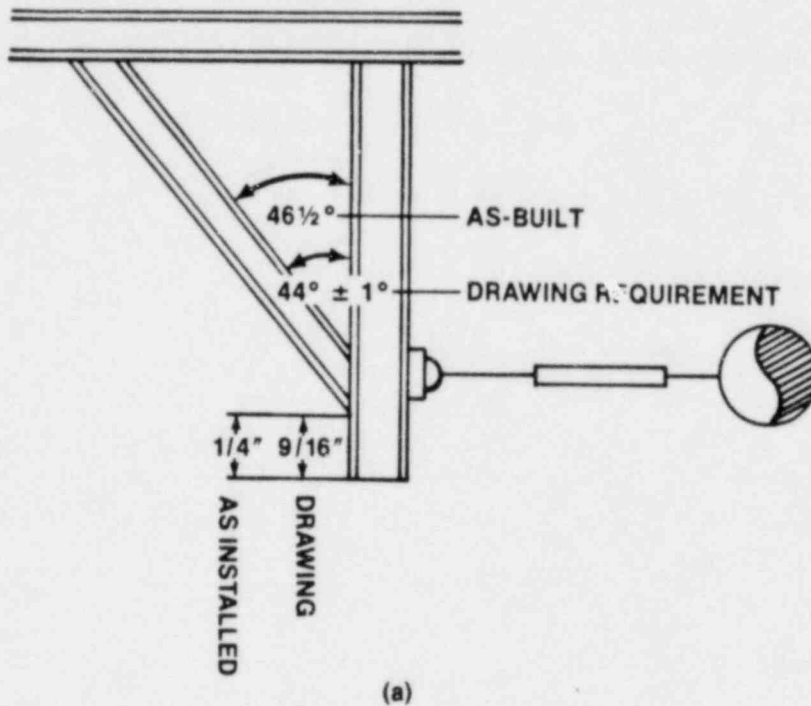
TABLE 2 (continued)

ANOMALY 5: DIMENSIONAL VIOLATION

Description of Anomaly

Angular and linear dimensions are not in accordance with the drawing.

5A - Component Supports Other Than Anchors:



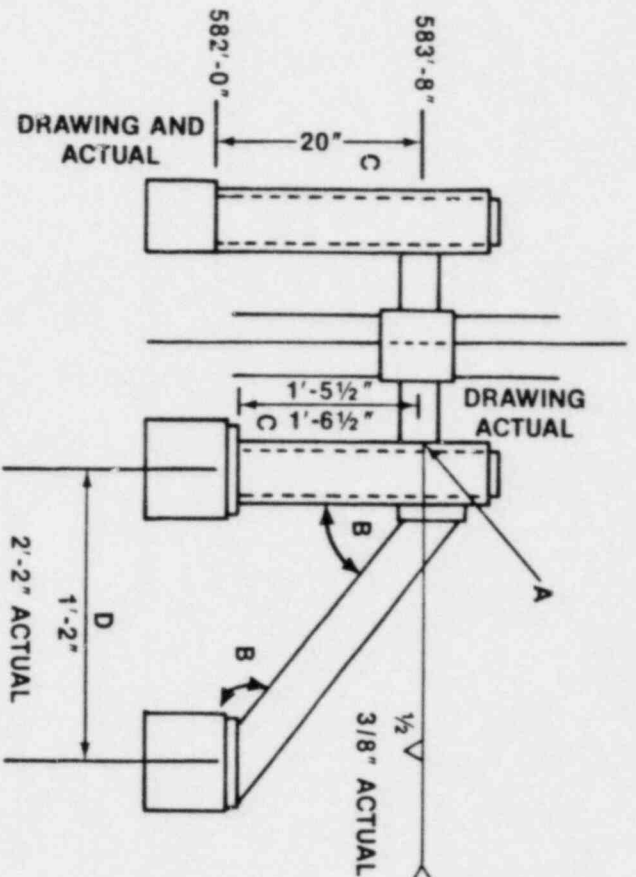
<u>Hanger No.</u>	<u>No. of Occurrences</u>	<u>Ref: CCo NCR</u>
2-611-6-5, Rev 3	1	M-01-5-2-014
1-619-14-4, Rev 2	1	M-01-9-2-007
1-610-4-27, Rev 4	1	M-01-9-2-007
1-616-10-22, Rev 4	1	M-01-9-2-007
1-612-2-3, Rev 1	1	M-01-9-2-007
FSK-M-1HBC-219-1-H1, Rev 2	1	M-01-9-2-007
2-616-8-2, Rev 7	1	M-01-9-2-010

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TABLE 2 (continued)

<u>Hanger No.</u>	<u>No. of Occurrences</u>	<u>Ref: CPCO NCR</u>
2-611-4-4, Rev 4	1	M-01-9-2-010
2-617-11-9, Rev 0	2	M-01-5-2-014
1-633-1-33, Rev 2	1	M-01-5-2-017

5B - Anchors:



(b)

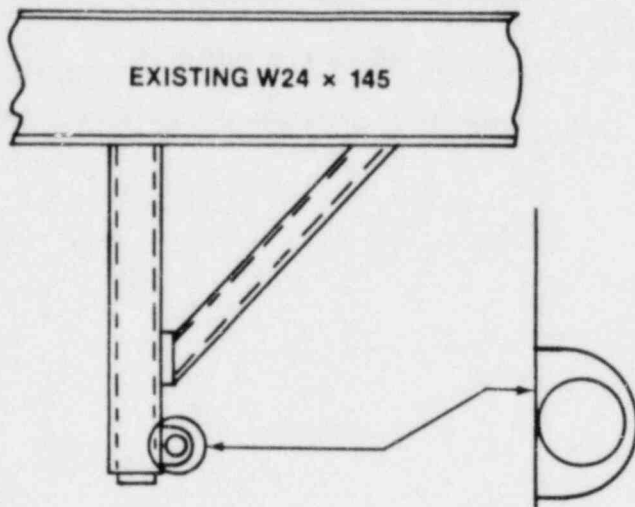
<u>Hanger No.</u>	<u>No. of Occurrences</u>	<u>Ref: CPCO NCR</u>
1-616-6-28, Rev 1	2	M-01-9-2-007

TABLE 2 (continued)

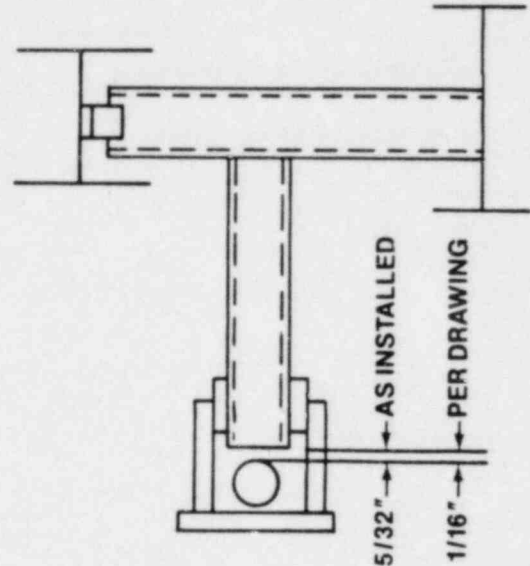
ANOMALY 6: CLEARANCE BETWEEN PIPE AND SUPPORT

Description of Anomaly

Clearances between pipe and support (strap, u-bolt, box) do not conform to the drawing/specification tolerances, e.g., zero clearance, excessive clearance.



ZERO CLEARANCE
(a)



EXCESSIVE CLEARANCE
(b)

<u>Hanger No.</u>	<u>No. of Occurrences</u>	<u>Ref: CPCo NCR</u>
2-604-16-15, Rev 0/F1(a)	1	M-01-9-2-010
2-657-43-6, Rev 1(b)	1	M-01-9-2-010
2-619-6-11, Rev 3(a)	1	M-01-5-2-014
FSK-M-1HBC-144-1-H3, Rev 1(b)	1	M-01-5-2-017
1-648-7-58, Rev 1/F1(b)	1	M-01-5-2-017
1-657-37-9, Rev 2(a)	1	M-01-5-2-017
FSK-M-0HBC-142-1-H1, Rev 4(b)	1	M-01-5-2-017

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TABLE 2 (continued)

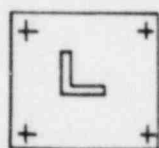
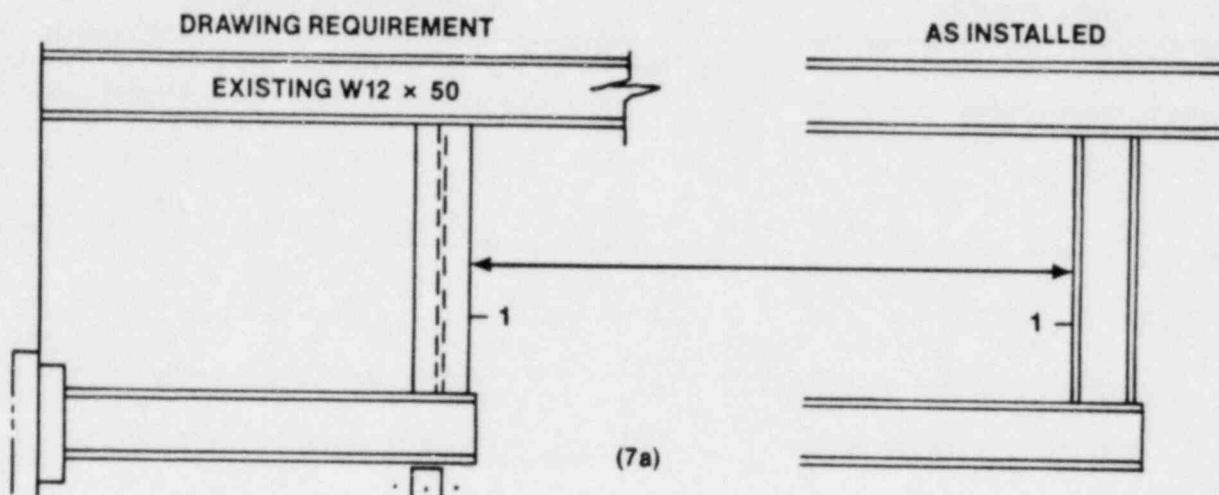
<u>Hanger No.</u>	<u>No. of Occurrences</u>	<u>Ref: CCo NCR</u>
FSK-M-1CCB-69-1-H2, Rev 2(a)	1	M-01-5-2-017
FSK-M-1HBC-145-1-H9, Rev 2(a)	1	M-01-5-2-017

TABLE 2 (continued)

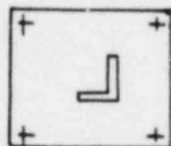
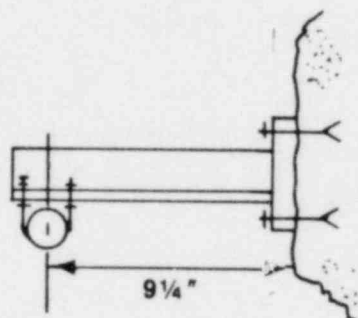
ANOMALY 7: FIXED COMPONENT ROTATION

Description of Anomaly

Support member rotated ___ degrees from design sketch.



DRAWING



AS INSTALLED

(7b)

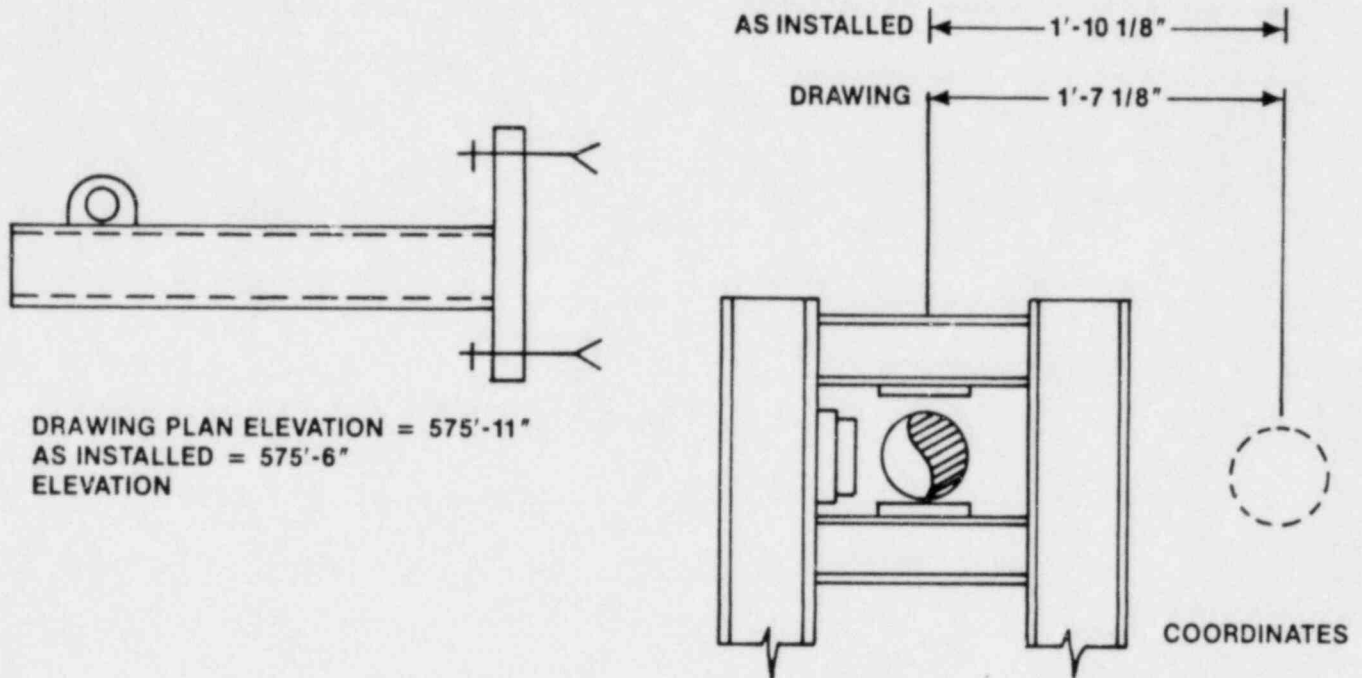
<u>Hanger No.</u>	<u>No. of Occurrences</u>	<u>Ref: CCo NCR</u>
2-639-13-5, Rev 2(a)	1	M-01-9-2-010
2-604-17-2, Rev 1(b)	1	M-01-9-2-010

TABLE 2 (continued)

ANOMALY 8: LOCATION OF HANGERS

Description of Anomaly

Hangers are not installed in accordance with the elevation and coordinates specified in the drawings. For example:



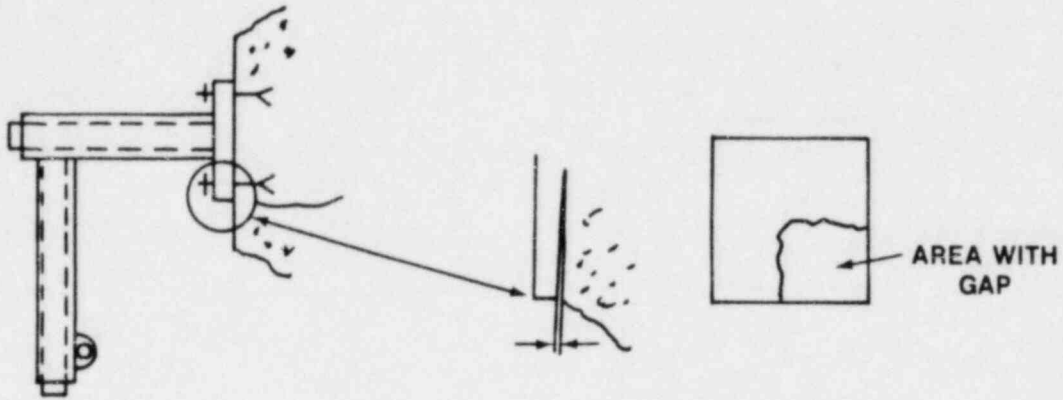
<u>Hanger No.</u>	<u>No. of Occurrences</u>	<u>Ref: CCo NCR</u>
FSK-M-2HBC-217-1-H2, Rev 1	1	M-01-9-2-010
1-612-2-2, Rev 1	1	M-01-5-2-014
2-619-6-11, Rev 3	1	M-01-5-2-014
1-612-3-12, Rev 1	1	M-01-5-2-014
2-619-1-20, Rev 1	1	M-01-5-2-014

TABLE 2 (continued)

ANOMALY 9: GAP BETWEEN WALL AND BASEPLATE

Description of Anomaly

Lower right-hand corner of baseplate exceeds gap tolerance.



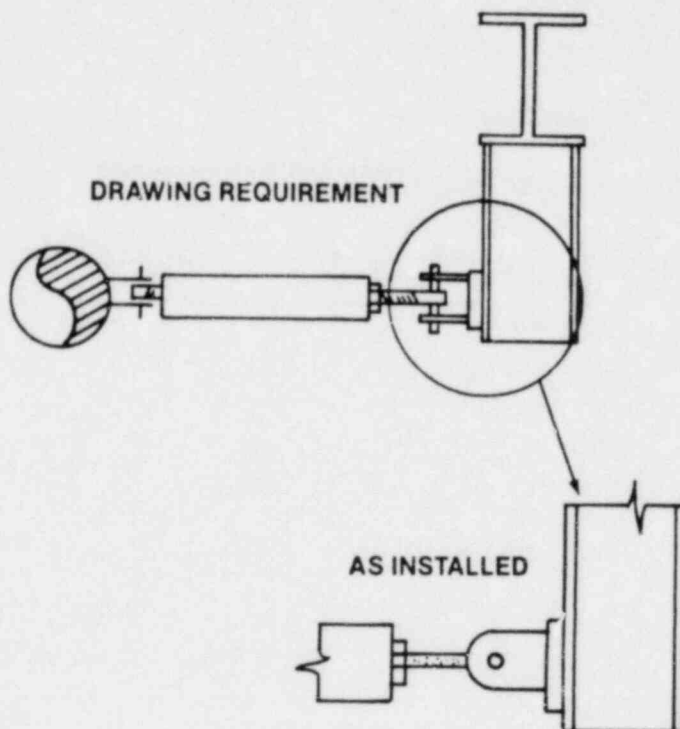
<u>Hanger No.</u>	<u>No. of Occurrences</u>	<u>Ref: CCo NCR</u>
FSK-M-2HBC-216-5-H3, Rev 0	1	M-01-9-2-010

TABLE 2 (continued)

ANOMALY 10: CLEVIS ROTATION

Description of Anomaly

Clevis rotated 90 degrees from drawing configuration.



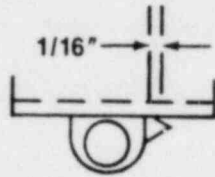
<u>Hanger No.</u>	<u>No. of Occurrences</u>	<u>Ref: CCo NCR</u>
2-604-2-35, Rev 1	1	M-01-9-2-010
2-619-2-19, Rev 1	1	M-01-5-2-014

TABLE 2 (continued)

ANOMALY 11: IRREGULARITY IN WELD

Description of Anomaly

The vertical support weldment exhibits an approximately 2-inch-long groove, creating a sharp edge.



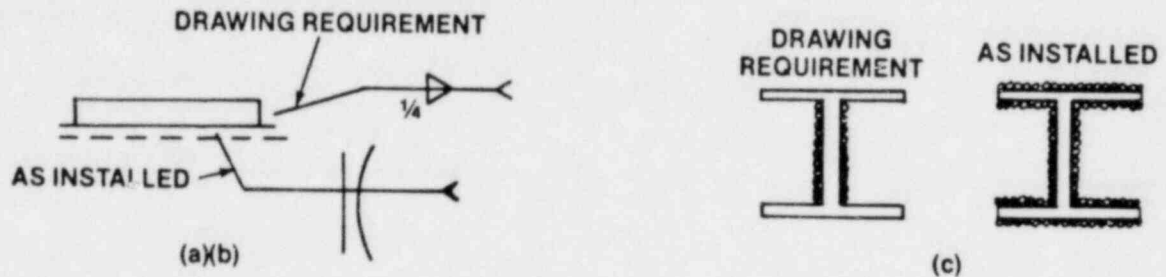
<u>Hanger No.</u>	<u>No. of Occurrences</u>	<u>Ref: CCo NCR</u>
FSK-M-1HBC-219-1-H1 Rev 2	1	M-01-9-2-007

TABLE 2 (continued)

ANOMALY 12: WELD IN WRONG PLACE

Description of Anomaly

Field welds do not conform to drawing requirements, e.g., a, b) welds located at the ends instead of at the sides, c) weld configuration is not as shown on the drawing.



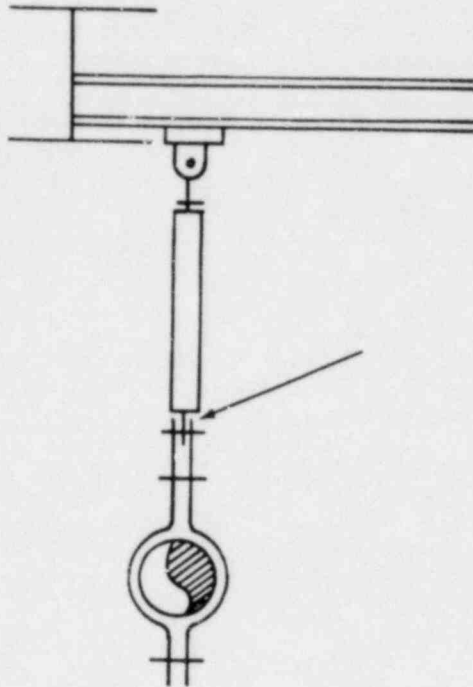
<u>Hanger No.</u>	<u>No. of Occurrences</u>	<u>Ref: CPCo NCR</u>
0-618-1-6, Rev 0(b)	1	M-01-5-2-017
2-617-8-5, Rev 2(c)	1	M-01-9-2-007
FSK-M-2HBC-219-1-H1, Rev 0(a)	1	M-01-9-2-010

TABLE 2 (continued)

ANOMALY 13: THREAD ENGAGEMENT

Description of Anomaly

At sight holes of support rod, no threads are visible. Thread engagement (at the lower end only) was 1 inch, instead of 1-1/2 inch.



