Stephen H. Howell
Vice President

Consumers Power Company

General Offices: 212 West Michigan Avenue, Jackson, Michigan 49201

May 12, 1978
Howe-75-78

Mr J. G. Keppler, Regional Director
US Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND NUCLEAR PLANT -
UNIT NO. 1, DOCKET NO. 50-329
UNIT NO. 2, DOCKET NO. 50-330
SEISMIC CABLE TRAY SUPPORTS

In accordance with the requirements of 10 CFR 50.55(e), this letter constitutes an interim report of the status of nonconforming welds in cable tray supports. Attachments 1 and 2 to this letter provide a description of the nonconforming conditions, corrective action plans and a report of the initial actions taken.

Another report, either interim or final, will be sent on or before June 30, 1978.

Stephen H. Howell

Attachments: 1) Quality Assurance Program Management Corrective Action Report, MCAR-1, Report No. 23, dated April 17, 1978.

2) Interim Report #1, dated May 1, 1978, MCAR-23, Cable Tray Support Construction Welding Discrepancy.

CC: Dr Ernst Volgenau, USNRC (15)

Director, Office of Management
Information and Program Control, USNRC (1)

MAY 15 1978

Attachment 1
Howe-75-78

QUALITY ASSURANCE PROGRAM
MANAGEMENT CORRECTIVE ACTION REPORT
MCAR-1

REPORT NO. 23

JOB NO. 7220 Q NO. 3.005 DATE April 17, 1978

I *DESCRIPTION (Including references):

Seismic Cable Tray Supports were audited by CPCo on August 29, 1977 (F-77-31) and found that welding of raceway supports did not comply with design drawings. The drawings called for transverse welds, and on two type 3 supports, longitudinal welds were used. This was resolved by Specification C-304 revision to allow Field Engineering to approve additional welds.

Bechtel QC performed an inspection of seismic cable tray supports in the Cable Spreading Room Elevation 646 on 10/13/77. There were 59 Hold Tags applied on columns

*RECOMMENDED ACTION (Optional) (Contd)

1) Project Engineering evaluate the conditions on NCRs 1287 and 1306 and provide disposition.
2) Project Engineering determine if the remainder of the fillet welds on electrical supports not reinspected can be deemed adequate without further reinspection or if additional reinspection is required to provide confidence that the as-built condition meets design requirements.
3) If reinspection of additional welds is required, Quality Control is to establish a schedule.

(CONT'D.)

REFERRED TO ☐ ENGINEERING ☒ CONSTRUCTION ☐ QA MANAGEMENT ☐ _____

*Potentially Reportable

ISSUED BY Project QA Engineer 4/21/78 Date

II REPORTABLE DISCREPANCY ☐ NO * ☐ YES

NOTIFIED CLIENT 4/23/78 Date

Project Manager Date

III CAUSE

CORRECTIVE ACTION TAKEN

APR 24 1978
QUALITY ASSURANCE

AUTHORIZED BY _____ Date

DISTRIBUTION:
Project Manager
Construction Manager
Engineering Manager
Project Engineer
Proj. Supt. / Proj. Const. Mgr. or P & I Procurement Mgr.
Chief Field QC Engineer or Procurement Insp. Mgr.
QA Supervisor
Client
J. B. Violette
T. M. Leverette
C. L. Richardson
J. Amaral (Gaithersburg)
J. E. Bashore (Norwalk)

FORMAL REPORT TO CLIENT _____ Date
(If Section II Applies)

CORRECTIVE ACTION IMPLEMENTED

VERIFIED BY _____
Project QA Engineer Date

*Describe in space provided and attach reference documents

I DESCRIPTION (Including references): (CONT'D.)

in the lower spreading room because of coarse ripples, high crowns, excessive convexity and undercut. NCR-987 remains open.

Inspection of seismic cable tray support installation was audited by CPCo on December 21, 1977 (F-77-45) and found that fillet welds were undersize and painted. The weld had not been accepted by QC. The action was closed by preparation of a Discrepancy Report to document incomplete work and assurance that welds would not be painted until after inspection.

The NRC performed an inspection on March 21, 1978 and found that cable tray supports in the cable spreading room had several unacceptable fillet welds. This is a potential item of noncompliance, as the inspection report has not been issued as of this date.

Bechtel QC reinspected ten (10) vertical columns consisting of forty (40) welds in the lower spreading room, elevation 646 feet, to determine if the NRC finding is an isolated case. All ten columns were detected to have undersized welds. NCR-1287 was issued March 23, 1978. This reinspection was performed using the same criteria and instructions as the original inspection, but after training of the inspectors by QC on how to measure fillet welds.

The Project Manager called a meeting on 3/24/78 with the Project Engineer, Electrical APE, and the PQAE. A telephone discussion with the Construction Superintendent and the PFQCE resulted in the following action items.