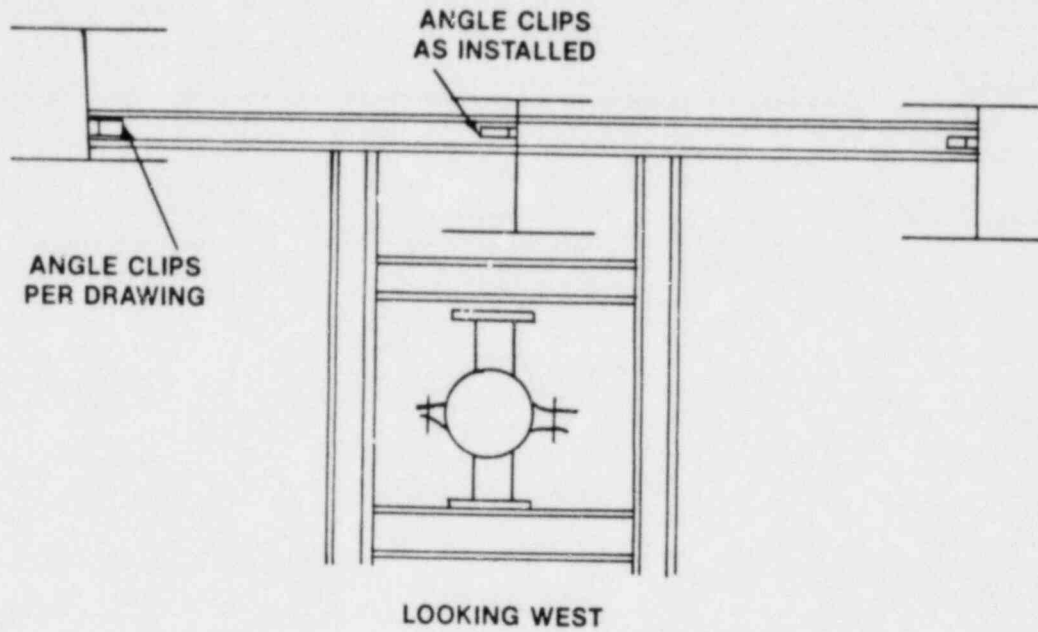
<u>Hanger No.</u>	<u>No. of Occurrences</u>	<u>Ref: CPCo NCR</u>
1-616-8-2, Rev 7	1	M-01-9-2-010

TABLE 2 (continued)

ANOMALY 14: MISCELLANEOUS

Description of Anomaly

Angle clips are in wrong location.



Hanger No.
0-617-7-13, Rev 0

No. of Occurrences
1

Ref: CPCo NCR
M-01-5-2-017

III. PROCESS CORRECTIVE ACTION

A. Completed Process Corrective Action

In January 1981 a QC Training Coordinator was appointed. The Training Coordinator's primary function is to arrange indoctrination and orientation training for new QC Engineers (QCEs). This training gives the QCE a better understanding of the Project Quality Assurance (QA)/QC programs. The Training Coordinator reviews all training and certifications to ensure that the new QCE fulfills all requirements set forth in PSP G-8.1, which is Bechtel's procedure for complying with ANSI N45.2.6.

In addition to the Training Coordinator responsibilities, each discipline group supervisor (e.g., pipe supervisor) has created training programs for new QCEs. Training involves both classroom and on-the-job training (OJT). This training is then documented on standard training letters and OJT checklists (see Attachments 16 and 17). During training, each group supervisor tests the new QCE to determine areas in which the QCE needs additional training. In 1981 approximately 1,400 documented training sessions were performed by the pipe/mechanical discipline.

Audiovisual training programs have also been established to help familiarize new QCEs with the areas to which they will be assigned (e.g., pipe, hangers). Examples of audiovisual aids are: audioviewer projector, slide/tape programs, and overhead transparencies.

In early 1981, a formal Level II QCE training program was established to better familiarize the potential Level II QCE with QA/QC philosophy, organization, and program requirements. The program also instructs in evaluations, training, and reviewing documents for acceptance.

From February to March 1981 several pipe/mechanical discipline project QC instructions were changed to incorporate installation inspection records and welding inspection records. These changes were made to reduce the amount of paperwork and documentation errors. Other changes were made to replace surveillances with specific inspections on a characteristic-by-characteristic basis.

From November 1980 to January 1981, the project QC department underwent a management change. A new project field QCE and lead pipe/mechanical QCE were appointed during this period. Through their programmatic and technical direction, the training and certification programs have improved the thoroughness and effectiveness of the QCE.

After April 1981, the number of Q indicators averaged approximately 20 per month. Before that time, the number was substantially higher. MPQAD overinspections confirmed the improvement in conformance to the installation and inspection program.

B. Planned Process Corrective Action

The following actions are to be taken in addition to the examinations and inspections described in Section IV.

1. Specification 7220-M-326 will be revised as described in Table 1 to provide additional direction to construction.
2. The QC instructions will be revised as necessary to reflect the specification changes.
3. Training will be provided as necessary to reflect the changes to both the specification and QC instructions.

IV. SUMMARY AND CONCLUSIONS

As stated in Section I, deficiencies identified during the Consumers Power Company overinspection would not have had an impact on safety. Reasonable assurance, based on the confidence level described in Section I, has been provided that if the same deficiencies occurred in similar situations, there would be no impact on safety.

Section III describes process corrective actions taken after January 1981, which are applicable to this problem. Based on these actions, hangers installed after January 1981 should have fewer deficiencies and an even higher assurance that there would be no impact on safety.

However, additional inspections of hangers are planned by the project before fuel load in accordance with actions described as shown in Table 1 of Section II.

69000

Bechtel Power Corporation

Inter-office Memorandum

To L. H. Curtis Date May 13, 1982

Subject Midland Plant Units 1 and 2 From R. Tulloch
 Bechtel Job 7220
 Safety Evaluation of Large Bore Pipe Of Project Engineering
 Hangers Discrepancies Identified in

Copies to CPCo NCRs At Ann Arbor
 P. Corcoran w/a
 R. Hollar w/a
 D. Anderson w/a
 D. Borlaza w/a
 D. Lewis w/a
 D. Loos w/a
 B. Klein w/a
 E. Hughes w/a

- References: A) NCR M-01-9-2-007 AI: S-1261
 B) NCR M-01-9-2-010 AI: S-1265
 C) NCR M-01-5-2-014 AI: S-1267
 D) NCR M-01-5-2-017 AI: S-1272
 E) NCR M-01-5-2-015 AI: S-1268

This documents the safety evaluation performed by Plant Design Group on Large Bore Pipe Hangers discrepancies identified in the referenced CPCo NCRs. Only those hangers identified as requiring rework are the subject of this evaluation.

Detailed safety evaluation for these hangers are attached.

- | | |
|-----------------------|--|
| CPCo NCR M-01-9-2-007 | *1-616-6-28 |
| CPCo NCR M-01-9-2-010 | 2-619-1-19 . 1
2-611-7-33
2-604-2-35
1-616-8-2
2-657-43-6
2-604-16-15 |
| CPCo NCR M-01-5-2-014 | 2-619-6-11 . 14 |

*This item was field redlined. Status was changed to rework.

Results of the safety evaluation indicate that the identified deficiencies, were they to have remained uncorrected, could not have affected adversely the safety of operation of the plant.

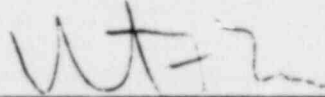
69863

Bechtel Associates Professional Corporation

IOM
Page 2

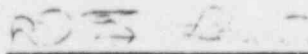
If there are any questions, please advise.

Prepared by

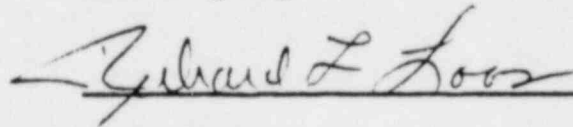


R. Tulloch
P.D. Group Supervisor

Reviewed by



D. F. Lewis
Licensing Engineer



R. L. Loos
Chief Nuclear Engineer

RT/LS/slm

Attachments

Written Response Requested: No
Com Use: N/A

PROJECT	MIDLAND 1 & 2	JOB NO.	7220	LOCATION	MIDLAND ME	DATE	4-21-82
CLIENT	Consumers Power Co	SUBJECT NCR	7710: -9-2-007				
ITEM NO.	LOG NO.	ITEM	1-616-6-28 (Q)				

NON-CONFORMING PART *UNDERSIZED WELD*

PIPE SUPPORT EVALUATION

Agc to Be Reworked

RATIONALE FOR ACCEPTING

SAFETY EVALUATION

STRESS ENGINEERS COMMENTS

PIPE SUPPORT ENGINEERS COMMENTS

EXTENSIVE REVIEW BY ITI-G PROVIDENCE HAS DETERMINED THAT 3/8" ~~WELD~~ WELD WILL ACCOMMODATE THE LOADING CONDITIONS. 4/21/82 R.M. ITI-G

No Safety Impact

STRESS ENGINEER	DATE	APPROVED	DATE
PIPE SUPPORT ENGINEER	DATE	<i>WTA</i>	4-23-82
<i>Richard C. Myers</i>	4-21-82		

PROJECT *Midland 1 & 2* JOB NO. *7220* LOCATION *MIDLAND MI* DATE *4-28-82*

CLIENT *Consumers Power Co 09863* SUBJECT NCR *MOI-9-2-010*

ITEM NO. LOG NO. ITEM *2-619-1-19 (Q)*

NON-CONFORMING PART
WELD for item 6 to 11 is undersized by 1/32" for last 1" of weld.

PIPE SUPPORT EVALUATION

RATIONALE FOR ACCEPTING

SAFETY EVALUATION

STRESS ENGINEERS COMMENTS

PIPE SUPPORT ENGINEERS COMMENTS
*THE WELD IN QUESTION (BETWEEN ITEM NOS. 6 & 11) IS NON-LOAD BEARING. THEREFORE, UNDERSIZING IT BY 1/32" FOR LAST 1" OF WELD WILL NOT AFFECT THE DESIGN INTEGRITY OF THE STRUCTURE. ∴ IT IS ACCEPTABLE. GPK - 4-28-82
ITTGRUNNELL*
No Safety impact

STRESS ENGINEER	DATE	APPROVED	DATE
PIPE SUPPORT ENGINEER	DATE	<i>SM R TULLOCH</i>	<i>4-29-82</i>
<i>Richard C. Meyer</i>	<i>4-28-82</i>		

REPLY TO NONCONFORMANCE REPORT

PROJECT <i>MIDLAND 102</i>	JOB NO. <i>09065</i>	JOB NO. <i>7220</i>	LOCATION <i>MIDLAND MI</i>	DATE <i>4-16-82</i>
CLIENT <i>Consumers Power Co</i>		SUBJECT NCR <i>MCI-9-2-D10</i>		
ITEM NO.	LOG NO.	ITEM <i>2-611-7-33 (Q)</i>		

NON-CONFORMING PART *welds for item 293 are undersized. 1/8"*

PIPE SUPPORT EVALUATION
Hgt must be reworked.

RATIONALE FOR ACCEPTING

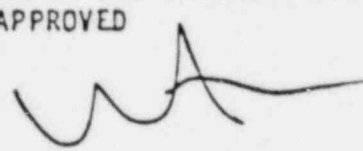
SAFETY EVALUATION

STRESS ENGINEERS COMMENTS

PIPE SUPPORT ENGINEERS COMMENTS

Section III Division I Appendices - App. XVII Table XVII-2452.1-1 states minimum size welds 1/8" weld stated in NCR Below minimums and economy for 1/2" plate and considered a "cold weld"

*BASED ON LOAD AND THE AMOUNT OF WELD AT AN 1/8" FILLET THE WELD IS WITHIN THE WELD ALLOWANCE. 4-19-82 RW
NO SAFETY IMPACT IT-9.*

STRESS ENGINEER	DATE	APPROVED	DATE
PIPE SUPPORT ENGINEER	DATE		<i>4-23-82</i>
<i>Richard P. Muen</i>	<i>4-14-82</i>		

PROJECT MIDLAND 142 69863		JOB NO. 7220	LOCATION MIDLAND MI	DATE 4-29-82
CLIENT Consumers Power Co		SUBJECT NCR MOI-9-2-010		
ITEM NO.	LOG NO.	ITEM 2-604-2-35 (Q)		
NON-CONFORMING PART REAR BRACKET 90° ROTATED 90°				
PIPE SUPPORT EVALUATION				
RATIONALE FOR ACCEPTING				
SAFETY EVALUATION 1				
STRESS ENGINEERS COMMENTS				
PIPE SUPPORT ENGINEERS COMMENTS E & X Movement is 0" Therefore Rotation of Rear Bracket Has no effect on Ngr design No Safety impact				
STRESS ENGINEER		DATE	APPROVED	DATE
PIPE SUPPORT ENGINEER		DATE	FOR R. TULLOCH	4-29-82
<i>Richard Myers</i>		4-29-82		

REPLY TO NONCONFORMANCE REPORT

PROJECT MIDLAND 182 69563	JOB NO. 7220	LOCATION MIDLAND MI	DATE 4-29-82
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CLIENT Consumers Power Co	SUBJECT NCR 1701-9.2-010
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ITEM NO.	LOG NO. 63192	ITEM 1-616-8-2 (Q)
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NON-CONFORMING PART THREAD ENGAGEMENT ON LOWER END OF EXTENSION DOES NOT MEET REQUIREMENTS. MEASURED ENGAGEMENT IS 1" MINIMUM IS 1 1/2"

PIPE SUPPORT EVALUATION

RATIONALE FOR ACCEPTING

SAFETY EVALUATION

STRESS ENGINEERS COMMENTS

PIPE SUPPORT ENGINEERS COMMENTS

BASED ON CARDS, 1" THREAD ENGAGEMENT IS SUFFICIENT. SUGGEST TO REMOVE F14211 TO MEET IT-G'S INSTALLATION REQUIREMENTS. R.M. 4/28/82
IT-G.

No Safety impact
RM

STRESS ENGINEER	DATE	APPROVED	DATE
PIPE SUPPORT ENGINEER	DATE	RM For R. Tullock	4-29-82
R. M. ...	4-28-82		

REPLY TO NONCONFORMANCE REPORT

PROJECT	MIDLAND 1 & 2	69863	JOB NO. 7220	LOCATION MIDLAND MI	DATE 4-16-82
CLIENT	Consumers Power Co		SUBJECT NCR MOI-9-2.010		
ITEM NO.	LOG NO.	ITEM 2-657-43-L (Q)			

NON-CONFORMING PART *3/16" clearance exists between Top of pipe & U Bolt*


PIPE SUPPORT EVALUATION
*Field reworking support for spec clearance
evaluate for safety impact only*

RATIONALE FOR ACCEPTING

SAFETY EVALUATION

STRESS ENGINEERS COMMENTS

PIPE SUPPORT ENGINEERS COMMENTS
*No Safety impact. - The magnitude of loads could not create
enough force to fail U Bolt.*

STRESS ENGINEER	DATE	APPROVED	DATE
PIPE SUPPORT ENGINEER <i>Richard C. Myers</i>	DATE 4-14-82		4-23-82

REPLY TO NONCONFORMANCE REPORT

PROJECT MIDLAND 142 69-69	JOB NO. 7220	LOCATION MIDLAND M.	DATE 4-28-82
CLIENT Consumers Power Co	SUBJECT NCR M01-9-2-010		
ITEM NO.	LOG NO.	ITEM 2-604-16-15 (Q)	

NON-CONFORMING PART
U Bolt' 0 Clearance - Z Direction one side of U Bolt

PIPE SUPPORT EVALUATION

RATIONALE FOR ACCEPTING
- No Spec. Violation

SAFETY EVALUATION
1

STRESS ENGINEERS COMMENTS

PIPE SUPPORT ENGINEERS COMMENTS Para 5.1.3 (b)
Spec. 7220 - M-324Q states "When the component pipe support design sketch/DWG states the clear. is $\frac{1}{32}$ " inch typ. on opposite sides of the pipe or pipe lug, the actual clearances shall not be less than $\frac{1}{16}$ " or more than $\frac{1}{8}$ " inch.... the actual individual clearances may be distributed in any manner, including a zero clearance on one side of the pipe". Therefore - No Spec Violation
No Safety impact.

STRESS ENGINEER	DATE	APPROVED	DATE
PIPE SUPPORT ENGINEER	DATE	SA R. TULLOCH	4-29-82
<i>[Signature]</i>	4-28-82		

REPLY TO NONCONFORMANCE REPORT

PROJECT <i>MIDLAND 1 & 2</i>		JOB NO. <i>7220</i>	LOCATION <i>MIDLAND M.</i>	DATE <i>4-14-82</i>
CLIENT <i>CONSUMERS POWER</i>		SUBJECT NCR <i>M01-5-2-014</i>		
ITEM NO. <i>14</i>	LOG NO. <i>76640</i>	ITEM <i>ITEM 14</i>	<i>2-619-6-11 (Q)</i>	
NON-CONFORMING PART <i>1) GAPS NO LONGER EXIST BETWEEN PIPE & HGR</i> <i>2) WELDS MEASURE 3/16" ITEM 1 TO ITEM 2 & ITEM 4</i>				
PIPE SUPPORT EVALUATION				
RATIONALE FOR ACCEPTING - <i>AZ PLANT DESIGN COMMENT -</i> <i>1) THE RADIAL EXPANSION OF THE PIPE IS LESS THAN .001" (INCHES) RESULTING IN A VERY SMALL LOAD. FRICTIONAL EFFECTS EXISTING FROM Y LOAD IS MUCH GREATER THAN LOAD DUE TO RADIAL EXPANSION THEREFORE ITS CONTRIBUTION IS NEGLIGABLE. (REF CALC SHC 619-6-1)</i> <i>2) THE REQUIRED WELD PER CALCULATION IS .05" THEREFORE 3/16" IS ACCEPTABLE.</i>				
SAFETY EVALUATION				
STRESS ENGINEERS COMMENTS				
PIPE SUPPORT ENGINEERS COMMENTS				
<i>TELEX TO AZ PLANT DESIGN FOR EVALUATION.</i> <i>AZ PD SUPERVISOR R. TULLOCH REPORTS NO SAFETY IMPACT BASED ON THE ABOVE STATED RATIONALE.</i> <div style="text-align: right;"><i>M 4-29-82</i></div>				
STRESS ENGINEER		DATE	APPROVED	DATE
PIPE SUPPORT ENGINEER		DATE		
<i>Richard V. Morgan</i>		<i>4-29-82</i>	<i>R TULLOCH</i>	<i>4-29-82</i>

Bechtel Power Corporation

Inter-office Memorandum

To L. E. Curtis

Subject Midland Plant Units 1 and 2
Bechtel Job 7220
Safety Evaluation of Small Pipe
Hanger Discrepancies Identified in
CPCo NCRs

Copies to P. Corcoran w/a
R. Hollar w/a
R. Tulloch w/a
D. Anderson w/a
D. Borlaza w/a
~~D. Lewis w/a~~
D. Loos w/a
B. Klein w/a

Date April 23, 1982

From D. Riat

Of Resident Engineering

At Midland Jobsite

- References: A) NCR M-01-9-2-007 AI: S-1261
B) NCR M-01-9-2-010 AI: S-1265
C) NCR M-01-5-2-014 AI: S-1267
D) NCR M-01-5-2-017 AI: S-1272

This documents the safety evaluation performed by the Small Pipe and Hanger Group (SPHG) on Small Pipe hangers discrepancies identified in the referenced CPCo NCRs. Only those hangers requiring rework, as determined by Construction, were subjected to this evaluation.

Detailed safety evaluation for the following hangers are attached.

- | | | | |
|----------|---------------------|-----------|----------------------|
| CPCo NCR | <u>M-01-9-2-007</u> | - - - - - | FSK M-1-HBC-219-1-H1 |
| CPCo NCR | <u>M-01-9-2-010</u> | - - - - - | FSK M-2-HBC-216-5-H3 |
| CPCo NCR | <u>M-01-5-2-014</u> | - - - - - | FSK M-2-ECB-4-4-H5 |
| | | | FSK M-2-EBB-3-4-H1 |
| CPCo NCR | <u>M-01-5-2-017</u> | - - - - - | FSK M-0-HBC-142-1-H1 |
| | | | FSK M-1-HBC-145-1-H9 |
| | | | FSK M-1-HBC-144-1-H3 |
| | | | FSK M-1-CCB-69-1-H2 |
| | | | FSK M-1-CCB-69-1-H1 |

Results of the safety evaluation indicate that the identified deficiencies, were they to have remained uncorrected, could not have affected adversely the safety of operation of the plant.

IOM dated
D. Riat to
L. H. Curtis
Page 2

Prepared by Robert C. Campbell
for D. Riat
D. Riat
SPHG Group Supervisor

Reviewed by D. F. Lewis
D. F. Lewis
Licensing Engineer

R. L. Loos
R. L. Loos
Chief Nuclear Engineer

Attachments:

Written Response Requested: No
Com Use: N/A

REPLY TO NONCONFORMANCE REPORT

PROJECT <i>MIDLAND NUCLEAR UNITS 1&2</i>		JOB NO. <i>7220</i>	LOCATION <i>RESIDENT SMALL BORE</i>	DATE <i>4-12-82</i>
CLIENT <i>CONSUMER POWER Co.</i>		SUBJECT NCR <i>M01-9-2-007</i>		
ITEM NO. <i>16.)</i>	LOG NO. <i>81753</i>	ITEM <i>FSK-M-1HBC-219-1-H1(Q)</i>		
NON-CONFORMING PART <i>A GROOVE 1" LONG x 1/32" x 1/16" DEEP EXISTS AT THE TOP OF THE WEST WELD ON THE PGS-113 STRAP. A 5/16" FILLET IS REQ'D, THE WELD IS LARGE ENOUGH TO ACHIEVE 5/16" FILLET BEYOND GROOVED AREA. THE REMAINDER OF WELD (1") IS ACCEPTABLE.</i>				
PIPE SUPPORT EVALUATION <input type="checkbox"/> ACCEPTABLE- PROVIDE RATIONALE <input checked="" type="checkbox"/> NOT-ACCEPTABLE-PERFORM SAFETY EVALUATION - PER G-27 STATES WELD SHALL BE FREE OF EXCESSIVE IRREGULARITIES.				
RATIONALE FOR ACCEPTING <i>N/A</i>				
SAFETY EVALUATION <i>1</i>				
STRESS ENGINEERS COMMENTS <i>N/A</i>				
PIPE SUPPORT ENGINEERS COMMENTS <p style="text-align: center;"><i>EVEN IF EFFECTIVE WELD SIZE WERE REDUCED TO 1/4 FILLET FOR 2" LONG, THE WELD WOULD QUALIFY FOR A 900# LOAD - (TWO-DIRECTIONAL) ON THE PGS STRAP PER STD-CALC. 400-005 REV E.</i></p> <p style="text-align: center;"><i>THE MAX LOAD ON H1 = 415#, WHICH IS LESS THAN 900# (ALLOWABLE LOAD FOR 1/4 FILLET), THEREFORE THE WELD IS STILL WITHIN DESIGN ALLOWABLES.</i></p> <p style="text-align: center;"><i>NO SAFETY IMPACT ON THE HANGER.</i></p>				
STRESS ENGINEER <i>L. Durand</i>		DATE <i>4-12-82</i>		
PIPE SUPPORT ENGINEER <i>W. Frein / J. Conners</i>		DATE <i>4/12/82</i>		

REPLY TO NONCONFORMANCE REPORT

PROJECT MIDLAND NUCLEAR UNITS 1 & 2		JOB NO. 7220	LOCATION RESIDENT SMALL BORE	DATE 4-15-82
CLIENT CONSUMER POWER Co.		SUBJECT NCR M01-5-2-010		
ITEM NO.	LOG NO.	ITEM FSK-M-2HBC-216-5-H3 (Q)		

NON-CONFORMING PART

APPROXIMATELY 24% OF BEARING SURFACE EXCEEDS GAP REQUIREMENTS OF SPEC M-326
ALL OF LOWER RIGHT HAND ANCHOR BOLT & LOWER 1/4 OF PLATE SLIGHTLY > 1/16 GAP

PIPE SUPPORT EVALUATION

- ACCEPTABLE - PROVIDE RATIONALE
 NOT-ACCEPTABLE - PERFORM SAFETY EVALUATION

RATIONALE FOR ACCEPTING

N/A

SAFETY EVALUATION

ASSUMING ONLY 3 BOLTS EXIST ON THE BASE PLATE, EVALUATE THE IMPACT ON THE SYSTEM.

STRESS ENGINEERS COMMENTS

PIPE SUPPORT ENGINEERS COMMENTS

AN EVALUATION OF SUPPORT 2HBC-216-5-H3 (Q) ASSUMING THE BOLT ON THE LOWER RIGHT HAND CORNER OF THE BASE PLATE IS NON-FUNCTIONAL, VERIFIES THAT ALL THE STRESSES ARE WITHIN DESIGN ALLOWABLES.

THEREFORE THERE'S NO SAFETY IMPACT ON THE SUPPORT.

STRESS ENGINEER	DATE
PIPE SUPPORT ENGINEER	DATE
W. Greiner / A.J. [Signature]	4/15/82

REPLY TO NONCONFORMANCE REPORT

PROJECT MIDLAND NUCLEAR UNITS 1 & 2	JOB NO. 7220	LOCATION RESIDENT SMALL BORE	DATE 4-10-82
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CLIENT CONSUMER POWER CO.	SUBJECT NCR MDI-5-2-014
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ITEM NO. Ba.	LOG NO. # 60B21 REV 4	ITEM 2ECB-4-4-H5(Q)
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NON-CONFORMING PART
COTTER PIN IS MISSING ON LOWER END OF WEST SWAY STRUT.

PIPE SUPPORT EVALUATION
 ACCEPTABLE- PROVIDE RATIONALE
 NOT-ACCEPTABLE-PERFORM SAFETY EVALUATION

RATIONALE FOR ACCEPTING

SAFETY EVALUATION

ASSUMING THE VERTICAL RESTRAINT ON THE HANGER WILL BE NON-FUNCTIONAL.

STRESS ENGINEERS COMMENTS :

THERE IS ABSOLUTELY NO DANGER OR SAFETY HAZARD TO THE PIPING SYSTEM. THERMAL STRESSES ARE ACTUALLY REDUCED, WEIGHT AND SEISMIC STRESSES ARE INCREASED, BUT ARE STILL WITHIN ASME - SECTION III CODE ALLOWABLE STRESS LEVELS.

LOADING ON ADJACENT RESTRAINTS INCREASE IF IT IS ASSUMED THAT HANGER 2ECB-4-4-H5(Q) IS NON-FUNCTIONAL.

PIPE SUPPORT ENGINEERS COMMENTS

AN EVALUATION OF THE ADJACENT SUPPORTS, 2ECB-4-4-H4(Q) AND 2ECB-4-5-H1(Q), WITH THE INCREASED LOADS SHOWS THAT THEY ARE STILL WITHIN THE ACCEPTABLE DESIGN ALLOWABLES THEREFORE THERE IS NO SAFETY IMPACT ON THE SYSTEM.

STRESS ENGINEER <i>L. Durand</i>	DATE 4-9-82
PIPE SUPPORT ENGINEER <i>L. Durand</i>	DATE 4-10-82

INSPECTION REPORT

PROJECT MIDLAND NUCLEAR UNITS 1&2		JOB NO. 7220	LOCATION RESIDENT SMALL BORE	DATE 4-8-82
CLIENT CONSUMER POWER CO.		SUBJECT NCR MDI-5-2-014		
ITEM NO. 15	LOG NO. #71689 REVS	ITEM FSK-M-2EBB-3-4-H1(Q)		

NON-CONFORMING PART

- a.) PLASTIC TIE WRAP IS HOLDING SWAY STRUT TO CLAMP.
- b.) LOTTER PINS MISSING ON REAR BRACKET.
- c.) LOCK NUTS ON CLAMP ARE MISSING.

PIPE SUPPORT EVALUATION

- ACCEPTABLE- PROVIDE RATIONALE
- NOT-ACCEPTABLE-PERFORM SAFETY EVALUATION

RATIONALE FOR ACCEPTING

SAFETY EVALUATION

ASSUMING THE SUPPORT WILL BE NON-FUNCTIONAL.

STRESS ENGINEERS COMMENTS

ASSUMING SUPPORT 2EBB-3-4-H1(W) WILL BE NON FUNCTIONAL, THE THE PIPING SYSTEM WOULD STILL QUALIFY PER SPEC. M-343; STILL WITHIN ACCEPTABLE SEISMIC SPANS. THE ADJACENT SUPPORT 2EBB-3-4-H2(Q) WOULD BE REQUIRED TO PICK UP THE ADDITIONAL SEISMIC LOAD INCREASE FROM 14 LBS. TO 82 LBS. FAULTED LOAD INCREASE FROM 42 LBS TO 205 LBS.

PIPE SUPPORT ENGINEERS COMMENTS

PIPE SUPPORT 2EBB-3-4-H2(Q) WAS ORIGINALLY DESIGNED FOR A FAULTED LOAD OF 345 LBS. THIS IS GREATER THAN THE LOAD ARRIVED AT BY THE STRESS ENGINEER'S EVALUATION; THEREFORE THE HANGER IS STILL WITHIN DESIGN ALLOWABLES.

NO SAFETY IMPACT ON THE SYSTEM.

STRESS ENGINEER <i>R. Durand</i>	DATE 4-8-82
PIPE SUPPORT ENGINEER <i>A. [Signature]</i>	DATE 4-8-82

REPLY TO NONCONFORMANCE REPORT

PROJECT <i>MIDLAND NUCLEAR UNITS 1&2</i>		JOB NO. <i>7220</i>	LOCATION <i>RESIDENT SMALL BORE</i>	DATE <i>4-14-82</i>
CLIENT <i>CONSUMER POWER Co.</i>		SUBJECT NCR <i>M01-5-2-017</i>		
ITEM NO. <i>1a)</i>	LOG NO.	ITEM <i>FSK-M-0HBC-142-1-H1 (Q)</i>		
NON-CONFORMING PART <i>ACTUAL TOTAL CLEARANCE BETWEEN PIPE AND PGS-104 STRAP IS 3/32". THIS DOES NOT CONFORM TO DRAWING / SPECIFICATION TOLERANCES.</i>				
PIPE SUPPORT EVALUATION <input type="checkbox"/> ACCEPTABLE- PROVIDE RATIONALE <input checked="" type="checkbox"/> NOT-ACCEPTABLE-PERFORM SAFETY EVALUATION				
RATIONALE FOR ACCEPTING <i>N/A</i>				
SAFETY EVALUATION				
STRESS ENGINEERS COMMENTS : <i>THE ADDITIONAL 1/32" CLEARANCE IS ACCEPTABLE FROM A SAFETY EVALUATION STAND POINT. IT DOES NOT INCREASE STRESSES ON THE PIPING SYSTEM. STRESSES ARE WITHIN CODE ALLOWABLES.</i>				
PIPE SUPPORT ENGINEERS COMMENTS <i>N/A</i>				
STRESS ENGINEER <i>Lay Duval</i>		DATE <i>4-14-82</i>		
PIPE SUPPORT ENGINEER		DATE		

REPLY TO NONCONFORMANCE REPORT

PROJECT MIDLAND NUCLEAR PLANT, UNITS 1 & 2	JOB NO. 7220	LOCATION RES. SMALL BORE MIDLAND, MICH.	DATE 04/10/82
CLIENT CONSUMERS POWER		SUBJECT NCR M-01-5-2-017 FSK-M-1HBC-145-1-H9	
ITEM NO. 1 b.)	LOG NO.	ITEM FSK-M-1HBC-145-1-H9 (2)	
NON-CONFORMING PART NO GAP EXISTS BETWEEN SIDES OF PGS 113 STRAP AND PIPE.			
PIPE SUPPORT EVALUATION <input type="checkbox"/> ACCEPTABLE- PROVIDE RATIONALE <input checked="" type="checkbox"/> NOT-ACCEPTABLE-PERFORM SAFETY EVALUATION			
RATIONALE FOR ACCEPTING <div style="text-align: center;">N/A</div>			
SAFETY EVALUATION			
<p>ASSUMING THE SUPPORT 1HBC-145-1-H9 LOCKS UP IN THE AXIAL DIRECTION, EVALUATE THE IMPACT ON THE SYSTEM.</p>			
<p>STRESS ENGINEERS COMMENTS: ASSUMING TOTAL AXIAL RESTRAINT AT HANGER H9 RESULTS IN THE 6'-11" SPAN BETWEEN H9 AND H10 BEING TOTALLY RESTRAINED. ALTHOUGH THE COMPRESSIVE STRESS IS NOT REQUIRED TO BE EVALUATED BY CODE, AT A MAX TEMP. OF 150° AS LISTED IN SPEC. M-480, COMPRESSIVE STRESS IS WELL WITHIN THE YIELD STRENGTH OF THE PIPE MATERIAL. ALSO THE CRITICAL BUCKLING LOAD FOR THE SPAN IS NOT DEVELOPED. THEREFORE AT A MAX. TEMP. OF 150°F, THE PIPE SYSTEM IS OPERABLE. HOWEVER A TOTAL DEFLECTION OF 0.0422" WILL BE DISTRIBUTED BETWEEN SUPPORTS H9 AND H10.</p>			
<p>PIPE SUPPORT ENGINEERS COMMENTS :</p> <p style="text-align: center;">SINCE THERE IS 1/32" CLEARANCE BETWEEN THE LUG AND THE PIPE ON H10, HANGER H9 OR H10 WOULD ONLY BE REQUIRED TO DEFLECT $.0422" - .03125" = .01095"$. HOWEVER, WEVE ASSUMED THAT THE CLEARANCE IS NOT THERE AND H10 IS ALSO LOCKED.</p> <p>WITH THIS ASSUMPTION THE FORCE REQUIRED TO DEFLECT HANGER H9 .0422" IN THE X DIRECTION IS $F_x = 600\#$.</p> <p style="text-align: center;">AN EVALUATION OF SUPPORTS H9 & H10 WITH AN ADDITIONAL LOAD OF 600# SHOWS THAT THE SUPPORTS ARE STILL WITHIN DESIGN ALLOWABLES.</p> <p style="text-align: center;"><u>NO SAFETY IMPACT ON THE SYSTEM</u></p>			
STRESS ENGINEER <i>Cheryl S. Keelin</i>		DATE 04/10/82	
PIPE SUPPORT ENGINEER <i>W. J. ...</i>		DATE 4/13/82	

REPLY TO NONCONFORMANCE REPORT

PROJECT <i>MIDLAND NUCLEAR PLANT, UNITS 1&2</i>		JOB NO. <i>7220</i>	LOCATION <i>MIDLAND, MICH</i>	DATE <i>04/10/82</i>
CLIENT <i>CONSUMERS POWER</i>		SUBJECT NCR <i>M-01-5-2-017</i>		
ITEM NO.	LOG NO.	ITEM <i>FSK-M-1HBC-144-1-H3</i>		
NON-CONFORMING PART <i>"THERE IS ONLY A 1/32" CLEARANCE BETWEEN SIDE OF P65-113 STRAP AND PIPE."</i>				
PIPE SUPPORT EVALUATION <input type="checkbox"/> ACCEPTABLE- PROVIDE RATIONALE <input checked="" type="checkbox"/> NOT-ACCEPTABLE-PERFORM SAFETY EVALUATION				
RATIONALE FOR ACCEPTING <i>N/A</i>				
SAFETY EVALUATION				
STRESS ENGINEERS COMMENTS: <i>THE RADIAL EXPANSION OF THE PIPE AT MAX TEMP, LISTED IN SPEC M-480, OF 115°F IS EQUAL TO 0.00067" WHICH IS LESS THAN 1/32". THIS QUALIFIES THE PIPING AND HAS NO EFFECT ON THE HANGER.</i>				
PIPE SUPPORT ENGINEERS COMMENTS <i>N/A</i>				
STRESS ENGINEER <i>Terry A. Kerlin</i>		DATE <i>04/10/82</i>		<i>N/A</i>
PIPE SUPPORT ENGINEER		DATE		

REPLY TO NONCONFORMANCE REPORT

PROJECT MIDLAND NUCLEAR PLANT, UNITS 1 & 2	JOB NO. 7220	LOCATION MIDLAND, MICH	DATE 04/13/82
CLIENT CONSUMERS POWER	SUBJECT NCR M-01-5-2-017		

ITEM NO.	LOG NO.	ITEM ICCB-69-1-H2
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NON-CONFORMING PART

NO GAP EXIST BETWEEN PIPE CLAMP AND ITS SUPPORTING STRUCTURE

PIPE SUPPORT EVALUATION:

ACCEPTABLE - PROVIDE RATIONALE

NOT-ACCEPTABLE - PERFORM SAFETY EVALUATION

RATIONALE FOR ACCEPTING

SAFETY EVALUATION:

ASSUMING THE SUPPORT ICCB-69-1-H2 LOCKS UP IN THREE DIRECTIONS, EVALUATE THE IMPACT ON THE SYSTEM.

STRESS ENGINEERS COMMENTS: ADDITIONAL RESTRAINT FOR WT. AND SEIS. LOAD CASES WILL AID IN THE PIPE STRESS EQUATIONS AND ADDITIONAL LOADS WOULD BE MINIMAL DUE TO RELATIVE LOCATIONS OF ADJACENT SUPPORTS. THE UNRESTRAINED DISPLACEMENTS FOR THRU & SAH LOAD CASES AT H2 PER AAO ANALYSIS ARE USED TO APPROXIMATE ADDITIONAL LOADS. IF THESE DISPLACEMENTS WERE RESTRAINED, THE ADDITIONAL PIPE STRESS WOULD BE APPROX. $\frac{1}{4}$ THE ALLOWABLES OF EQUATIONS #10 & #11, WHICH IS CONSERVATIVELY BASED ON A GUIDED CANTILEVER BEAM. THEREFORE THE PIPE SYSTEM WOULD STILL BE OPERABLE. ADDITIONAL LOADS ON H2 FROM ALL LOAD CASES COMBINED WOULD BE CONSERVATIVELY 200 LBS \rightarrow X AND 200 LBS \rightarrow Z. ADDITIONAL LOADS ON HANGERS ICCB-66-1-H1 AND ICCB-69-1-H3 WILL BE APPROXIMATELY 100 LBS IN THE X AND THE Z.

PIPE SUPPORT ENGINEERS COMMENTS

AN EVALUATION OF SUPPORTS ICCB-69-1-H2 (Q), ICCB-66-1-H1 (Q) AND ICCB-69-1-H3 (Q) WITH ADDITIONAL LOADS CAUSED BY SUPPORT ICCB-69-1-H2 (Q) BEING LOCKED IN THREE DIRECTIONS VERIFIES THAT THE STRESSES ON THE HANGERS ARE STILL WITHIN DESIGN ALLOWABLES.

NO SAFETY IMPACT ON THE SYSTEM

STRESS ENGINEER <i>[Signature]</i>	DATE 4/13/82
PIPE SUPPORT ENGINEER <i>[Signature]</i>	DATE 4/14/82

REPLY TO NONCONFORMANCE REPORT

PROJECT MIDLAND NUCLEAR UNITS 1 & 2	JOB NO. 7220	LOCATION RESIDENT SMALL ISORE	DATE 4-15-82
CLIENT CONSUMER POWER CO.		SUBJECT NCR ▲ M 01-5-2-D17	
ITEM NO. 5 a)	LOG NO.	ITEM ▲ FSK-M-1CCB-69-1-M1(Q) & H2(Q)	
NON-CONFORMING PART PGS-114 REQUIRES THE JAW NUTS TO BE SA-307, GR B CONTRARY TO THE ABOVE, THE JAW NUTS ARE SA-194, 2H.			
PIPE SUPPORT EVALUATION <input type="checkbox"/> ACCEPTABLE- PROVIDE RATIONALE <input checked="" type="checkbox"/> NOT-ACCEPTABLE-PERFORM SAFETY EVALUATION DOES NOT AGREE WITH STD-DRAWING			
RATIONALE FOR ACCEPTING <div style="text-align: center; font-size: 2em;">N/A</div>			
SAFETY EVALUATION			
STRESS ENGINEERS COMMENTS <div style="text-align: center; font-size: 2em;">N/A</div>			
PIPE SUPPORT ENGINEERS COMMENTS ALTHOUGH SA-307 GR B NUTS ARE A STD. CALLOUT FOR THESE SUPPORT ASSEMBLIES THE SA 194 2H NUTS HAVE A HIGHER PROOF LOAD RATING PER ASME CODE. THE SUBSTITUTION WILL HAVE <u>NO SAFETY</u> <u>IMPACT</u> ON THE SUPPORT			
STRESS ENGINEER		DATE	
PIPE SUPPORT ENGINEER		DATE	

071959



NONCONFORMANCE REPORT

PROJECTS, E
QUALITY

To: M. Curland

From: L. H. Curtis

Priority: 2 Trend: Do Not Trend S/U: CD80 AI: S-1261 PAGE 1 of 5

PROJECT NAME: Midland	7. NONCONFORMING PART NO: Various (See Block 12)	8. NONCONFORMING PART NAME: Various (See Block 12)	1. NCR SERIAL NO: MO1-9-2-007
SERIAL NUMBER: Various (See Block 12)	10. ORG. COMMITTING NC: Bechtel QC/ Bechtel Construction	11. AREA/LOC. OF NC: Various (See Block 12)	2. DATE: 2/4/82
"AS IS" NONCONFORMING CONDITION VERSUS "AS REQUIRED" CONDITION WITH REFS:			3. DATE OF REV: N/A
The following list of hangers do not conform to the applicable requirements as itemized below:			4. FILE NO: 16.0

The following list of hangers do not conform to the applicable requirements as itemized below:

It is noted that the identification of the nonconformances listed below was the result of an examination of hangers completely installed and inspected by Field Engineering, turned over to Quality Control and inspected/accepted by Quality Control as evidenced by the completed P2.10 document for each hanger.