1) Construction Superintendent to determine why undersize welds are occurring and to instruct welders on the importance of making welds within specification tolerances.

2) PFQCE to perform 100% reinspection of cable tray supports until further notice.

3) Project Engineer to determine acceptability of welds, disposition NCR-1287 and determine if a revision to Specification C-304 is required.

4) PQAE to review Quality Trend Analysis charts to determine if Discrepancy Reports (DRs) prepared during in-process inspection of electrical cable tray supports involved welding problems.

   The PQAE was also to determine if the original inspection was performed before or after Specification C-304 had been revised to include weld size tolerances.

I DESCRIPTION (Including references): (CONT'D.)

A reinspection made on 4/13/78 of completed fillet welds in the lower spreading room, elevation 646 feet, found 550 welds out of 2058 inspected, unacceptable to the latest criteria of Specification C-304, Rev. 3, plus SCN-8002. Rejected welds consisted of oversize, undersize and weld defects. The rejection rate for columns was 50.5%; for unistruts, 12%; and for cross-overs, 27.6%. NCR-1306 was issued April 13, 1978.

The Project Manager called a meeting on 4/20/78 of the Project Superintendent, Chief FQCE, Chief Civil Engineer, M&QS Supervisor, QA Manager, PQAE and other project representatives to discuss the safety aspects of the discrepancy as well as recommend corrective actions. The discrepancy is considered potentially reportable until completion of a structural analysis.

RECOMMENDED ACTION (Optional) (CONT'D.)

4) Project Superintendent provide instruction to the responsible crafts, supervision and field engineering personnel to assure they clearly understand the welding requirement. Completion of this action is to be documented.

5) Quality Control to evaluate the existing instructions and training for QCEs in this area and take any further actions, if necessary, to assure proper inspection of all future fillet welds. Document results.

6) Quality Control to evaluate the need to inspect support welds <u>prior</u> to installation of cable trays. Document the results of the evaluation.

7) Request Project Engineering to prepare an interim report and issue to the Project Manager within 15 days (May 1, 1978), containing all available information, together with a statement as to when a complete report will be issued. The interim report is to address clearly the question of reportability.

Bechtel Associates Professional Corporation

777 East Eisenhower Parkway
Ann Arbor, Michigan

Mail Address: P.O. Box 1000, Ann Arbor, Michigan 48106

SUBJECT: MCAR #23 (Issued 4/17/78)

Cable tray support construction welding discrepancy

INTERIM REPORT # 1 DATE: 5/1/78

PROJECT: Consumers Power Company Midland Plant Units 1 & 2 Bechtel Job 7220

General

This interim report is prepared in response to Midland Project Management Corrective Action Report No. 23 dated April 17, 1978. Project engineering's action following the issuing of Nonconformance Reports 1287 and 1306 up to May 1, 1978, is summarized in this report.

Engineering Evaluation on NCRs 1287 and 1306

NCR 1287 was issued by Bechtel QC on March 23, 1978. This report contained the reinspection report of 10 vertical columns consisting of 40 welds in the lower spreading room at elevation 646'. All 10 columns detected undersized welds. NCR 1306, issued on April 13, 1978, reported 550 weld discrepancies out of 2,058 inspected welds. The discrepancies consisted of oversize, undersize, and weld defects in the lower cable spreading room. Engineering's evaluation effort is to examine the adequacy of the actual reported weldsize to the specified design load at each connection. Problems related to oversize, weld defect, and violation of AISC minimum weld size were evaluated by Bechtel welding engineers.

There are four groups of typical connectons reported in the NCR 1287 and NCR 1306 as shown in Figures 1 through 4.

Evaluation of the undersized weld is performed by examining the maximum load-carrying capacity of an undersized weld connection to the minimum required load-carrying capacity from structural analysis of the support system. End returns are in general not considered in the design evaluation.

Engineering's evaluation has concluded that both the undersized and oversized welds reported in both NCRs meet design requirememts and project design criteria and is not a significant deviation from performance specification. *(See CPCo Note 1)*

However, for the undersized welds, the minimum weld size required by AISC code was not accomplished and the oversized welds exceeded Specification 7220-C-304 Rev 3 requirements. Engineering is presently evaluating code and specification deviation cases as well as any possible adverse effect to the weld strength.

CPCo Note 1: *This paragraph should be interpreted to say that structural design requirements are not violated and the deviation will not affect performance.*

Cable Tray Support Welds for Areas Not Reinspected

NCRs 1287 and 1306 reported weld reinspection results limited to the lower spreading room at elevation 646' only. Data obtained from these reports is sufficient to evaluate the weld condition in this area, however, it is inadequate to extend these results to evaluate welding in other areas. This is due to the lack of sampling data obtained from other rooms.

To evaluate welding adequacy in the areas other than those welds in the lower spreading room, project engineering selected a sample of 50 welded support connections from installed cable tray support in the auxiliary building on April 25, 1978. These sample connections required the field quality control group to conduct a detailed inspection and provide results for project engineering to perform similar evaluation. Results of this inspection are still pending as of this date.