- 1) FSK-M-1HBC-219-1-HL - S/U-1GJA
 - a) The subject sketch specifies a pipe to embed dimension of 17 1/2" (Continued)

RECOMMENDATION FOR PART CA: For each of these items:

- 1) Engineering to evaluate the acceptability of the as/is hanger. (Curtis)
- 2) If rework/repair is required - implement rework/repair, record, document and reinspect as required. (LEDavis, ESmith)
- 3) If acceptable, provide justification for use as/is and revise the drawing to reflect actual conditions. (LHCurtis)

DESIGN/PROJECT ENG. DISPOSITION REQUIRED NOT REQUIRED

5. DISTRIBUTION ACTION COPY:

LEDavis
LHCurtis
ESmith

INFO COPY:

WRBird JLWood
JWcook MAVerderosa
MADietrich ALAB-2
BWMarguglio
DBMiller
REMcQue/CFollin
BHPeck
DATaggart
DMTurnbull
RAWells

HOLD TAGS APPLIED: YES NO NUMBER, LOCATION & TYPE OF HOLD TAGS APPLIED: MPOAD Procedure F-7M Paragraph 5.1.1d

IS PROCESS CA REQUIRED: YES NO IF NO, ENTER JUSTIFICATION BELOW:

DOES NC AFFECT Q-LIST ITEM: YES NO

IS NC REPORTABLE PER PART 21: YES NO

IF YES, WHO MADE REPORT TO NRC: N/A

17. IS NC REPORTABLE PER 50.55(e): YES NO *

19. IF YES, DATE & TIME OF REPORT TO NRC: N/A

21. IF YES, NAME OF NRC OFFICIAL TO WHOM REPORTED: N/A

NCR ORIGINATED BY: *MA Verderosa*

23. WRITTEN REPLY REQUIRED BY: 2/22/82 TO ESTABLISH CA COMPLETION DATE

24. SUPERVISOR'S SIGNATURE/DATE: *MA Verderosa 2/4/82*

PART CA DISPOSITION, JUSTIFICATION & COMPLETION DATE:

Project Engineering's complete response is attached.

cc: D. Borlaza D. Riat W. Bird
D. Hollar R. Tulloch D. Taggart
L. Curtis R. Myers D. Turnbull
P. Corcoran J. Horsch B. Marguglio

* To be determined

DESIGN/PROJECT SIG. AUTH. DISP.: <i>P. Corcoran for L. Curtis 2/4/82</i>	27. FMO SIG. AUTH. DISP.:	28. PROCUREMENT SIG. CONC. DISP.:	29. SIG. OF ORG. RESP. FOR C/A: <i>P. Corcoran for L. Curtis 2/4/82</i>
FAB/CONST. SIG. AUTH. EMP. DISP.:	31. SIG. OF TEST GROUP ACKNOW. CONDITION:	32. FOR MAJOR MOD - FLT. SUPT. SIG. AUTH. DISP.:	33. QA AUTH. SIG. TO IMPLEMENT DISP.:

METHOD OF PART CA VERIFICATION:

SIG. OF ORG. RESP. FOR PART C/A SIGNIFYING COMPLETION:

30. SIG. VERIFYING PART C/A & HOLD TAG REMOVAL/DATE:

37. NCR CLOSED BY/DATE: (PART & PROCESS CA COMPLETE)

171353



Consumers
Power
Company

NONCONFORMANCE REPORT

PROCESS CORRECTIVE ACTION

PROJECTS, ENGINEERING AND CONSTRUCTION -
QUALITY ASSURANCE DEPARTMENT
MO1-9-2-007
NCR SERIAL NUMBER: _____

PAGE 2 OF 5

8. QA ASSESSMENT OF ROOT CAUSE(S):

Unknown, to be determined.

9. ACTUAL ROOT CAUSE(S), IF DIFFERENT FROM ABOVE (TO BE COMPLETED BY ORG. RESPONSIBLE FOR PROCESS CA):

10. PROCESS CA REQUIRED FROM:

DESIGN

FABRICATION

CONSTRUCTION

PROCUREMENT

INSPECTION

OTHER _____

11. QA RECOMMENDATION FOR PROCESS CA:

Unknown, to be determined.

12. PROCESS CA TO BE TAKEN BY ORG(S) CHECKED IN BLOCK 41 & DATE OF COMPLETION:

13. METHOD OF PROCESS CA VERIFICATION:

14. SIG. OF ORG. RESPONSIBLE FOR PROCESS CA SIGNIFYING COMPLETION:

15. PROCESS CA COMPLETION VERIFIED BY/DATE:

12. "AS IS" NONCONFORMING CONDITION VERSUS "AS REQUIRED" CONDITION WITH REFS:

Contrary to the above, the measured dimension is $6\frac{1}{2}$ ".

- b) The P2.10 for the subject hanger (Log 81753) references M-343 for hanger fabrication. Paragraph 6.7.2 (Welding) invokes G-27 for welding and paragraph 4.4.8 of GWS-FM Rev 4 from G-27 states in part, "...each weld layer shall be free of porosity and excessive irregularities such as high spots and deep crevices."

Contrary to the above, the vertical support weldment exhibits an approximately 2" long groove - creating a sharp edge.

2) 1-610-4-27 - S/U-1BCA

- a) The subject sketch requires a $9/16$ " length of support steel beyond the cross support weldment.

Contrary to the above, a length of $1/4$ " was measured.

- b) The P2.10 for the subject hanger (Log 69498) references M-326 for hanger installation. Paragraph 4.2.2 (Welding) states in part, "Undercut shall not exceed $1/32$ "."

Contrary to the above, the angle flange to horizontal support beam weld exhibits a $5/32$ " undercut, (burnout).

3) 1-612-3-25 - S/U-1BKA

- a) The P2.10 for the subject hanger (Log 76542) references M-326 for hanger installation. Paragraph 4.1.2 (Welding) invokes G-27 for welding and paragraph 4.4.8 of GWS-FM Rev 4 from G-27 states in part, "...each weld layer shall be free of porosity and excessive irregularities such as high spots and deep crevices."

Contrary to the above, the vertical hanger support to support beam weld exhibits a grooved face $3/32$ " wide for approximately 1".

4) FSK-M-1HBC-204-1-H12 - S/U-1GJA

- a) The bill of materials for the subject sketch specifies a $5/8$ " thickness for Item 6.

Contrary to the above, several areas of the item noted measure $9/16$ ".

5) 1-616-6-28 - S/U-1EGA

- a) The subject sketch specifies a $1/2$ " weld for the stanchion to vertical support, (two sides).

Contrary to the above, a $3/8$ " weld was measured.

- b) The subject sketch specifies an angle of 60° between the angle support brace and vertical support.

Contrary to the above, an angle of 51° was measured.

- c) The subject sketch specifies stanchion heights of 20" and $17\frac{1}{4}$ ".

Contrary to the above, stanchion heights of $22\frac{1}{4}$ " and $18\frac{5}{8}$ " were measured respectively.

- d) The subject sketch specifies 14" between the base of the angle support brace and the vertical support.

Contrary to the above, a $25\frac{1}{4}$ " dimension was measured.

6) 1-603-6-16 - S/U-1BGC

- a) The subject sketch specifies a gap between the ends of the two clamp halves of $\frac{1}{4}$ ".

Contrary to the above, a gap of $19/32$ " was measured.

- b) The P2.10 for the subject hanger (Log 81906) specifies M-326 for hanger installation. Paragraph 5.8 (Locking devices) of M-326 states in part, "...all threaded connections...shall be secured by....two jam nuts."

Contrary to the above, one (outer) of the nuts was observed to be loose rendering the clamp insecure.

7) 1-612-2-3 - S/U-1BKA

- a) The subject sketch specifies a support beam (w14 X 150) to pipe dimension of $1'-11\frac{1}{4}$ ".

Contrary to the above, a dimension of $1'-4$ " was measured.

8) 2-604-3-18 - S/U-2BGA

- a) The subject sketch specifies a $\frac{1}{4}$ " fillet weld - all around for the horizontal support to support beam weldment (Item 1 to 7).

Contrary to the above, a non-continuous weldment was observed in this location.

9) 1-616-10-22 - S/U-1EGA

- a) The subject sketch specifies a vertical support beam (Item 2) of $4'-8\frac{1}{4}$ " in length.

Contrary to the above, the support beam measures $5'-0$ ".

- b) The subject sketch specifies a vertical support beam to cross beam support length of 29".

Contrary to the above, the distance was measured to be 25".

10) 2-617-8-5 - S/U-2EGA

- a) The P2.10 for the subject hanger (Log 82242) references M-326 for hanger installation. Paragraph 4.2.5 (Welding) states in part, "Additional welds not shown in the design sketches/drawings require Project Engineering review and approval via field design change control procedure or nonconformance procedure as applicable."

Contrary to the above, several additional $\frac{1}{4}$ " fillet welds were observed at the vertical support to angle support union (Item 2 to 3).

11) 1-603-3-2 - S/U-1BGA

- a) The subject sketch specifies a piping elevation of 634'-6".

Contrary to the above, an elevation of 633' 11 $\frac{1}{4}$ " was measured.

12) 1-619-14-4 - S/U-1EAC

- a) The subject sketch specifies a support beam to support beam dimension of 1'-10 $\frac{3}{8}$ ".

Contrary to the above, this dimension measured 1'-9 $\frac{1}{4}$ ".

058510

To: M. Curland

From: L. H. Curtis



Consumers Power Company
GA27-0

NONCONFORMANCE REPORT

PROJEC
01

PRIORITY: 02 A/I: S-1265 S/U: CODE 87 TREND: DNT PAGE 1 of 5

1. PROJECT NAME: MIDLAND 1 & 2	7. NONCONFORMING PART NO: N/A	8. NONCONFORMING PART NAME: N/A	1. NCR SERIAL NO. M-01-9-2-010
9. SERIAL NUMBER: N/A	10. ORG. COMMITTING NC: BECHTEL CONSTRUCTION	11. AREA/LOC. OF NC: MULTIPLE BLDG's	2. DATE: 2/5/82
12. "AS IS" NONCONFORMING CONDITION VERSUS "AS REQUIRED" CONDITION WITH REFS: The following list of hangers do not conform to applicable requirements as itemized below. It is noted that the identification of the nonconformances listed below was the result of an examination of hangers completely installed and inspected by Field Engineering, turned over to Quality Control and inspected/accepted by Quality Control as evidenced by the completed P2.10 document for each hanger. Specification M 326 section 5.1.1 states in part: "To the greatest extent possible, pipe supports shall be installed in strict (CONTINUED)			3. DATE OF REV: N/A
13. QA RECOMMENDATION FOR PART CA: The recommended part corrective action applies to all hangers listed on NCR. 1) Engineering to evaluate acceptability of hanger. (LHCurtis) 2) If rework/repair is required, record & document. (LEDavis, ESmith) 3) If acceptable, provide justification to use as is. (LHCurtis) DESIGN/PROJECT ENG. DISPOSITION REQUIRED <input checked="" type="checkbox"/> NOT REQUIRED <input type="checkbox"/>			4. FILE NO: 16.0
5. DISTRIBUTION ACTION COPY: LHCurtis LEDavis ESmith INFO COPY: WRBird DMTurnbull JEBrunner RAWells JWCook JLWood MADietrich ALAB- BWMarguglio DBMiller REMcCue/RDJohnson BHPeck FSchulmeister DATaggart			
14. WELD TAGS APPLIED: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> NUMBER, LOCATION & TYPE OF WELD TAGS APPLIED: As per MPOAD procedure E-7M paragraph 5.1.1 d			
15. PROCESS CA REQUIRED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> IF NO, ENTER JUSTIFICATION BELOW:			
16. DOES NC AFFECT Q-LIST ITEM: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		17. IS NC REPORTABLE PER 50.55(e): YES <input type="checkbox"/> NO <input type="checkbox"/> *	
18. IS NC REPORTABLE PER PART 21: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		19. IF YES, DATE & TIME OF REPORT TO ENG: N/A	
20. IF YES, WHO MADE REPORT TO ENG: N/A		21. IF YES, NAME OF ENG OFFICIAL TO WHOM REPORTED: N/A	
22. NCR ORIGINATED BY: <i>[Signature]</i>		23. WRITTEN REPLY REQUIRED BY: 2/22/82 TO ESTABLISH CA COMPLETION DATE	
24. SUPERVISOR'S SIGNATURE/DATE: <i>[Signature]</i> 2-5-82			
25. PART CA DISPOSITION, JUSTIFICATION & COMPLETION DATE: Project Engineering's complete response is attached. cc: D. Borlaza D. Riat W. Bird D. Hollar R. Tulloch D. Taggart L. Curtis R. Myers D. Turnbull P. Corcoran J. Horsch B. Marguglio			
*To be determined.			
26. DESIGN/PROJECT SIG. AUTH. DISP.: <i>P. Corcoran for R. Galt 5/20/82</i>	27. PMO SIG. AUTH. DISP.:	28. PROCUREMENT SIG. CONC. DISP.:	29. SIG. OF ORG. RESP. FOR C/A: <i>P. Corcoran for R. Galt 5/20/82</i>
30. FAB/CONST. SIG. AUTH. IMP. DISP.:	31. SIG. OF TEST GROUP ACKNOW. CONDITION:	32. FOR MAJOR MFD - FLT. SUFF. SIG. AUTH. DISP.:	33. QA AUTH. SIG. TO IMPLEMENT DISP.
34. METHOD OF PART CA VERIFICATION:			
35. SIG. OF ORG. RESP. FOR PART C/A SIGNIFYING COMPLETION:		36. SIG. VERIFYING PART C/A & WELD TAG REMOVAL/DATE:	
37. NCR CLOSED BY/DATE: (PART & PROCESS CA COMPLETE)			



Consumers
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Company

NONCONFORMANCE REPORT

PROCESS CORRECTIVE ACTION

058510

QUALITY ASSURANCE DEPARTMENT

NCR SERIAL NUMBER: _____

PAGE 2 OF 5

38. CA ASSESSMENT OF ROOT CAUSE(S):

Unknown: To be determined.

39. ACTUAL ROOT CAUSE(S), IF DIFFERENT FROM ABOVE (TO BE COMPLETED BY ORG. RESPONSIBLE FOR PROCESS CA):

40. PROCESS CA DERIVED FROM:

DESIGN

FABRICATION

CONSTRUCTION

PROCUREMENT

INSPECTION

OTHER _____

41. QA RECOMMENDATION FOR PROCESS CA:

Unknown: To be determined.

42. PROCESS CA TO BE TAKEN BY ORG(S) CHECKED IN BLOCK 41 & DATE OF COMPLETION:

43. METHOD OF PROCESS CA VERIFICATION:

44. SIG. OF ORG. RESPONSIBLE FOR PROCESS CA SIGNIFYING COMPLETION:

45. PROCESS CA COMPLETION VERIFIED BY/DATE:

058510

S-1265
M-01-9-2-010
Page 3 of 5

compliance with the component pipe support design sketches/drawings."

Contrary to the above, the following hangers have violated this specification:

Hanger 2-604-17-2 P2.10 log #76648; support angle welded to plate is reversed from design sketch. S/U: 2BGA

Hanger 2-639-13-5 P2.10 log #63333; item #1 rotated 90° from design sketch. S/U:2AJ

Hanger 2-604-16-15 P2.10 log #81811, pipe stanchion listed on bill of materials to be 1' - 7 13/16"; actual is 1' - 7 3/16". S/U: 2BGA

Hanger 2-604-2-35 P2.10 log #59842; strut not located on 4"m beam as per drawing. S/U: 2BGE

Hanger 2-619-1-19 P2.10 log #124673; item #11 listed as 8" x 12" actual as installed is 7" x 11". S/U: 2EAC

Hanger 2-GCB-21-1-H1 P2.10 log #73127; pgs 104 pipe strap specified, pgs 111 installed. S/U 2BKA

Hanger 2-HBC-219-1-H1 P2.10 log #71982; bill of materials lists item #2 as 3/8" x 4" x 4"; actual as installed is 3/8" x 4" x 3 13/16". S/U: 2GJA

Hanger 2-HBC-216-5-H3 P2.10 log #72035; item #5 on bill of materials listed as 3 3/4" x 3 3/4"; actual is 4" x 4". S/U: 2GJA

Hanger 2-604-16-15 P2.10 log #81811 material lists item #2 to be 3/8" thick; actual is 1/2" thick. S/U: 2BGA

Hanger 2-HBC-219-1-H1 P2.10 log #71982 rev 5 item #3 to item #2 welded @ opposite sides than design sketch. S/U: 2GJA

Hanger 2-611-4-4 P2.10 log #12417 hanger clamp assembly indicates 1 3/8" clearance on sketch; actual is 1 1/2" typical on both sides. S/U:2BCA

Hanger 2-616-8-2 P2.10 log #63192; centerline of pipe to top of item #1 (4'M beam) not per drawing. S/U: 1EGA

Specification M-343 section 6.22 states in part: "Acceptable Deviation Vertical Piping: The design location of pipe supports on vertical pipe may deviate from the original approved location, in a direction parallel to the pipe centerline by 4 inches, provided it is not adjacent to an anchor, equipment nozzle or valve, in which case prior approval from the engineer shall be required.

058510

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M-01-9-2-010
Page 4 of 5

Contrary to the above:

Hanger 2-HBC-217-1-H2 P2.10 log #69460; sketch & isometric calls for hanger to be centered @ elevation 575' - 11 1/2"; actually @ 575' - 5 3/4". S/U: 2GJA

Specification M-326 section 5.11.1 states in part: "The clearance between the concrete walls and the structural attachment plates should not exceed 1/16" over a maximum of 20% of the bearing area;"

Contrary to the above:

Hanger 2-HBC-216-5-H3 #72305 lower right hand corner of base plate exceeds gap tolerance. S/U: 2GJA

Specification M-326 section 4.2.1.9 states: "No undersize welds are permitted".

Contrary to the above:

Hanger 2-619-1-19 P2.10 log #124673 undersize weld @ item #6 to item #11. S/U: 2E

Hanger 2-604-2-35 P2.10 log #59842 undersize weld @ sway strut to 4" M beam. S/U: 2E

Hanger 2-611-7-33 P2.10 log #135884 undersize weld @ item #2 to item #3. S/U: 2E

Hanger 2-639-13-5 log #63333 insufficient welds for item #1. S/U: 2AEA

PQCI 7220-P2.10, 3.3B states: "Minimum thread engagement shall be that amount necessary to engage all the threads of the nut or threaded component. Hanger load devices which have internally threaded adjustable components are to have sight holes provided to verify adequate thread engagement where required."

Contrary to this:

Hanger 1-616-8-2 P2.10 log #63192; at sight holes of support rods, no threads are visible. S/U: 1EGA

Specification M-326 section 5.1.3.b states: "When the component pipe support design sketch/drawing states the clearance is "1/32 inch typical" on opposite sides of a pipe or 1/16 inch on one side of a pipe or pipe lug, the sum of the actual clearances measured on the opposite sides of the pipe shall not be less than 1/16 inch or more than 1/8 inch. As long as the sum of these actual clearances falls within the above allowable limits, the actual individual clearances may be distributed in any manner, including a zero clearance on one side of the pipe.

Contrary to the above;

Hanger 2-657-43-6 P2.10 log #84577; design sketch calls for 1/32" inch clearance around "U bolt" and pipe: a total of 3/16" exists @ top side of pipe and flush on bottom. S/U: 2GJA

058510

S-1265

M-Q1-9-2-Q10

Page 5 of 5

Hanger 2-604-16-15 log #81811 design sketch calls for 1/32 clearance around pipe and "U bolt"; no clearance exists due to off set bolt holes. S/U: 2BGA

Hanger 2-611-5-98 P2.10 log #70407; welds for 3/8" plates have buckled plates @ weld locations and corners. S/U: 2BNA

NOTE 1: The preceeded conditions of all hangers identified, leave the integrity of hangers indeterminate.

NOTE 2: All identified non-conforming hangers have been previously inspected & accepted by QC.



NONCONFORMANCE REPORT

PROJECTS.
QUALI

To: M. Curland

From: L. H. Curtis

Priority: 2

Trend: DNT

SUS: Code 86

AI: S-1267

PAGE 1 OF 5

PROJECT NAME: Midland Units 1 & 2	7. NONCONFORMING PART NO: Various Hangers (See below)	6. NONCONFORMING PART NAME: Pipe Hangers	1. NCR SERIAL NO: M-01-5-2-014
SERIAL NUMBER: Various	10. ORG. COMMITTEE NO: BPCo	11. AREA/LOC. OF NO: Various	2. DATE: 2/3/82
"AS IS" NONCONFORMING CONDITION VERSUS "AS REQUIRED" CONDITION WITH REFS:			3. DATE OF REV: N/A
The following list of hangers do not conform to applicable requirements as itemized below.			4. FILE NO: 16.0

For all undersized welds see also M-326 4.2.1.a.1 which states, "No undersized welds are permitted." For wrong material and material dimensions see M-326 5.1.1.

5. DISTRIBUTION
ACTION COPY:
LH Curtis
ESmith
LEDavis
- INFO COPY:
WRBird THYoung
JWCook ALAB (2)
MADietrich
BWMarguglio
DBMiller
REMcCue/CTFollin
BHPeck
DATaggart
DMTurnbull
RAWells
JLWood

CA RECOMMENDATION FOR PART CA: The recommended part Corrective Action applies to all hangers: 1) Engineering to evaluate acceptability of hangers 2) If work/repair is required; record, reinspect and document 3) If acceptable, provide justification to use as-is, and revise the drawing to reflect actual conditions. Actionee: 1) LHCurtis 2) LEDavis, ESmith 3) LHCurtis

DESIGN/PROJECT ENG. DISPOSITION REQUIRED NOT REQUIRED

HOLD TAG APPLIED: YES NO NUMBER, LOCATION & TYPE OF HOLD TAG APPLIED: MPQAD Procedure F-7M para 5.1.1.d

IS PROCESS CA REQUIRED: YES NO IF NO, ENTER JUSTIFICATION BELOW:

DOES NC AFFECT Q-LIST ITEM: YES NO 17. IS NC REPORTABLE PER 50.55(e): YES NO

IS NC REPORTABLE PER PART 21: YES NO 19. IF YES, DATE & TIME OF REPORT TO NRC:

IF YES, WHO MADE REPORT TO NRC: 21. IF YES, NAME OF NRC OFFICIAL TO WHOM REPORTED:

NCR ORIGINATED BY: *[Signature]* 23. WRITTEN REPLY REQUIRED BY: Respond by: 2/22/82 TO ESTABLISH CA COMPLETION DATE

24. SUPERVISOR'S SIGNATURE/DATE: *RE White* 2/5/82

PART CA DISPOSITION, JUSTIFICATION & COMPLETION DATE:
Project Engineering's complete response is attached.

- cc: D. Borlaza D. Riat W. Bird
D. Hollar R. Tulloch D. Taggart
L. Curtis R. Myers D. Turnbull
P. Corcoran J. Horsch B. Marguglio

* to be determined

DESIGN/PROJECT SIG. AUTH. DISP.: <i>P. Curran for L. Curtis 5/10/82</i>	27. P/QC SIG. AUTH. DISP.:	28. PROCUREMENT SIG. CONC. DISP.:	29. SIG. OF ORG. RESP. FOR C/A: <i>P. Curran for L. Curtis 5/10/82</i>
FAB/CONST. SIG. AUTH. D.P. DISP.:	31. SIG. OF TEST GROUP ACKNOW. CONDITION:	32. FOR MAJOR MCD - PLT. SUPT. SIG. AUTH. DISP.:	33. QA AUTH. SIG. TO IMPLEMENT DISP.:

METHOD OF PART CA VERIFICATION:

SIG. OF ORG. RESP. FOR PART C/A SIGNIFYING COMPLETION: 30. SIG. VERIFYING PART C/A & HOLD TAG REMOVAL/DATE: 37. NCR CLOSED BY/DATE: (PART & PROCESS CA COMPLETE)

071354



Public Service
Power
Company

NONCONFORMANCE REPORT

PROCESS CORRECTIVE ACTION

NCR SERIAL NUMBER: _____

PAGE 2 OF 2

37. ASSESSMENT OF ROOT CAUSE(S):

Unknown: To be determined.

38. ACTUAL ROOT CAUSE(S), IF DIFFERENT FROM ABOVE (TO BE COMPLETED BY ORG. RESPONSIBLE FOR PROCESS CA):

39. PROCESS CA REQUIRED FROM:

DESIGN

FABRICATION

CONSTRUCTION

PROCUREMENT

INSPECTION

OTHER _____

40. QA RECOMMENDATION FOR PROCESS CA:

Unknown: To be determined.

41. PROCESS CA TO BE TAKEN BY ORG(S) CHECKED IN BLOCK #1 & DATE OF COMPLETION:

42. METHOD OF PROCESS CA VERIFICATION:

43. SIG. OF LPO RESPONSIBLE FOR PROCESS CA DEVELOPING COMPLETION:

44. PROCESS CA COMPLETION VERIFIED BY/DATE:

CONTINUED:

12. "AS IS" NONCONFORMING CONDITION VERSUS "AS REQUIRED" CONDITION WITH REFS:

Hardware Discrepancy1) 2-611-6-5 (10-2FLB-35-H5) Log #63225 Rev 5 S/U 2BCA

- a) Where the sway strut fitting is welded to the vertical I-Beam, the welds are undersized both legs per the drawing.
- b) Three of four welds attaching the horizontal I-Beam to the superstructure I-Beam are undersized on one leg per the drawing.
- c) The beam to beam shop fabricated portion welds are undersized on one leg per the drawing.
- d) The brace beam angle is supposed to be $44^{\circ} \pm 1^{\circ}$ per the drawing and it is installed at $46\frac{1}{2}^{\circ}$.

2) FSK-M-2HBC-145-1-H5Q Log #87879 Rev 5 S/U 2EGA

Item #1 in bill of materials is a W5 I-Beam and a W6 I-Beam was installed.

3) FSK-M-2HBC-144-1-HBQ Log #73182 Rev 5 S/U 2EGA

Item #3 per drawing bill of material is a plate $\frac{1}{2}'' \times 2 \frac{3}{4}'' \times 2 \frac{3}{4}''$ however, a $\frac{1}{2}'' \times 3 \frac{3}{4}'' \times 3 \frac{3}{4}''$ plate was installed.

4) 1-612-3-12Q(8"-1GCB-16-H1) Log #76107 Rev 5 S/U 1BKA

This hanger was installed $4\frac{1}{2}''$ West of drawing coordinates perpendicular to the pipe. (Contrary to even the new Appendix K of M-326 allowance of $\pm 2''$ for a deviation of the pipe)

5) 2-613-4-19Q(12-2HBC-5-H1) Log # 68235 Rev 5 S/U 2BCA

- a) The two welds that attach the spring canister to the channels are undersized on one leg per the drawing.
- b) The angle clips are attached to the wrong end of the channels per the drawing.
- c) Both bottom welds of the angle clips to the channel are undersized on one leg per the drawing.
- d) There is a gap between the angle clips and the channel and the drawing shows no gap.

Note:

Although the clip to main beam welds were changed from being an NFS222 weld the detail indicates the clip to channel welds are still per NFS222.

6) FSK-M-2-FCC-4-1-H1 (Q) Log # 64107 Rev 5 S/U 2BBB

There is weld burn out causing reduced thickness of up to 3/32" at one end of one of the welds of strap to angle. This also makes the weld undersize.

7) FSK-M-2ECB-8-3-H4 (Q) Log #79652 Rev 5 S/U 2BHA

- a) Item #1 on the bill of material is 13 1/2" long, however, actual installed is 13 3/4" long.
- b) The isometric drawing locates this hanger 11'-1 11/16" East of reactor building centerline, however, measurement from a benchmark locates it at 11'-9 1/4" East of the reactor building centerline contrary to para 6.2 of M-343.

8) FSK-M-2ECB-4-4-H5(Q) Log #60821 Rev 4 S/U 2BHA

- a) There is a cotter pin missing on the lower end of the West sway strut.
- b) The 1/2" gap between the sway struts called for in view c-c of the drawing is actually 1/4".

9) FSK-M-2HBC-1-1-H2(Q) Log #78717 Rev 5 S/U 2JEA

- a) The stiffener plate outer bottom edge thickness is reduced due to weld burn off resulting in an undersize weld.
- b) The same condition occurs on three (3) places on the pipe strap (this was beveled and a full weld was not made).

10) FSK-M-2GCB-22-1-H3(Q) Log #68259 Rev 5 S/U 2BKA

Item #3 on bill of material is 1/2" x 2 3/4" x 2 3/4" per drawing. Actual is 1/2" x 3 3/4" x 3 3/4".

11) 2-617-11-9 (6"-2HBC-149-H1)(Q) Log #69494 Rev 5 S/U 2EGA

- a) Section AA of drawing requires 2 31/32" offset between centerline of main beam and centerline of vertical beams of the hanger. Actual is 5/16" offset.
- b) Centerline of pipe to centerline of vertical beams is actually 12 1/4" and 12 1/2", however, the drawing requires 12".

12) 2-619-1-20R(8"-2HBC-109-H20R) Log #64049 Rev 5 S/U 2EAC

The hanger is 5" West of drawing coordinates (perpendicular to the pipe) contrary to para 5.2 of M-326 (note the drawing states "field cut to suit" for items 1 and 2 on the bill of material, however, material used was longer than called for).

13) 2-619-2-19 Q (10"-2HBC-110-H19) Log #103729 Rev 6 S/U 2EAC

The lugs attaching the sway strut to the vertical I-Beam are rotated 90° from the drawing configuration and contrary to M-326 5.2.1.d.

Hanger No/4k

14) *Sketch* 2-619-6-11 Q (10"-2HBC-100-H3) Log #76640 Rev 5 S/U 2EAD
o f p 2.10 *o f p 2.10*

- a) Item #8 on bill of material requires 1" x 6" x 4½", however, 1" x 6½" x 5" was installed.
- b) Item #7 on bill of material requires 7/8" x 6" x 5", however, 7/8" x 6" x 4½" was installed. (a later rev makes a & b acceptable)
- c) Vertical gap, both top and bottom, is not parallel with pipe. Guide pads top and bottom touch the pipe at one end and have gap exceeding the requirements of the drawing and M-326 para 5.1.3.b at the other end.
- d) The welds of the vertical hanger beams to the bottom horizontal beam are undersized per drawing.
- e) The 1'-7 1/8" distance between pipes per drawing was installed as 1'-10 1/8".

15) FSK-M-2EBB-3-4-H1 (Q) Log # 71689 Rev 5 S/U 2BMA

- a) The sway strut has a tie wrap (plastic) instead of a bolt, nut and washers per the manufacturers drawing on one end.
- b) A cotter pin is missing from the retaining pin at the other end of the sway strut contrary to the manufacturers drawing
- c) Lock nuts missing on pipe clamp

16) 1-612-2-2 Q (8"1GCB-16-H47) Log #63197 Rev 5 S/U 1BKA

- a) The 2'-5½" dimension from centerline of pipe to centerline of the W14 x 111 I-Beam is 2'-3" installed (this is perpendicular to the pipe)
- b) The North and South end plates (Item 5) welded to angle have an undersized weld on one leg. Both of these are on the West side.

17) 1-612-4-33(Q)(6"-1GCB-18-H10) Log #65882 Rev 5 S/U 1BCA

The small plate (#1 on bill of material) has reduced section and therefore undersized weld at the top.

058509

To: M. Curland

6



NONCONFORMANCE REPORT

PROJECTS, E
QUALIT

From: L. H. Curtis

PRIORITY: 2 TREND: DNT A/I: 1272

SUS: Code 83

PAGE 1 OF 3

PROJECT NAME: MIDLAND	7. NONCONFORMING PART NO: VARIOUS (See Block 12)	8. NONCONFORMING PART NAME: VARIOUS (See Block 12)	1. NCR SERIAL NO: MOI-5-2-017
SERIAL NUMBER: VARIOUS (See Block 12)	10. DES. COMPETING NC: BECHTEL QC7 BECHTEL CONSTRUCTION	11. AREA/LOC OF NC: VARIOUS (See Block 12)	2. DATE: 2/5/82
"AS IS" NONCONFORMING CONDITION VERSUS "AS REQUIRED" CONDITION WITH REFS:			3. DATE OF REV:
The following list of hangers do not conform to the applicable requirements as itemized below:			4. FILE NO: 16.0

It is noted that the identification of the nonconformances listed below was the result of an examination of hangers completely installed and inspected by Field Engineering, turned over to Quality Control and inspected/accepted by Quality Control as evidenced by the completed P2.10 document for each hanger.

5. DISTRIBUTION ACTION COPY:
- LHCurtis
 - LEDavis
 - ESmith
- INFO COPY:
- WRBird RAWells
 - JWCook JLWood
 - MADietrich ALAB-2
 - LNJowell RDJohns
 - BWMarguglio
 - DBMiller
 - REMcCue/CIFD111D
 - BHPeck
 - DATaggart
 - DNTurnbull

3. QA RECOMMENDATION FOR PART CA: For each of these items:

- 1) Engineering to evaluate the acceptability of the hanger. (Curtis)
- 2) If rework/repair is required - implement rework/repair, document & reinspect as required. (LEDavis, ESmith)
- 3) If acceptable, provide justification to use as is & revise the drawing to reflect actual conditions. (LHCurtis)

4. HOLD TAGS APPLIED: YES NO NUMBER, LOCATION & TYPE OF HOLD TAGS APPLIED: MPOAD Procedure F-7M Paragraph 5.1.1d

5. IS PROCESS CA REQUIRED: YES NO IF NO, ENTER JUSTIFICATION BELOW:

6. DOES NC AFFECT Q-LIST ITEM: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	17. IS NC REPORTABLE PER 50.55(*): YES <input type="checkbox"/> NO <input type="checkbox"/> *
8. IS NC REPORTABLE PER PART 21: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	19. IF YES, DATE & TIME OF REPORT TO NRC: N/A
9. IF YES, WHO MADE REPORT TO NRC: N/A	21. IF YES, NAME OF NRC OFFICIAL TO WHOM REPORTED: N/A

2. NCR ORIGINATED BY: <i>L. H. Curtis 2-5-82</i>	23. WRITTEN REPLY REQUIRED BY: To be determined by 2/22/82 TO ESTABLISH CA COMPLETION DATE	24. SUPERVISOR'S SIGNATURE/DATE: <i>RE Whitaker 2/5/82</i>
---	--	---

5. PART CA DISPOSITION, JUSTIFICATION & COMPLETION DATE:
Project Engineering's complete response is attached.

cc: D. Borlaza D. Riat W. Bird
D. Hollar R. Tulloch D. Taggart
L. Curtis R. Myers D. Turnbull
P. Corcoran J. Horsch B. Marguglio

6. DESIGN/PROJECT SIG. AUTH. DISP.: <i>P. Corcoran for L. Curtis 2/5/82</i>	27. PMO SIG. AUTH. DISP.:	28. PROCUREMENT SIG. CONC. DISP.:	29. SIG. OF ORG. RESP. FOR C/A: <i>P. Corcoran for L. Curtis 2/5/82</i>
9. FAB/CONST. SIG. AUTH. DISP.:	31. SIG. OF TEST GROUP ACKNOW. CONDITION:	32. FOR MAJOR MOD - FLT. SUPT. SIG. AUTH. DISP.:	33. QA AUTH. SIG. TO IMPLEMENT DISP.:

4. METHOD OF PART CA VERIFICATION:

15. SIG. OF ORG. RESP. FOR PART C/A SIGNIFYING COMPLETION:	36. SIG. VERIFYING PART C/A & HOLD TAG REMOVAL/DATE:	37. NCR CLOSED BY/DATE: (PART & PROCESS CA COMPLETE)
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058509



NONCONFORMANCE REPORT

PROCESS CORRECTIVE ACTION

QUALITY ASSURANCE DEPARTMENT

NCR SERIAL NUMBER: _____

PAGE 2 OF 3

36. QA ASSESSMENT OF ROOT CAUSE(S):

Unknown: To be determined.

39. ACTUAL ROOT CAUSE(S), IF DIFFERENT FROM ABOVE (TO BE COMPLETED BY ORG. RESPONSIBLE FOR PROCESS CA):

40. PROCESS CA REQUIRED FROM:
DESIGN FABRICATION CONSTRUCTION PROCUREMENT INSPECTION
OTHER _____

41. QA RECOMMENDATION FOR PROCESS CA:

Unknown: To be determined.

42. PROCESS CA TO BE TAKEN BY ORG(S) CHECKED IN BLOCK #1 & DATE OF COMPLETION:

43. METHOD OF PROCESS CA VERIFICATION:

44. SIG. OF ORG. RESPONSIBLE FOR PROCESS CA SIGNIFYING COMPLETION:

45. PROCESS CA COMPLETION VERIFIED BY/DATE:

- 1) Clearances on the following hangers do not conform to the drawing/ specification tolerances:

a) 0-HBC-142-1-H1	SUS: 2-EAD
b) 1-HBC-145-1-H9	SUS: 1-EGA
c) 1-657-37-9	SUS: 1-GJA
d) 1-657-37-22	SUS: 1-GJA
e) 1-648-7-58	SUS: 1-KAB
f) 1-HBC-144-1-H3	SUS: 1-EGA
g) 1-CCB-69-1-H2	SUS: 1-BGA

NOTE: Items b & f contain masking tape under the strap, preventing accurate measurement.

- 2) 0-617-7-13 SUS: 0-EGA
Item #3 (I-BEAM) is not installed in accordance with the drawing. Angle clip & field weld is located incorrectly.
- 3) 0-617-8-33 SUS: 0-EGA
a) Field weld between items 2 & 3 does not conform to drawing requirements. West weld, south end, contains approximately $\frac{1}{4}$ " of undersize weld.
- 4) 1-633-1-33 SUS: 1-BMA
a) Drawing requires the bottom plate, on one corner, to be beveled $\frac{1}{4}$ ". Contrary to the above, the bevel was determined to be 3/16".
- 5) 1-CCB-69-1-H1 SUS: 1-BGA
a) PGS-114 requires the jam nuts to be SA-307, GR B
Contrary to the above, the jam nuts are SA-194, 2H.
- 6) 1-CCB-69-1-H2 SUS: 1-BGA
a) Same as 5.a above.
- 7) 0-618-1-6 SUS: 0-EAA
a) Field welds between items 2 & 8 do not conform to drawings requirements. Drawing requires the welds to be located on the sides of item 8, the welds are located on the ends of item 8.

QC AI 1527
FE AI J-73
CFC NCR M01-9-2-007

CONSTRUCTION
RESPONSE



QA AI S-1261

Item numbers listed in this response correspond to the item numbers listed in Block 12 of subject NCR. Information given reflects investigation of actual field conditions and what, if any, construction action has been taken.

Item (1)

- a) Redline SH-10111 has been issued to reflect existing field condition. Basic design of hgr not affected and PE approval is not required. No further action required.
- b) Subject weld has been damaged by grinding at the toe of the weld. Adequate weld size exists and will remain after ground area is faired-in Rework Package RSH-1105 issued to correct existing condition.

Item (2)

- a) Redline LH-10420 has been issued to reflect existing field condition. Basic design of hgr not affected and PE approval is not required. No further action required.
- b) Subject condition listed on NCR has been documented on Bechtel NCR 4112. PE to evaluate.

Item (3)

- a) The condition stated on NCR has been evaluated by FE and QC. Condition conforms to requirements and no nonconforming condition exists. No further action required.

Item (4)

- a) Condition stated has been evaluated by FE and QC. Material installed conforms to dwg. requirements. No further action required.

Item (5)

- a) Redline has been submitted for evaluation to PE reflecting existing field condition.
- b) Redline LH-4769 was issued and used as criteria for acceptance. Subject redline deleted angle requirements. No nonconforming condition exists. No further action required.

- c) Redline has been made to reflect existing field condition. Basic design of hgr not affected and no PE approval required. No further action required.
- d) Redline has been submitted to reflect existing field condition. Basic design of hgr not affected and PE approval not required. No further action required.

Item (6)

- a) Redline LH-10579 has been issued to reflect existing field condition. Basic design not affected. PE approval not required. NOTE: Lower end of clamp measured $\frac{1}{2}$ " upper end $\frac{9}{16}$ ". No further action required.
- b) Condition stated is not a nonconformance. Securing of threaded fasteners is a requirement of final walkdown and would have been corrected at that time.

Item (7)

- a) Condition stated, no longer exists. Subsequent revision of drawing reflects existing field condition. No further action required.

Item (8)

Redline has been submitted for evaluation to PE reflecting existing field condition.

Item (9)

- a) Redline has been submitted for evaluation to PE reflecting existing field condition.
- b) Redline has been made to reflect existing field condition. Basic design of hgr not affected and no PE approval required. No further action required.

Item (10)

Redline has been submitted for evaluation to PE reflecting existing field condition.

Item (11)

- a) Redline LH-10361 has been issued to reflect existing field condition. Actual existing elevation is within installation tolerances. No further action required.

Item (12)

- a) Redline LH-10457 has been issued to reflect existing field condition. Basic design of hgr is not affected and PE approval is not required. No further action required.

NONCONFORMANCE REPORT

Priority: 2 Trend: Do Not Trend S/U: CD80 A [REDACTED] of 5

PROJECT NAME: Midland	7. NONCONFORMING PART NO: Various (See Block 12)	8. NONCONFORMING PART NAME: Various (See Block 12)	1. [REDACTED]
SERIAL NUMBER: Various (See Block 12)	10. ORG. COMMITTING NO: Bechtel QC/ Bechtel Construction	11. AREA/LOC. OF NO: Various (See Block 12)	2. DATE: 2/4/82
AS IS NONCONFORMING CONDITION VERSUS "AS REQUIRED" CONDITION WITH REFS.			3. DATE OF REV: N/A
The following list of hangers do not conform to the applicable requirements as itemized below: It is noted that the identification of the nonconformances listed below was the result of an examination of hangers completely installed and inspected by Field Engineering, turned over to Quality Control and inspected/accepted by Quality Control as evidenced by the completed 2.10 document for each hanger.			4. FILE NO: 16.0
			5. DISTRIBUTION ACTION COPY: LEDavis LHCurtis ESmith

The following list of hangers do not conform to the applicable requirements as itemized below:

It is noted that the identification of the nonconformances listed below was the result of an examination of hangers completely installed and inspected by Field Engineering, turned over to Quality Control and inspected/accepted by Quality Control as evidenced by the completed 2.10 document for each hanger.

- INFO COPY:
- WRBird
 - JLWood
 - JWcook
 - MAVerderosa
 - MADietrich
 - ALAB-2
 - BWMarguglio
 - DBMiller
 - REMcue/CFollin
 - BHPeck
 - JARutgers
 - DATaggart
 - DMTurnbull
 - RAWells

FSK-M-1HBC-219-1-H1 - S/U-1GJA
a) The subject sketch specifies a pipe to embed dimension of 174" (Continued)

RECOMMENDATION FOR PART CA: For each of these items:
Engineering to evaluate the acceptability of the as/is hanger.(Curtis)
If rework/repair is required - implement rework/repair, record, document and reinspect as required. (LEDavis, ESmith)
If acceptable, provide justification for use as/is and revise the drawing to reflect actual conditions. (LHCurtis)

HOLD TAGS APPLIED: YES NO NUMBER, LOCATION & TYPE OF HOLD TAGS APPLIED: MPOAD Procedure F-7M Paragraph 5.1.1d

IS PROCESS CA REQUIRED: YES NO IF NO, ENTER JUSTIFICATION BELOW:

DOES NC AFFECT Q-LIST ITEM: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	17. IS NC REPORTABLE PER 50.55(*): YES <input type="checkbox"/> NO <input type="checkbox"/> *
IS NC REPORTABLE PER PART 21: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	19. IF YES, DATE & TIME OF REPORT TO NRC: N/A
IF YES, WHO MADE REPORT TO NRC: N/A	21. IF YES, NAME OF NRC OFFICIAL TO WHOM REPORTED: N/A

NCR ORIGINATED BY: *MAVerderosa*

23. WRITTEN REPLY REQUIRED BY: 2/22/82
TO ESTABLISH CA COMPLETION DATE

24. SUPERVISOR'S SIGNATURE/DATE: *MAVerderosa 2/5/82*
MAVerderosa 2/4/82

PART CA DISPOSITION, JUSTIFICATION & COMPLETION DATE:

DESIGN/PROJECT SIG. AUTH. DISP.:	27. PMO SIG. AUTH. DISP.:	28. PROCUREMENT SIG. CONC. DISP.:	29. SIG. OF ORG. RESP. FOR C/A:
FAB/CONST. SIG. AUTH. IMP. DISP.:	31. SIG. OF TEST GROUP ACKNOW. CONDITION:	32. FOR MAJOR MOD - PLT. SUPT. SIG. AUTH. DISP.:	33. QA AUTH. SIG. TO IMPLEMENT DISP.

METHOD OF PART CA VERIFICATION:



Consumers
Power
Company

NONCONFORMANCE REPORT

PROCESS CORRECTIVE ACTION

PROJECTS, ENGINEERING AND CONSTRUCTION -

QUALITY ASSURANCE DEPARTMENT
MU1-9-2-007

NCR SERIAL NUMBER: _____

PAGE 2 OF 5

8. QA ASSESSMENT OF ROOT CAUSE(S):

Unknown, to be determined.

9. ACTUAL ROOT CAUSE(S), IF DIFFERENT FROM ABOVE (TO BE COMPLETED BY ORG. RESPONSIBLE FOR PROCESS CA):

10. PROCESS CA REQUIRED FROM:

DESIGN

FABRICATION

CONSTRUCTION

PROCUREMENT

INSPECTION

OTHER _____

11. QA RECOMMENDATION FOR PROCESS CA:

Unknown, to be determined.

PROCESS CA TO BE TAKEN BY ORG(S) CHECKED IN BLOCK 41 & DATE OF COMPLETION:

METHOD OF PROCESS CA VERIFICATION:

SIG. OF ORG. RESPONSIBLE FOR PROCESS CA SIGNMENT'S COMPLETION:

12. PROCESS CA COMPLETION DATE:

12. "AS IS" NONCONFORMING CONDITION VERSUS "AS REQUIRED" CONDITION WITH REFS:

Contrary to the above, the measured dimension is $6\frac{1}{2}$ ".

- b) The P2.10 for the subject hanger (Log 81753) references M-343 for hanger fabrication. Paragraph 6.7.2 (Welding) invokes G-27 for welding and paragraph 4.4.8 of GWS-FM Rev 4 from G-27 states in part, "...each weld layer shall be free of porosity and excessive irregularities such as high spots and deep crevices."

Contrary to the above, the vertical support weldment exhibits an approximately 2" long groove - creating a sharp edge.

2) 1-610-4-27 - S/U-1BCA

- a) The subject sketch requires a $9/16$ " length of support steel beyond the cross support weldment.

Contrary to the above, a length of $1/4$ " was measured.

- b) The P2.10 for the subject hanger (Log 69498) references M-326 for hanger installation. Paragraph 4.2.2 (Welding) states in part, "Undercut shall not exceed $1/32$ "."

Contrary to the above, the angle flange to horizontal support beam weld exhibits a $5/32$ " undercut, (burnout).

3) 1-612-3-25 - S/U-1BKA

- a) The P2.10 for the subject hanger (Log 76542) references M-326 for hanger installation. Paragraph 4.1.2 (Welding) invokes G-27 for welding and paragraph 4.4.8 of GWS-FM Rev 4 from G-27 states in part, "...each weld layer shall be free of porosity and excessive irregularities such as high spots and deep crevices."

Contrary to the above, the vertical hanger support to support beam weld exhibits a grooved face $3/32$ " wide for approximately 1".

4) FSK-M-1HBC-204-1-H12 - S/U-1GJA

- a) The bill of materials for the subject sketch specifies a $5/8$ " thickness for Item 6.

Contrary to the above, several areas of the item noted measure $9/16$ ".

5) 1-616-6-28 - S/U-1EGA

- a) The subject sketch specifies a $1/2$ " weld for the stanchion to vertical support, (two sides).

Contrary to the above, a $3/8$ " weld was measured.

- b) The subject sketch specifies an angle of 60° between the angle support brace and vertical support.

Contrary to the above, an angle of 51° was measured.

- c) The subject sketch specifies stanchion heights of 20" and $17\frac{1}{4}$ ".

Contrary to the above, stanchion heights of $22\frac{1}{4}$ " and $18\frac{5}{8}$ " were measured respectively.

- d) The subject sketch specifies 14" between the base of the angle support brace and the vertical support.

Contrary to the above, a $25\frac{1}{2}$ " dimension was measured.

6) 1-603-6-16 - S/U-1BGC

- a) The subject sketch specifies a gap between the ends of the two clamp halves of $\frac{1}{4}$ ".

Contrary to the above, a gap of $19/32$ " was measured.

- b) The P2.10 for the subject hanger (Log 81906) specifies M-326 for hanger installation. Paragraph 5.8 (Locking devices) of M-326 states in part, "...all threaded connections...shall be secured by...two jam nuts."

Contrary to the above, one (outer) of the nuts was observed to be loose rendering the clamp insecure.

7) 1-612-2-3 - S/U-1BKA

- a) The subject sketch specifies a support beam (wl4 X 150) to pipe dimension of $1'-11\frac{1}{4}$ ".

Contrary to the above, a dimension of $1'-4$ " was measured.

8) 2-604-3-18 - S/U-2BGA

- a) The subject sketch specifies a $\frac{1}{4}$ " fillet weld - all around for the horizontal support to support beam weldment (Item 1 to 7).

Contrary to the above, a non-continuous weldment was observed in this location.

9) 1-616-10-22 - S/U-1EGA

- a) The subject sketch specifies a vertical support beam (Item 2) of $4'-8\frac{1}{4}$ " in length.

Contrary to the above, the support beam measures $5'-0$ ".

- b) The subject sketch specifies a vertical support beam to cross beam support length of 29".

Contrary to the above, the distance was measured to be 25".

10) 2-617-8-5 - S/U-2EGA

- a) The P2.10 for the subject hanger (Log 82242) references M-326 for hanger installation. Paragraph 4.2.5 (Welding) states in part, "Additional welds not shown in the design sketches/drawings require Project Engineering review and approval via field design change control procedure or nonconformance procedure as applicable."

Contrary to the above, several additional $\frac{1}{4}$ " fillet welds were observed at the vertical support to angle support union (Item 2 to 3).

11) 1-603-3-2 - S/U-1BGA

- a) The subject sketch specifies a piping elevation of 634'-6".

Contrary to the above, an elevation of 633' $11\frac{1}{4}$ " was measured.

12) 1-619-14-4 - S/U-1EAC

- a) The subject sketch specifies a support beam to support beam dimension of 1'-10 $\frac{3}{8}$ ".

Contrary to the above, this dimension measured 1'-9 $\frac{1}{4}$ ".

Sent Late Bond (✓)

QC AI 1505
FE AI J-40
CRO NCR MOI-9-2-016

CONSTRUCTION
RESPONSE

QA AI 5-2165

Hangers listed in the response correspond to the hangers listed in Block 12 of subject NCR. Information given reflects investigation of actual field conditions and what, if any, construction action has been taken.

Hgr 2-619-1-19

- a) Subject weld is to be reworked under rework package RLH-626.
- b) Redline LH-10448 has been issued to reflect existing field condition. Basic design of hgr is not affected and PE approval not required. No further action required.

Hgr 2-604-2-35

- a) Subject weld was measured by QC and found to be acceptable. No further action required.
- b) Subject condition no longer exist in field. Strut was removed under rework package RLH-390. Strut to be re-installed under rework package RLH-623.

Hgr 2-611-7-33

Subject weld is to be reworked under rework package RLH-618.
Note: Subject weld is a vendor supplied weld.

Hgr 2-639-13-5

- a) Redline LH-10450 has been issued to reflect existing field condition. Welds are not insufficient (undersize), but are orientated incorrectly.
- b) Redline has been submitted for evaluation to PE reflecting existing field condition.

Hgr 2-604-17-2

Redline LH-10437 has been issued to reflect existing field condition. Basic design of hgr not affected and PE approval not required. No further action required.

Hgr 2-604-16-15

- a) Redline LH-10438 has been issued to reflect existing field condition. Basic design of hgr not affected. PE approval not required. No further action required.
- b) Redline LH-10438 has been issued to reflect existing field

condition. Basic design of hgr not affected and PE approval is not required. No further action required.

- c) Stated condition no longer exists in field. U-bolt is no longer installed. U-bolt to be reinstalled under rework package RLH-622.

Hgr FSK-M-2GCB-21-1-H1

Redline SH-10112 has been issued to reflect existing field condition. Drafting error made, therefore PE approval not required. No further action required.

Hgr FSK M-2GCB-21-1-H1

- a) Redline SH-10113 has been issued to reflect existing field condition. Basic design of hgr not affected and PE approval not required. No further action required.
- b) Redline SH-10113 has been issued to reflect existing field condition. Basic design not affected and PE approval not required. No further action required.

Hgr 2-611-4-4

Redline LH-10422 has been issued to reflect existing field condition. Basic design not affected and PE approval not required. No further action required.

Hgr 2-616-8-2

- a) Redline LH-10431 has been issued to reflect existing field condition. Basic design not affected and PE approval is not required. No further action required.
- b) Rework Package RLH-617 issued to correct tread engagement. Lower end is only nonconforming condition.

Hgr FSK-M-2HBC-217-1-H2

Redline SH-10115 has been issued to reflect existing field condition. FE determined no basic design change and PE approval not required. No further action required.

Hgr FSK-M-2HBC-216-5-H3

- a) Rework Package RSH-1097 issued to correct existing field condition.
- b) Redline SH-10114 issued to reflect existing field condition. Basic design not affected. PE approval not required. No further action required.

Hgr 2-657-43-6

Rework Package RLH-620 issued to correct existing field condition.

Hgr 2-611-5-98

Existing condition has been inspected and evaluated by FE and QC and is acceptable as is. No further action required.



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QA27-0

NONCONFORMANCE REPORT

PROJECTS, ENGINEERING AND CONSTRUCTION -
QUALITY ASSURANCE DEPARTMENT

PRIORITY: 02 S/U: CODE 87 TREND: DNT PAGE 1 OF 5

6. PROJECT NAME: MIDLAND 1 & 2		7. NONCONFORMING PART NO: N/A		8. NONCONFORMING PART NAME: N/A		1. NCR SERIAL NO: [REDACTED]	
9. SERIAL NUMBER: N/A		10. ORG. COMMITTING NO: BECHTEL CONSTRUCTION		11. AREA/LOC. OF NC: MULTIPLE BLDG's		2. DATE: 2/5/82	
12. "AS IS" NONCONFORMING CONDITION VERSUS "AS REQUIRED" CONDITION WITH REFS: The following list of hangers do not conform to applicable requirements as itemized below. It is noted that the identification of the nonconformances listed below was the result of an examination of hangers completely installed and inspected by Field Engineering, turned over to Quality Control and inspected/accepted by Quality Control as evidenced by the completed P2.10 document for each hanger. Specification M 326 section 5.1.1 states in part: "To the greatest extent possible, pipe supports shall be installed in strict (CONTINUED)		5. DISTRIBUTION ACTION COPY: LHCurtis LEDavis ESmith		INFO COPY: WRBird DMTurnbull JEBrunner RAWells JWCook JLWood MADietrich ALAB-2 BWMarguglio DBMiller REMcCue/RDJohnson BHPeck JARutgers FSchulmeister DATaggart			
13. CA RECOMMENDATION FOR PART CA: The recommended part corrective action applies to all hangers listed on NCR. 1) Engineering to evaluate acceptability of hanger. (LHCurtis) 2) If rework/repair is required, record & document. (LEDavis, ESmith) 3) If acceptable, provide justification to use as is. (LHCurtis)		DESIGN/PROJECT ENG. DISPOSITION REQUIRED <input checked="" type="checkbox"/> NOT REQUIRED <input type="checkbox"/>					
14. HOLD TAGS APPLIED: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		NUMBER, LOCATION & TYPE OF HOLD TAGS APPLIED: As per MPOAD procedure F-7M paragraph 5.1.1.d					
15. IS PROCESS CA REQUIRED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		IF NO, ENTER JUSTIFICATION BELOW:					
16. DOES NC AFFECT Q-LIST ITEM: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		17. IS NC REPORTABLE PER 50.55(e): YES <input type="checkbox"/> NO <input type="checkbox"/> *					
18. IS NC REPORTABLE PER PART 21: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		19. IF YES, DATE & TIME OF REPORT TO NRC: N/A					
20. IF YES, WHO MADE REPORT TO NRC: N/A		21. IF YES, NAME OF NRC OFFICIAL TO WHOM REPORTED: N/A					
22. NCR ORIGINATED BY: <i>[Signature]</i>		23. WRITTEN REPLY REQUIRED BY: 2/22/82 TO ESTABLISH CA COMPLETION DATE		24. SUPERVISOR'S SIGNATURE/DATE: <i>[Signature]</i> 2-5-82			
25. PART CA DISPOSITION, JUSTIFICATION & COMPLETION DATE:		*To be determined.					
26. DESIGN/PROJECT SIG. AUTH. DISP.:		27. PMO SIG. AUTH. DISP.:		28. PROCUREMENT SIG. CONC. DISP.:		29. SIG. OF ORG. RESP. FOR C/A:	
30. FAB/CONST. SIG. AUTH. IMP. DISP.:		31. SIG. OF TEST GROUP ACKNOW. CONDITION:		32. FOR MAJOR MOD - FLT. SUPT. SIG. AUTH. DISP.:		33. QA AUTH. SIG. TO IMPLEMENT DIS:	
34. METHOD OF PART CA VERIFICATION:							
35. SIG. OF ORG. RESP. FOR PART C/A SIGNIFYING COMPLETION:		36. SIG. VERIFYING PART C/A & HOLD TAG REMOVAL/DATE:		37. NCR CLOSED BY/DATE: (PART & PROCESS CA COMPLETE)			



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NONCONFORMANCE REPORT

PROCESS CORRECTIVE ACTION

PROJECTS, ENGINEERING AND CONSTRUCTION -
QUALITY ASSURANCE DEPARTMENT

NCR SERIAL NUMBER: _____

PAGE 2 OF 5

38. QA ASSESSMENT OF ROOT CAUSE(S):

Unknown: To be determined.

39. ACTUAL ROOT CAUSE(S), IF DIFFERENT FROM ABOVE (TO BE COMPLETED BY ORG. RESPONSIBLE FOR PROCESS CA):

40. PROCESS CA REQUIRED FROM:

DESIGN

FABRICATION

CONSTRUCTION

PROCUREMENT

INSPECTION

OTHER _____

41. QA RECOMMENDATION FOR PROCESS CA:

Unknown: To be determined.

42. PROCESS CA TO BE TAKEN BY ORG(S) CHECKED IN BLOCK 41 & DATE OF COMPLETION:

43. METHOD OF PROCESS CA VERIFICATION:

44. SIG. OF ORG. RESPONSIBLE FOR PROCESS CA SIGNIFYING COMPLETION:

45. PROCESS CA COMPLETION VERIFIED BY/DATE:

compliance with the component pipe support design sketches/drawings."

Contrary to the above, the following hangers have violated this specification:

Hanger 2-604-17-2 P2.10 log #76648; support angle welded to plate is reversed from design sketch. S/U: 2BGA

Hanger 2-639-13-5 P2.10 log #63333; item #1 rotated 90° from design sketch. S/U:2AE/

Hanger 2-604-16-15 P2.10 log # 81811, pipe stanchion listed on bill of materials to be 1' - 7 13/16"; actual is 1' - 7 3/16". S/U: 2BGA

Hanger 2-604-2-35 P2.10 log #59842; strut not located on 4"m beam as per drawing. S/U: 2BGE

Hanger 2-619-1-19 P2.10 log #124673; item #11 listed as 8" x 12" actual as installed is 7" x 11". S/U: 2EAC

Hanger 2-GCB-21-1-H1 P2.10 log #73127; pgs 104 pipe strap specified, pgs 111 installed. S/U 2BKA

Hanger 2-HBC-219-1-H1 P2.10 log #71982; bill of materials lists item #2 as 3/8" x 4" x 4"; actual as installed is 3/8" x 4" x 3 13/16". S/U: 2GJA

Hanger 2-HBC-216-5-H3 P2.10 log #72035; item #5 on bill of materials listed as 3 3/4" x 3 3/4"; actual is 4" x 4". S/U: 2GJA

Hanger 2-604-16-15 P2.10 log #81811 material lists item #2 to be 3/8" thick; actual is 1/2" thick. S/U: 2BGA

Hanger 2-HBC-219-1-H1 P2.10 log #71982 rev 5 item #3 to item #2 welded @ opposite sides than design sketch. S/U: 2GJA

Hanger 2-611-4-4 P2.10 log #12411 hanger clamp assembly indicates 1 3/8" clearance on sketch; actual is 1 1/2" typical on both sides. S/U:2BCA

Hanger 2-616-8-2 P2.10 log #63192; centerline of pipe to top of item #1 (4'M beam) not per drawing. S/U: 1EGA

Specification M-343 section 6.22 states in part: "Acceptable Deviation Vertical Piping: The design location of pipe supports on vertical pipe may deviate from the original approved location, in a direction parallel to the pipe centerline by 4 inches, provided it is not adjacent to an anchor, equipment nozzle or valve, in which case prior approval from the engineer shall be required.

Contrary to the above:

Hanger 2-HBC-217-1-H2 P2.10 log #69460; sketch & isometric calls for hanger to be centered @ elevation 575' - 11 1/2"; actually @ 575' - 5 3/4". S/U: 2GJA

Specification M-326 section 5.11.1 states in part: "The clearance between the concrete walls and the structural attachment plates should not exceed 1/16" over a maximum of 20% of the bearing area;"

Contrary to the above:

Hanger 2-HBC-216-5-H3 #72305 lower right hand corner of base plate exceeds gap tolerance. S/U: 2GJA

Specification M-326 section 4.2.1.9 states: "No undersize welds are permitted".

Contrary to the above:

Hanger 2-619-1-19 P2.10 log #124673 undersize weld @ item #6 to item #11. S/U: 2E

Hanger 2-604-2-35 P2.10 log #59842 undersize weld @ sway strut to 4"M beam. S/U:

Hanger 2-611-7-33 P2.10 log #135884 undersize weld @ item #2 to item #3. S/U: 2B

Hanger 2-639-13-5 log #63333 insufficient welds for item #1. S/U: 2AEA

PQCI 7220-P2.10, 3.3B states: "Minimum thread engagement shall be that amount necessary to engage all the threads of the nut or threaded component. Hanger load devices which have internally threaded adjustable components are to have sight holes provided to verify adequate thread engagement where required."

Contrary to this:

Hanger 1-616-8-2 P2.10 log #63192; at sight holes of support rods, no threads are visible. S/U: 1EGA

Specification M-326 section 5.1.3.b states: "When the component pipe support design sketch/drawing states the clearance is "1/32 inch typical" on opposite sides of a pipe or 1/16 inch on one side of a pipe or pipe lug, the sum of the actual clearances measured on the opposite sides of the pipe shall not be less than 1/16 inch or more than 1/8 inch. As long as the sum of these actual clearances falls within the above allowable limits, the actual individual clearances may be distributed in any manner, including a zero clearance on one side of the pipe.

Contrary to the above;

Hanger 2-657-43-6 P2.10 log #84577; design sketch calls for 1/32" inch clearance around "U bolt" and pipe: a total of 3/16" exists @ top side of pipe and flush on bottom. S/U: 2GJA

Hanger 2-604-16-15 log #81811 design sketch calls for 1/32 clearance around pipe and "U bolt"; no clearance exists due to off set bolt holes. S/U: 2BGA

Hanger 2-611-5-98 P2.10 log #70407; welds for 3/8" plates have buckled plates @ weld locations and corners. S/U: 2BNA

NOTE 1: The preceeded conditions of all hangers identified, leave the integrity of hangers indeterminate.

NOTE 2: All identified non-conforming hangers have been previously inspected & accepted by QC.

QC AI 1517

FE AI J-76

CRN NCR 001-5-2-014

CONSTRUCTION
RESPONSE

QA AI 5-1267

Items listed in this response correspond to the items listed in Block 12 of subject NCR. Information given reflects investigation of actual field conditions and what, if any, construction action has been taken.

Item (1)

- a) Redline has been submitted for evaluation to PE reflecting existing field condition.
- b) Redline has been submitted for evaluation to PE reflecting existing field condition.
- c) There are no shop fabricated welds. This is not a nonconforming condition. No further action required.
- d) Redline has been submitted for evaluation to PE reflecting existing field condition.

Item (2)

Redline SH-10116 has been issued to reflect existing field condition. Basic design not affected and PE approval not required. No further action required.

Item (3)

Redline SH-10117 has been issued to reflect existing field condition. Basic design not affected. PE approval not required. No further action required.

Item (4)

Redline LH-10414 has been issued to reflect existing field condition. Basic design not affected. PE approval not required. No further action required.

Item (5)

- a) Redline has been submitted for evaluation to PE reflecting existing field condition.
- b) Angle clips are attached per Dwg. Nonconforming condition does not exist. No further action required.
- c) Welds are not undersize. Nonconforming condition does not exist. No further action required.

- d) No gap exists. Nonconforming condition does not exist.
No further action required.

Item (6)

The subject condition was inspected and evaluated by PE and QC and found to be acceptable as is. No further action required.

Item (7)

- a) Subject condition was inspected and evaluated by PE and QC. Pipe installed on item 1 per dwg the excess is non-critical dimension. Nonconforming condition does not exist. No further action required.
- b) Hgr is installed within tolerance. Nonconforming condition does not exist. No further action required.

Item (8)

- a) Rework Package RSH-1098 issued to correct existing condition. Subject condition would not have gone undetected and would have been corrected on final walkdown inspection.
- b) Condition stated was measured by PE and QC and found to be acceptable. No further action required.

Item (9)

- a) Subject condition does not exist. Nonconformance does not exist. No further action required.
- b) Subject conditions do not exist. Nonconformance does not exist. No further action required.

Item (10)

Redline SH-10120 has been issued to reflect existing field condition. Basic design not affected. PE approval not required. No further action required.

Item (11)

- a) Redline LH-10432 has been issued to reflect existing field condition. Basic design not affected. PE approval not required. No further action required.
- b) Redline LH-10432 has been issued to reflect existing field condition. Basic design not affected. PE approval not required.

Item (12)

Redline LH-10461 has been issued to reflect existing condition. Basic design not affected. PE approval not required. No further action required.

Item (13)

Redline has been submitted for evaluation to PE reflecting existing field condition.

Item (14)

- (a) Based on subsequent specification changes and shim plate
- (b) criteria clarification, FE and QC evaluated subject conditions to be used as is. No further action required.
- c) Rework Package RLH-621 has been issued to correct deficiency.
- d) Rework Package RLH-621 has been issued to correct weld deficiency.
- e) Redline LH-10435 has been issued to reflect existing field condition. Basic design of hgr not affected and piping is installed within tolerance. RE approval not required. No further action required.

Item (15)

(a)(b)(c)

Rework Package RSH-1099 issued to correct existing condition. Existing condition would not have gone undetected and would have been corrected on final walkdown inspection.

Item (16)

- a) Redline made to reflect the existing field condition. Basic design not affected by change. PE approval not required. No further action required.
- b) Redline has been submitted for evaluation to PE reflecting existing field condition.

Item (17)

Subject condition on NCR has been documented on Bechtel NCR 4113.

NONCONFORMANCE REPORT

Priority: 2 Trend: DNT SUS: Code 86

PROJECT NAME: Midland Units 1 & 2	7. NONCONFORMING PART NO: Various Hangers (See below)	8. NONCONFORMING PART NAME: Pipe Hangers	1. NRC SERIAL NO: [REDACTED]
SERIAL NUMBER: various	10. ORG. COMMITTING NO: BPCo	11. AREA/LOC. OF NO: Various	2. DATE: 2/3/82
"AS IS" NONCONFORMING CONDITION VERSUS "AS REQUIRED" CONDITION WITH REFS:			3. DATE OF REV: N/A
The following list of hangers do not conform to applicable requirements as itemized below.			4. FILE NO: 16.0

For all undersized welds see also M-326 4.2.1.a.1 which states, "For undersized welds are permitted." For wrong material and material dimensions see M-326 5.1.1.

5. DISTRIBUTION
 ACTION COPY:
 LH Curtis
 ESmith
 LEDavis
- INFO COPY:
 WRBird THYoung
 JWCook ALAB (2)
 MADietrich
 BWMarguglio
 DBMiller
 REMcCue/CTFollin
 BHPeck
 JARutgers
 DATaggart
 DMTurnbull
 RAWells
 JLWood

QA RECOMMENDATION FOR PART CA: The recommended part Corrective Action applies to all hangers: 1) (Engineering to evaluate acceptability of hangers) 2) (If work/repair is required; record, reinspect and document.) 3) If acceptable, provide justification to use as-is, and revise the drawing to reflect actual conditions. Actionee: 1) LHCurtis 2) LEDavis, ESmith

DESIGN/PROJECT ENG. DISPOSITION REQUIRED NOT REQUIRED 3) LHCurtis

HOLD TAG APPLIED: YES NO NUMBER, LOCATION & TYPE OF HOLD TAG APPLIED: MPOAD Procedure F-7M para 5.1.1.d

IS PROCESS CA REQUIRED: YES NO IF NO, ENTER JUSTIFICATION BELOW:

DOES NC AFFECT Q-LIST ITEM: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	17. IS NC REPORTABLE PER 50.55(e): YES <input type="checkbox"/> NO <input type="checkbox"/>
IS NC REPORTABLE PER PART 21: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	19. IF YES, DATE & TIME OF REPORT TO NRC:
IF YES, WHO MADE REPORT TO NRC:	21. IF YES, NAME OF NRC OFFICIAL TO WHOM REPORTED:

NRC ORIGINATED BY: <i>[Signature]</i>	23. WRITTEN REPLY REQUIRED BY: Respond by: 2/22/82 TO ESTABLISH CA COMPLETION DATE	24. SUPERVISOR'S SIGNATURE/DATE: <i>RE Whitaker</i> 2/5/82
--	--	---

PART CA DISPOSITION, JUSTIFICATION & COMPLETION DATE:

* to be determined

DESIGN/PROJECT SIG. AUTH. DISP.:	27. PMO SIG. AUTH. DISP.:	28. PROCUREMENT SIG. CONC. DISP.:	29. SIG. OF ORG. RESP. FOR C/A:
FAB/CONST. SIG. AUTH. IMP. DISP.:	31. SIG. OF TEST GROUP ACKNOW. CONDITION:	32. FOR MAJOR MOD - FLT. SUPT. SIG. AUTH. DISP.:	33. QA AUTH. SIG. TO IMPLEMENT DISP.

METHOD OF PART CA VERIFICATION:

CONTINUED:

12. "AS IS" NONCONFORMING CONDITION VERSUS "AS REQUIRED" CONDITION WITH REFS:

Hardware Discrepancy

1) 2-611-6-5Q(10-2FLB-35-H5) Log #63225 Rev 5 S/U 2BCA

- a) Where the sway strut fitting is welded to the vertical I-Beam, the welds are undersized both legs per the drawing.
- b) Three of four welds attaching the horizontal I-Beam to the superstructure I-Beam are undersized on one leg per the drawing.
- c) The beam to beam shop fabricated portion welds are undersized on one leg per the drawing.
- d) The brace beam angle is supposed to be $44^{\circ} \pm 1^{\circ}$ per the drawing and it is installed at $46\frac{1}{2}^{\circ}$.

2) FSK-M-2HBC-145-1-H5Q Log #87879 Rev 5 S/U 2EGA

Item #1 in bill of materials is a W5 I-Beam and a W6 I-Beam was installed.

3) FSK-M-2HBC-144-1-H8Q Log #73182 Rev 5 S/U 2EGA

Item #3 per drawing bill of material is a plate $\frac{1}{4}$ " x $2\frac{3}{4}$ " x $2\frac{3}{4}$ " however, a $\frac{1}{4}$ " x $3\frac{3}{4}$ " x $3\frac{3}{4}$ " plate was installed.

4) 1-612-3-12Q(8"-1GCB-16-H1) Log #76107 Rev 5 S/U 1BKA

This hanger was installed $4\frac{1}{2}$ " West of drawing coordinates perpendicular to the pipe. (Contrary to even the new Appendix K of M-326 allowance of ± 2 " for a deviation of the pipe)

5) 2-613-4-19Q(12-2HBC-5-H1) Log # 68235 Rev 5 S/U 2BCA

- a) The two welds that attach the spring canister to the channels are undersized on one leg per the drawing.
- b) The angle clips are attached to the wrong end of the channels per the drawing
- c) Both bottom welds of the angle clips to the channel are undersized on one leg per the drawing.
- d) There is a gap between the angle clips and the channel and the drawing shows no gap.

Note:

Although the clip to main beam welds were changed from being an NF5222 weld the detail indicates the clip to channel welds are still per NF5222.

- 6) FSK-M-2-FCC-4-1-H1 (Q) Log # 64107 Rev 5 S/U 2BBB

There is weld burn out causing reduced thickness of up to 3/32" at one end of one of the welds of strap to angle. This also makes the weld undersize.

- 7) FSK-M-2ECB-8-3-H4 (Q) Log #79652 Rev 5 S/U 2BHA

- a) Item #1 on the bill of material is 13 $\frac{1}{4}$ " long, however, actual installed is 13 $\frac{3}{4}$ " long.
- b) The isometric drawing locates this hanger 11'-1 $\frac{11}{16}$ " East of reactor building centerline, however, measurement from a benchmark locates it at 11'-9 $\frac{1}{4}$ " East of the reactor building centerline contrary to para 6.2 of M-343.

- 8) FSK-M-2ECB-4-4-H5(Q) Log #60821 Rev 4 S/U 2BHA

- a) There is a cotter pin missing on the lower end of the West sway strut.
- b) The $\frac{1}{4}$ " gap between the sway struts called for in view c-c of the drawing is actually $\frac{1}{4}$ ".

- 9) FSK-M-2HBC-1'-1-H2(Q) Log #78717 Rev 5 S/U 2JEA

- a) The stiffener plate outer bottom edge thickness is reduced due to weld burn off resulting in an undersize weld.
- b) The same condition occurs on three (3) places on the pipe strap (this was beveled and a full weld was not made).

- 10) FSK-M-2GCB-22-1-H3(Q) Log #68259 Rev 5 S/U 2BKA

Item #3 on bill of material is $\frac{1}{4}$ " x 2 $\frac{3}{4}$ " x 2 $\frac{3}{4}$ " per drawing. Actual is $\frac{1}{4}$ " x 3 $\frac{3}{4}$ " x 3 $\frac{3}{4}$ ".

- 11) 2-617-11-9 (6"-2HBC-149-H1)(Q) Log #69494 Rev 5 S/U 2EGA

- a) Section AA of drawing requires 2 $\frac{31}{32}$ " offset between centerline of main beam and centerline of vertical beams of the hanger. Actual is $\frac{5}{16}$ " offset.
- b) Centerline of pipe to centerline of vertical beams is actually 12 $\frac{3}{4}$ " and 12 $\frac{1}{4}$ ", however, the drawing requires 12".

- 12) 2-619-1-20R(Q)(8"-2HEC-109-H20R) Log #64049 Rev 5 S/U 2EAC

The hanger is 5" West of drawing coordinates (perpendicular to the pipe) contrary to para 5.2 of M-326 (note the drawing states "field cut to suit" for items 1 and 2 on the bill of material, however, material used was longer than called for).

- 13) 2-619-2-19 Q (10"-2HBC-110-H19) Log #103729 Rev 6 S/U 2EAC

The lugs attaching the sway strut to the vertical I-Beam are rotated 90° from the drawing configuration and contrary to M-326 5.2.1.d.

Hanger No/Ak

- 14) 2-619-6-11 Q (10"-2HBC-100-H3) Log #76640 Rev 5 S/U 2EAD
Sketch of P 2.10 Rev. of P 2.10

- Item #8 on bill of material requires 1" x 6" x 4½", however, 1" x 6½" x 5" was installed.
- Item #7 on bill of material requires 7/8" x 6" x 5", however, 7/8" x 6" x 4½" was installed. (a later rev makes a & b acceptable)
- Vertical gap, both top and bottom, is not parallel with pipe. Guide pads top and bottom touch the pipe at one end and have gap exceeding the requirements of the drawing and M-326 para 5.1.3.b at the other end.
- The welds of the vertical hanger beams to the bottom horizontal beam are undersized per drawing.
- The 1'-7 1/8" distance between pipes per drawing was installed as 1'-10 1/8".

- 15) FSK-M-2EBB-3-4-H1 (Q) Log # 71689 Rev 5 S/U 2BMA

- The sway strut has a tie wrap (plastic) instead of a bolt, nut and washers per the manufacturers drawing on one end.
- A cotter pin is missing from the retaining pin at the other end of the sway strut contrary to the manufacturers drawing
- Lock nuts missing on pipe clamp

- 16) 1-612-2-2 Q (8"LGCB-16-H47) Log #63197 Rev 5 S/U 1BKA

- The 2'-5½" dimension from centerline of pipe to centerline of the W14 x 111 I-Beam is 2'-3" installed (this is perpendicular to the pipe)
- The North and South end plates (Item 5) welded to angle have an undersized weld on one leg. Both of these are on the West side.

- 17) 1-612-4-33(Q)(6"-1GCB-18-H10) Log #65882 Rev 5 S/U 1BCA

The small plate (#1 on bill of material) has reduced section and therefore undersized weld at the top.

10

CONSTRUCTION
RESPONSE

QC AI 1506

FE AI J-43

CAC₂ NCR MDI-5-2-017

~~_____~~
~~_____~~
QA AI S-1272

Item numbers listed in this response correspond to the item numbers listed in Block 12 of subject NCR. Information given reflects investigation of actual field condition and what, if any, construction action has been taken.

Item (1)

- a) Rework Package RSH-1100 issued to correct existing field condition,
- b) Rework Package RSH-1104 issued to correct existing field condition.
- c) Redline has been submitted to PE reflecting existing field condition.
- d) The clearances as installed are acceptable per requirements. Nonconforming condition does not exist. No further action required.
- e) Redline has been submitted to PE reflecting existing field condition.
- f) Rework Package RSH-1101 issued to field to correct existing condition.
- g) Rework Package RSH-1102 issued to correct existing field condition.

Item (2)

Redline LH-10421 has been issued to reflect existing field condition. Basic design of hgr not affected by change. PE approval not required. No further action required.

Item (3)

Subject condition has been evaluated by FE and QC. Based on weld length and size existing condition is acceptable as is. No further action required.

Item (4)

Redline LH-10418 has been issued to reflect existing field condition. Basic design of hgr not affected. PE approval not required. No further action required.

Item (5)

Rework Package RSH-1103 issued to correct existing field condition.

Item (6)

Rework Package RSH-1102 issued to correct existing field condition.

Item (7)

Redline has been submitted to PE reflecting existing field condition.
(Redline #LH-10449)



Consumers
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QA27-0

NONCONFORMANCE REPORT

PROJECTS, ENGINEERING AND CONSTRUCTION -
QUALITY ASSURANCE DEPARTMENT

PRIORITY: 2 TREND: DNT

SUS: Code 83

PAGE 1 OF 2

6. PROJECT NAME: MIDLAND		7. NONCONFORMING PART NO: VARIOUS (See Block 12)		8. NONCONFORMING PART NAME: VARIOUS (See Block 12)		2. DATE: 2/5/82	
9. SERIAL NUMBER: VARIOUS (See Block 12)		10. ORG. COMMITTING NO: BECHTEL QC/ BECHTEL CONSTRUCTION		11. AREA/LOC. OF NO: VARIOUS (See Block 12)		3. DATE OF REV:	
12. "AS IS" NONCONFORMING CONDITION VERSUS "AS REQUIRED" CONDITION WITH REFS: The following list of hangers do not conform to the applicable requirements as itemized below: It is noted that the identification of the nonconformances listed below was the result of an examination of hangers completely installed and inspected by Field Engineering, turned over to Quality Control and inspected/accepted by Quality Control as evidenced by the completed P2.10 document for each hanger.						4. FILE NO: 16.0	
13. QA RECOMMENDATION FOR PART CA: For each of these items: 1) Engineering to evaluate the acceptability of the hanger. (Curtis) 2) If rework/repair is required - implement rework/repair, document & reinspect as required. (LEDavis, ESmith) 3) If acceptable, provide justification to use as is & revise the drawing to reflect actual conditions. (LHCurtis)						5. DISTRIBUTION ACTION COPY: LHCurtis LEDavis ESmith INFO COPY: WRBird RAWells JWCook JLWood MADietrich ALAB-2 LRHowell RDJohnson BWMarguglio DBMiller REMcCue/ UTDillon BHPeck DATaggart DMTurnbull JARutgers	
14. HOLD TAGS APPLIED: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		NUMBER, LOCATION & TYPE OF HOLD TAGS APPLIED: MPQAD Procedure F-7M Paragraph 5.1.1d					
15. IS PROCESS CA REQUIRED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> IF NO, ENTER JUSTIFICATION BELOW:							
16. DOES NC AFFECT Q-LIST ITEM: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>				17. IS NC REPORTABLE PER 50.55(*): YES <input type="checkbox"/> NO <input type="checkbox"/> *			
18. IS NC REPORTABLE PER PART 21: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>				19. IF YES, DATE & TIME OF REPORT TO NRC: N/A			
20. IF YES, WHO MADE REPORT TO NRC: N/A				21. IF YES, NAME OF NRC OFFICIAL TO WHOM REPORTED: N/A			
22. NCR ORIGINATED BY: <i>M. Howell 2-5-82</i>		23. WRITTEN REPLY REQUIRED BY: To be determined by 2/22/82 TO ESTABLISH CA COMPLETION DATE		24. SUPERVISOR'S SIGNATURE/DATE: <i>REW White 2/5/82</i>			
25. PART CA DISPOSITION, JUSTIFICATION & COMPLETION DATE:							
26. DESIGN/PROJECT SIG. AUTH. DISP.:		27. PMO SIG. AUTH. DISP.:		28. PROCUREMENT SIG. CONC. DISP.:		29. SIG. OF ORG. RESP. FOR C/A:	
30. FAB/CONST. SIG. AUTH. IMP. DISP.:		31. SIG. OF TEST GROUP ACKNOW. CONDITION:		32. FOR MAJOR MOD - FLT. SUPT. SIG. AUTH. DISP.:		33. QA AUTH. SIG. TO IMPLEMENT DISP.:	
34. METHOD OF PART CA VERIFICATION:							
35. SIG. OF ORG. RESP. FOR PART C/A SIGNIFYING COMPLETION:		36. SIG. VERIFYING PART C/A & HOLD TAG REMOVAL/DATE:		37. NCR CLOSED BY/DATE: (PART & PROCESS CA COMPLETE)			

* To be determined.



Consumers
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NONCONFORMANCE REPORT

PROCESS CORRECTIVE ACTION

PROJECTS, ENGINEERING AND CONSTRUCTION -
QUALITY ASSURANCE DEPARTMENT

NCR SERIAL NUMBER: _____

PAGE 2 OF 3

38. QA ASSESSMENT OF ROOT CAUSE(S):

Unknown: To be determined.

39. ACTUAL ROOT CAUSE(S), IF DIFFERENT FROM ABOVE (TO BE COMPLETED BY ORG. RESPONSIBLE FOR PROCESS CA):

40. PROCESS CA REQUIRED FROM:

DESIGN

FABRICATION

CONSTRUCTION

PROCUREMENT

INSPECTION

OTHER _____

41. QA RECOMMENDATION FOR PROCESS CA:

Unknown: To be determined.

42. PROCESS CA TO BE TAKEN BY ORG(S) CHECKED IN BLOCK 41 & DATE OF COMPLETION:

43. METHOD OF PROCESS CA VERIFICATION:

44. SIG. OF ORG. RESPONSIBLE FOR PROCESS CA SIGNIFYING COMPLETION:

45. PROCESS CA COMPLETION VERIFIED BY/DATE:

- 1) Clearances on the following hangers do not conform to the drawing/ specification tolerances:

a) 0-HBC-142-1-H1	SUS: 2-EAD
b) 1-HBC-145-1-H9	SUS: 1-EGA
c) 1-657-37-9	SUS: 1-GJA
d) 1-657-37-22	SUS: 1-GJA
e) 1-648-7-58	SUS: 1-KAB
f) 1-HBC-144-1-H3	SUS: 1-EGA
g) 1-CCB-69-1-H2	SUS: 1-BGA

NOTE: Items b & f contain masking tape under the strap, preventing accurate measurement.

- 2) 0-617-7-13 SUS: 0-EGA
Item #3 (I-BEAM) is not installed in accordance with the drawing. Angle clip & field weld is located incorrectly.
- 3) 0-617-8-33 SUS: 0-EGA
a) Field weld between items 2 & 3 does not conform to drawing requirements. West weld, south end, contains approximately $\frac{1}{2}$ " of undersize weld.
- 4) 1-633-1-33 SUS: 1-BMA
a) Drawing requires the bottom plate, on one corner, to be beveled $\frac{1}{2}$ ". Contrary to the above, the bevel was determined to be 3/16".
- 5) 1-CCB-69-1-H1 SUS: 1-BGA
a) PGS-114 requires the jam nuts to be SA-307, GR B
Contrary to the above, the jam nuts are SA-194, 2H.
- 6) 1-CCB-69-1-H2 SUS: 1-BGA
a) Same as 5.a above.
- 7) 0-618-1-6 SUS: 0-EAA
a) Field welds between items 2 & 8 do not conform to drawings requirements. Drawing requires the welds to be located on the sides of item 8, the welds are located on the ends of item 8.

PROJECT ENGINEERING'S COMPLETE RESPONSE

TO CPCo NONCONFORMANCE REPORT M-01-9-2-007, AI: S-1261

This response supplements Construction and Quality Control's response to the subject NCR. The condition of the discrepancies requiring rework were evaluated for safety while redlined items (to reflect existing condition) submitted for Project Engineering approval were reviewed for acceptability. One discrepancy was also documented on Bechtel NCR number 4112.

Results of the safety evaluation indicate that the identified discrepancies (requiring rework), were they to have remained uncorrected, could not have affected adversely the safety of operation of the plant.

Field Redlined drawings that were submitted by Construction for PE approval were found acceptable. Bechtel NCR 4112 was dispositioned "use as is".

Details are shown below.

1. 1HBC-219-1-H1(Q), REV.2 ---REWORK

Safety Evaluation: A groove 1" long x 1/32" x 1/16" deep exists at the top of the west weld on the pgs-113 strap. A 5/16" fillet is required. The weld is large enough to achieve 5/16" fillet beyond grooved area. The remainder of weld (1") is acceptable. Even if effective weld size were reduced to 1/4" fillet for 2" long, the weld would qualify for a 900 pound load (two-directional) on the pgs strap per standard calculation 400-005, REV.2. The maximum load on H1 - 415 pounds, which is less than 900 pounds (allowable load for 1/4" fillet), hence the weld is still within design allowables. Therefore, there is no safety impact. (Ref. Bechtel calc. number 400-3-208(Q))

2. 1-610-4-27(Q), REV.4 ---BECHTEL NCR 4112 WAS ISSUED

Acceptability: This NCR was dispositioned "use as is". The gouge in the support has caused very minimal loss of cross sectional area and will not affect the structural integrity of the support, therefore, acceptable.

3. 1-616-6-28(Q), REV.1 ---REWORK (THIS WAS ORIGINALLY REDLINED FOR PE APPROVAL)

Safety Evaluation: Undersized weld exists. Extensive review by ITT-Grinnell Providence has determined that the 3/8" weld will accommodate the loading conditions. Therefore, there is no safety impact. However, ITT Grinnell prefers to have the weld reworked. (Ref. ITT Grinnell calc. number Z-351)

4. 2-604-3-18(Q), REV.1 ---REDLINE FOR PE APPROVAL

Acceptability: A non-continuous weldment exists (item 1 to 7). There is a small difference in weld properties from an all around weld to what was made on the support. Based on load and span of the braced cantilevers, the weld that was not made on the edges of the flange will not affect the design, therefore, acceptable. (Ref. ITT Grinnell calc. number Z-356)

5. 1-616-10-22(Q), REV.4 ---REDLINE FOR PE APPROVAL

Acceptability: Item 2 is 5'-0" instead of 4'-8 1/2". After re-viewing the forces and stresses from STRUCL analysis, the change in dimension (elevation) will not affect the stability of the structure, therefore, acceptable. (Ref. ITT Grinnell calc. number Z-355)

6. 2-617-8-5(Q), REV.2 ---REDLINE FOR PE APPROVAL

Acceptability: Several additional 1/4" fillet welds were observed at the vertical support to angle support union. These additional welds at the joint has no adverse effect on the design, therefore, acceptable. (Ref. Bechtel calc. number LBSE 1-617-8)

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Hanger Design

071353

058510

(1)

PROJECT ENGINEERING'S COMPLETE RESPONSE

TO CPCo NONCONFORMANCE REPORT M-01-9-2-010, AI: S1265

This response supplements Construction and Quality Control's response to the subject NCR. The condition of the discrepancies requiring rework were evaluated for safety while redlined items (to reflect existing condition) submitted for Project Engineering approval were reviewed for acceptability.

Results of the safety evaluation indicate that the identified discrepancies (requiring rework), were they to have remained uncorrected, could not have affected adversely the safety of operation of the plant.

Field redlined drawings that were submitted by Construction for PE approval were found acceptable.

Details are shown below.

- 1. 2-619-1-19(Q), REV.1 ---REWORK

Safety Evaluation: Weld for item 6 to 11 is undersized by 1/32" for last 1" of weld. The weld in question is non-load bearing. Therefore, undersizing it by 1/32" for the last 1" of weld will not affect the design integrity of the structure. There is no safety impact. (Ref. ITT Grinnell calc. number Z-361)

- 2. 2-604-2-35(Q), REV.1 ---REWORK

Safety Evaluation: Rear bracket was rotated 90°. Z- and X-movement is zero. Therefore, rotation of rear bracket has no effect on hanger design. There is no safety impact. (Ref. Bechtel calc. number LBSE 1-604-2)

- 3. 2-611-7-33(Q), REV.1 ---REWORK

Safety Evaluation: Welds for items 2 and 3 are undersized. Section III, Division I Appendices, Appendix XVII, Table XVII-2452.1-1 states minimum size welds. The 1/8" weld stated in NCR is below minimum for 1/2" plate and considered a "cold weld". Based on load and the amount of weld at 1/8" fillet, this weld is within the weld allowable. Therefore, there is no safety impact. (Ref. ITT Grinnell calc. number Z-354)

- 4. 2-639-13-5(Q), REV.2 ---REDLINE FOR PE APPROVAL

Acceptability: Item 1 was rotated 90°. Also, welds for item 1 is insufficient. Item 1 rotated has no effect on design. Y-load is transmitted lengthwise in the beam. The component forces due to the movement of the pipe are small, therefore the forces will have negligible effect on the welds. Weld is sufficient. This is acceptable. (Ref. ITT Grinnell calc. number Z-353)

058510

5. 2-604-16-15(Q), REV.0/F1 ---REWORK

Safety Evaluation: No clearance exists due to off-set "U-bolt" holes. Specification 7220-M-326(Q) paragraph 5.1.3(b) states, when the component pipe support design sketch/drawing states the clearance is 1/32" typical on opposite sides of the pipe or pipe lug, the actual clearances shall not be less than 1/16" or more than 1/8" inclusive... the actual individual clearances may be distributed in any manner, including a zero clearance on one-side of the pipe. Therefore, there is no specification violation.

6. 1-616-8-2(Q), REV.7 ---REWORK

Safety Evaluation: At sight holes of support rods, no threads are visible. Thread engagement on lower end of extension does not meet requirements. Measured ingagement is 1", minimum required is 1 1/2". Based on calculation, 1" thread engagement is sufficient. Therefore, there is no safety impact. (Ref. ITT Grinnell calc. number Z-360)

7. 2HBC-216-5-H3(Q), REV.0 ---REWORK

Safety Evaluation: Approximately 24% of the bearing surface exceeds gap requirements of spec. 7220-M-326(Q). All of lower right hand anchor bolt and lower 1/4 of plate has slightly greater than 1/16" gap. An evaluation of support 2HBC-216-5-H3(Q), assuming the bolt on the lower right hand corner of the base plate is non-functional, verifies that all the stresses are within design allowables. Therefore, there is no safety impact. (Ref. Bechtel calc. number 400-3-209(Q))

8. 2-657-43-6(Q), REV.1 ---REWORK

Safety Evaluation: 3/16" clearance exists between top of pipe and U-bolt. The magnitude of loads could not create enough force to fail U-bolt. Therefore, there is no safety impact. (Ref. Bechtel calc. number LBSE 1-657-43)

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071354

(1)

PROJECT ENGINEERING'S COMPLETE RESPONSE

TO CPCo NONCONFORMANCE REPORT M-01-5-2-014, AI: S-1267

This response supplements Construction and Quality Control's response to the subject NCR. The condition of the discrepancies requiring rework were evaluated for safety while redlined items (to reflect existing condition) submitted for Project Engineering approval were reviewed for acceptability. One discrepancy was also documented on Bechtel NCR 4113.

Results of the safety evaluation indicate that the identified discrepancies (requiring rework), were they to have remained uncorrected, could not have affected adversely the safety of operation of the plant.

Field redlined drawings that were submitted by Construction for approval were found acceptable. Bechtel NCR 4113 was dispositioned "use as is".

Details are shown below.

1. 2-611-6-5(Q), REV.3 ---REDLINE FOR FE APPROVAL

Acceptability: Undersized welds and wider brace beam angle was observed. The 3/16" weld on figure 211 rear bracket to item number 2 is well within the allowables. The 3/16" fillet weld is sufficient for the connection of item number 3 to existing steel based on brief calculation. Therefore, it is acceptable. (Ref. ITT Grinnell calc. number Z-352)

2. 2-613-4-19(Q), REV.3 ---REDLINE FOR FE APPROVAL

Acceptability: Undersized weld of 3/16" fillet at connection of item number 3 and number 2 is sufficient since subject weld is not a stressed weld. It is only used to stabilize item number 3. Therefore, it is acceptable. (Ref. ITT Grinnell calc. number Z-358)

3. 2ECB-4-4-H5(Q), REV.2 ---REWORK

Safety Evaluation: Cotter pin is missing on lower end of west sway strut. In this evaluation, the vertical restraint on the hanger will be non-functional.

There is absolutely no danger or safety hazard to the piping system. Thermal stresses are actually reduced, weight and seismic stresses are increased, but are still within ASME-Section III Code allowable stress levels. Loading on adjacent restraints increase if it is assumed that hanger 2ECB-4-4-H5(Q) is non-functional.

An evaluation of the adjacent supports, 2ECB-4-4-H4(Q) and 2ECB-4-5-H1(Q), with the increased loads shows that they are still within the acceptable design allowables, therefore, there is no safety impact on the system. (Ref. Bechtel calc. numbers 400-3-201(Q) and 400-3-202(Q))

4. 2-619-2-19(Q), REV.1 ---REDLINE FOR PE APPROVAL

Acceptability: Rear end bracket of sway strut was rotated 90°. Review of thermal and seismic movements show that there is no restraint with end bracket rotated. (Ref. Bechtel calc. no. LBSE1-619-2)

5. 2-619-6-11(Q), REV.3 ---REWORK

Safety Evaluation: No gap exist between pipe and hanger. Also, undersized welds were noted on the vertical hanger beams to the bottom horizontal beam.

The radial expansion of the pipe is less than 0.001" resulting in a very small load. Frictional effects existing from Y-load is very much greater than load due to radial expansion, therefore, its contribution is negligible.

The required weld (per calculation) is 0.05". Therefore, the 3/16" weld is acceptable.

Based on the above, there is no safety impact. (Ref. Bechtel calc. number SEC-619-6-1(Q))

6. 2EBB-3-4-H1(Q), REV.1 ---REWORK

Safety Evaluation: It was observed that plastic tie wrap was used instead of a bolt. Also, lock nuts and cotter pins are missing.

Assuming support 2EBB-3-4-H1(Q) will be non-functional, the piping system would still qualify per spec. M-343, i.e. still within acceptable seismic spans. The adjacent support 2EBB-3-4-H2(Q) would be required to pick up the additional seismic load increase from 14 pounds to 82 pounds. Faulted load increase from 42 pounds to 205 pounds.

Pipe support 2EBB-3-4-H2(Q) was originally designed for a faulted load of 345 pounds. This is greater than the load arrived at by the stress engineer's evaluation, therefore, the hanger is still (Ref. Bechtel calc. number 400-3-200(Q))

7. 1-612-2-2(Q), REV.1 ---REDLINE FOR PE APPROVAL

Acceptability: Undersized weld on one leg was noted. The 1/4" fillet weld at all shim plates are sufficient and are well within the limits of the welding allowables, therefore, acceptable. (Ref. ITT Grinnell calc. number Z-359)

8. 1-612-4-33(Q), REV.1/F1 ---BECHTEL NCR 4113 WAS ISSUED

Acceptability: Plate number 1 has reduced section and undersized weld. In accordance with Civil calculation 23c6(Q), the weld is acceptable. This NCR was dispositioned "use as is". (Ref. Bechtel calc. number 23c6(Q))

071354

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058509

(1)

PROJECT ENGINEERING'S COMPLETE RESPONSE TO

CPCo NONCONFORMANCE REPORT M-01-5-2-017, AI: 1272

This response supplements Construction and Quality Control's response to the subject NCR. The condition of the discrepancies requiring rework were evaluated for safety while Redlined items (to reflect existing condition) submitted for Project Engineering approval were reviewed for acceptability.

Results of the safety evaluation indicate that the identified deficiencies (requiring rework), were they to have remained uncorrected, could not have affected adversely the safety of operation of the plant.

Field Redlined Hanger drawings that were submitted by construction for Project Engineering's approval were found acceptable. Details are shown below.

1. OHBC-142-1-H1(Q), REV.4 ---REWORK

Safety Evaluation: The actual total clearance between pipe and pgs-104 strap is $3/32$ ". The additional $1/32$ " clearance is acceptable from a safety stand point. It does not increase stresses on the piping system. Stresses are within code allowables. (Ref. Bechtel calc. number 439-3-1(Q))

2. 1HBD-145-1-H9(Q), REV.2 ---REWORK

Safety Evaluation: No gap exists between sides of pgs-113 strap and pipe. In this evaluation, it is assumed that the total axial restraint at hanger H9 results in the 6'-11" span between H9 and H10 being totally restrained.

Although the compressive stress is not required to be evaluated by code, this was done. At a maximum temperature of 150°F as listed in spec. M-480, compressive stress is well within the yield strength of the pipe material. Also, the critical buckling load for the span is not developed, and the piping system remains operable. however, a total deflection of 0.0422 " will be distributed between supports H9 and H10.

Since there is $1/32$ " clearance between the lug and the pipe on H10, Hanger H9 and H10 would only be required to deflect 0.01095 ". However, since it was assumed that the clearance is not there and H10 is also locked, the force required to deflect H9 (0.0422 ") in the X-direction is $F_x = 600$ pounds.

An evaluation of supports H9 and H10 with an additional load of 600 pounds shows that the supports are still within design allowables. Therefore, there is no safety impact. (Ref. Bechtel calc. numbers 400-3-204(Q) and 400-3-205(Q))

3. 1-657-37-9(Q), REV.2 ---REDLINE FOR PE APPROVAL

Acceptability: The clearance in the Z-direction is within specification tolerance. Total movement in Y-direction is ± 0.66 ", therefore the 0.78 clearance is acceptable. (Ref. Bechtel calc. no. LBSE 1-657-37)

4. 1-648-7-58(Q), REV.1/F1 ---REDLINE FOR PE APPROVAL

Acceptability: The relationship of forces indicate that support surface in the positive direction will never come into play. Clearance is not critical to design. Therefore, it is acceptable. (Ref. Bechtel calc. number LBSE 1-648-7)

5. 1HBC-144-1-H3(Q), REV.2 ---REWORK

Safety Evaluation: There is only a $1/32$ " clearance between side of pgs-113 strap and pipe. The radial expansion of the pipe at maximum temperature of 115°F (listed in spec. M-480) is equal to 0.00067 " which is less than $1/32$ ". This qualifies the piping and has no effect on the hanger. Therefore, no safety impact. (Ref. Bechtel calc. number 400-3-203(Q))

6. 1CCB-69-1-H2(Q), REV.2 ---REWORK

Safety Evaluation: No gap exists between pipe clamp and its supporting structure. In this evaluation, it is assumed that the support 1CCB-69-1-H2 locks up in three directions.

Additional restraint for weight and seismic load cases will aid in the pipe stress equations and additional loads will be minimal due to relative locations of adjacent supports. The unrestrained displacements for thermal and seismic anchor movement load cases at H2 (per AAO analysis) are used to approximate additional loads. If these displacements were restrained, the additional pipe stress would be approximately $1/4$ the allowable of equations #10 and #11, which is conservatively based on a guided cantilever beam. Therefore, the pipe system would still be operable.

Additional loads on H2 from all load cases combined would be conservatively 200 pounds X-direction and 200 pounds Z-direction. Additional loads on hangers 1CCB-66-1-H1 and 1CCB-69-1-H3 will be approximately 100 pounds in the X- and Z-directions.

An evaluation of the above hangers with the additional loads caused by support 1CCB-69-1-H2 being locked in three directions verifies that the stresses on the hangers are still within design allowables. Therefore, there is no safety impact. (Ref. Bechtel calc. number 400-3-206(Q))

7. 1CCB-69-1-H1(Q), REV.3 and 1CCB-69-1-H2(Q), REV.2 ---REWORK

Safety Evaluation: Pgs-114 requires the jam nuts to be SA-307, GR.B, however, SA-194, 2H was used. Although SA-307, GR.B nut is a standard callout for these support assemblies, the SA-194, 2H nuts have a higher proof load rating per ASME Code. This substitution will have no safety impact on the support.

058509

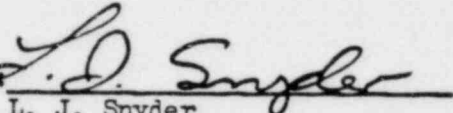
CPCo NCR M-01-5-2-017

(3)

8. O-618-1-6(Q), REV.0 ---REDLINE FOR PE APPROVAL

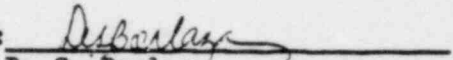
Acceptability: Field welds between items 2 and 8 do not conform to drawing. The existing welds are within the welding allowables, therefore, welds are sufficient. (Ref. ITT Grinnell calc. number Z-357)

Prepared by:

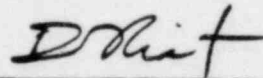


L. J. Snyder
Resident Q. E.

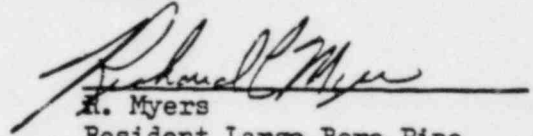
Reviewed by:



D. S. Borlaza
Resident Q. E.



D. Riat
Resident Small Pipe and
Hangers



R. Myers
Resident Large Bore Pipe
Hanger Design

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-0961

May 5, 1982

Messrs W R Bird and B W Marguglio
Consumers Power Co
1945 Parnall Road
Jackson, MI 49201

Mr M A Dietrich
Bechtel Power Corp
PO Box 2167
Midland, MI 48640

MIDLAND PROJECT - USNRC EXIT MEETING (Isa Yin) OF APRIL 23, 1982
File 0.4.2 Serial 17009

An unannounced NRC inspection by Mr I T Yin took place from April 21 through April 23, 1982. Entrance and exit meetings were held on April 21 and April 23 respectively. The lists of attendees for each of those meetings are attached to this letter.

The stated (by Mr Yin) purpose of this inspection was to close infractions and unresolved items from the 81-12 inspection and other older items, if time permitted.

I. The following old items were addressed:

1. Infraction 81-12-11/12 Large Bore Pipe Supports Not Installed Per Drawings/Specifications. This item remains open and is the subject of an additional violation (See Section II on the following page for details).
2. Infraction 81-12-12/13 Pipe Hanger Inspection and Acceptance by Quality Control. This item remains open and is the subject of an additional violation (See Section II on the following page for details).
3. Infraction 81-12-13/14 Installation of Small Bore Pipe Without Committed Preliminary Design Calculations. Closed.
4. Infraction 81-12-14/15 Small Bore Pipe Design Document Control Not Maintained. Closed.
5. Infraction 81-12-16/17 Inadequate QA Audits. Closed.
6. Infraction 81-14-01 Inadequate Design Control (Redlines). Closed.
7. URI 81-12-10/11 Bechtel Specification Applicability. Closed.
8. URI 81-12-15/16 Mechanical Rework Controls. Closed.

II. New Items

1. Infraction - Severity Level IV. Piping Suspension QC Inspection Breakdown. In view of the large number of hangers (43.9% of sample) identified as nonconforming in MPQAD NCRs as a result of the MPQAD overinspection of hangers which had been previously inspected and accepted by Bechtel QC, Mr Yin determined that there was breakdown in Quality Control in 1980 and that MPQAD had failed to report this as required by 10 CFR 50.55(e). He noted that a deficiency in 127 of 9401 characteristics served only to demonstrate the complexity of the hangers, not the overall acceptability of the installed condition. Review of the records indicated that 1649 hangers were inspected/accepted in 1980, 3270 in 1981 and 789 to date (through March) in 1982.

The NRC has determined that they will require the licensee to do a 100% (re)inspection of the hangers installed in 1980 and a sample (undetermined size) of those inspected/accepted in 1981 and 1982. Any alternate proposals by MPQAD should be discussed with USNRC Region III management.

2. Unresolved item. Design of large bore hangers and other mechanical items. Mr Yin plans to visit Ann Arbor in the near future to review the design process and records in these areas.

RE Whitaker

R E Whitaker, Section Head
Fluids and Mechanical
Midland Project QA Department

REW/lrb

CC BJCole, Midland
JWCook, P26-336B
MLCurland, Midland
LHCurtis, Bechtel-Ann Arbor
LEDavis, Bechtel-Midland
WDGreenwall, Bechtel-Ann Arbor
DEHorn, Midland
JAHorsch, Midland
GSKeeley, P14-113B
HPLeonard, Midland
REMcCue, Midland
DEMiller, Midland
JARitgers, Bechtel-AA
MJSchaeffer, Midland
RAWells, P14-113A
REWhitaker, Midland
JLWood, P14-416
Great Lakes QA Managers

Bechtel Power Corporation
Inter-office Memorandum

To	Training File	Date	June 28, 1982
Subject	Job 7220 Midland Project Training Session BT-429	From	J. E. Stubbs
		Of	Construction
Copies to		At	Midland, MI

On Thursday, May 13, 1982, a one hour training session was held on hanger inspection. The instructors were: Rick Shaw, Mechanical Field Engineering, Ed Urbanawiz, Q.C., John Low and Ron Cable, Welding Field Engineering. A question and answer period was included.

Those in attendance were:

-D. Baker	✓M. Jones	✓Z. Simanovsky
-B. Bis	✓M. Kestly	✓W. Simonson
-J. Borm	✓S. Kienzle	✓J. Slifer
✓J. Buckley	✓A. Kilszek	✓W. Stover
✓B. Burgess	✓P. Konkle	✓J. Swan
✓L. Burton	✓G. Koski	✓B. Swenson
✓G. Cole	✓R. Krafft	✓T. Taggart
✓M. Cole	✓D. Lange	✓G. Terando
✓J. Cruz	✓S. Love	✓D. Webb
✓J. Eddy	✓B. Lovell	✓W. Woodward
✓D. Egnatuk	✓F. Maalouf	✓P. Ziolkowski
✓N. Elif	✓F. M. Mallonee	
✓D. Fan	✓K. Mason	
✓J. Franklin	✓P. Max	
✓M. Gallik	✓J. Miller	
✓L. Gatz	✓D. Moore	
✓J. Gawlik	✓D. Ort	
✓R. Gordon	✓A. Osmanski	
✓C. Graham	✓M. Price	
✓D. Green	✓B. Puntney	
✓D. Haven	✓G. Ritter	
✓T. Heins	✓E. Savage	
✓J. Hunt	✓P. Seibert	
✓R. Hymas	✓D. Seidanzahl	
✓D. John	✓J. Sepahrom	
✓K. Johnson	✓R. Shaw	

J. E. Stubbs
J. E. Stubbs

JES/klS

Written Response Requested: No

MECHANICAL ENGINEERING

April 5, 1982

Baker, Dave *DB*

Hunt, Jeff *jh*

~~Price, Mark *mp*~~

~~_____~~
Bis, Bob *BT*

Hymas, Randy *Y-*

Puntney, Bill *WTI*

Born, Jim *B*

John, Dobbie *DJ*

~~_____~~
Ritter, Tex *TR*

Buckley, Joe *B*

Johnson, Kevin *JK*
~~Jones, Murray *mg*~~
~~Kantovsky, Cas~~

Savage, Ed *E.S.*

Burgess, Bob *RB*

Kestly, Mike *mk*

~~Seibert, Paul *PS*~~

Burton, Lyle *B*

Kienzle, Steve *SK*

Seidenzahl, Dave *SD*

~~_____~~

Kiliszek, Andy *KA*

Sepahrom, Joe *S*

~~_____~~

Konkle, Phil *PK*

Shaw, Rick *RS*

Cole, Gary *GC*

Koski, Gary *KK*

~~Shieffer, Mark~~

Cole, Mike *MC*

Krafft, Mike *MK*

Simanovsky, Zinovy *SI*

~~_____~~

Lange, Dennis *LD*

Simonson, Walt *SW*

Cruz, Jess *CS*

~~_____~~

Slifer, John *SL*

Love, Steve *LV*

~~Stover, Bobbie~~

Lovell, Butch *BL*

Stover, Wayne *SW*

Maalouf, Fadi *FM*

Swan, Joe *SW*

Mallonee, Mike *MM*

Swenson, Bill *SW*

~~Marl, Rich~~

TAGGART, TOM *TT*

~~Mason, Kate *MT*~~

Terando, Jerry *TR*

Max, Pat *MP*

~~Tessin, Lynn~~

Webb, Dave *WB*

~~_____~~

~~Weiger, Madeline~~

Miller, Jeff, Jim

Woodward, Woodie *WW*

Moore, Dick *MD*

Ziolkowski, Paul *ZP*

Ort, David *OD*

May 13, 1982

Osmanski, Albert *OS*

Hanger Insp. Trainin

~~_____~~

Mech. Rep. Rick Shaw

Q.C. Rep. Ed Urbanawi

Welding Rep. John Low /
R. Cable

1 hr.