Reportability

Project engineering's evaluation to date tentatively indicates that the descrepancy of the weld size as reported in NCR 1287 and NCR 1306 does not present a potential detrimental effect to public safety and is not a reportable condition within the requirements of the Nuclear Quality Assurance Manual, Section 5, Number 10. *(See CPCo Note 2).*

The final engineering report on this investigation is expected to be completed by May 31, 1978.

CPCo Note 2: The discrepancy will be treated as reportable by CPCo until such time as the evaluation of the conditions are complete and if final judgment can be made to the contrary.

Prepared by [signature]

Reviewed by [signature]

Approved by [signature] /RLC/[signature]

Concurrence by Karl Wisdner

FJH/cap
5/2/2

Attachments 3

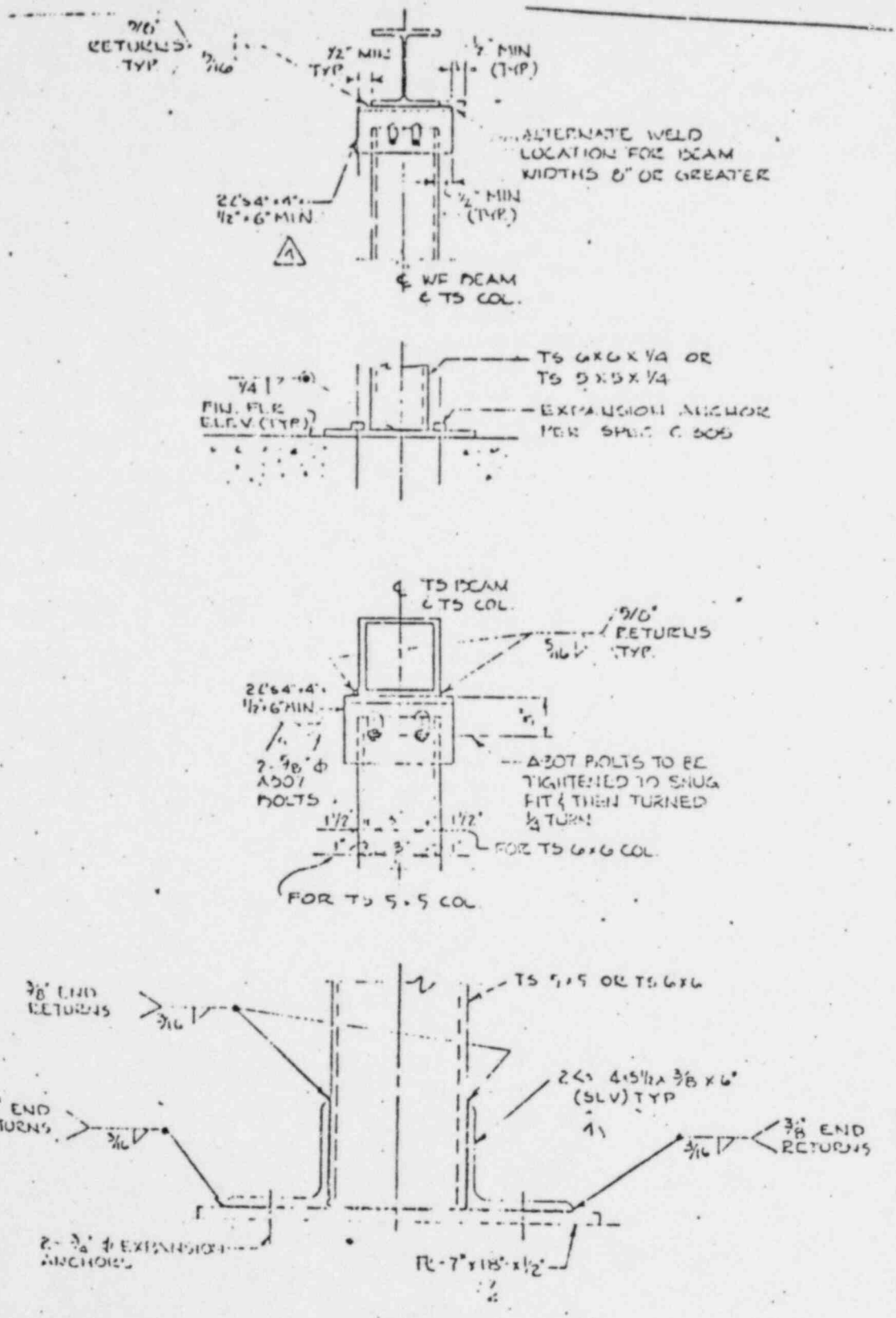

FIG. 1 TYPICAL UPPER & LOWER SUPPORT COLUMN CONNECTION

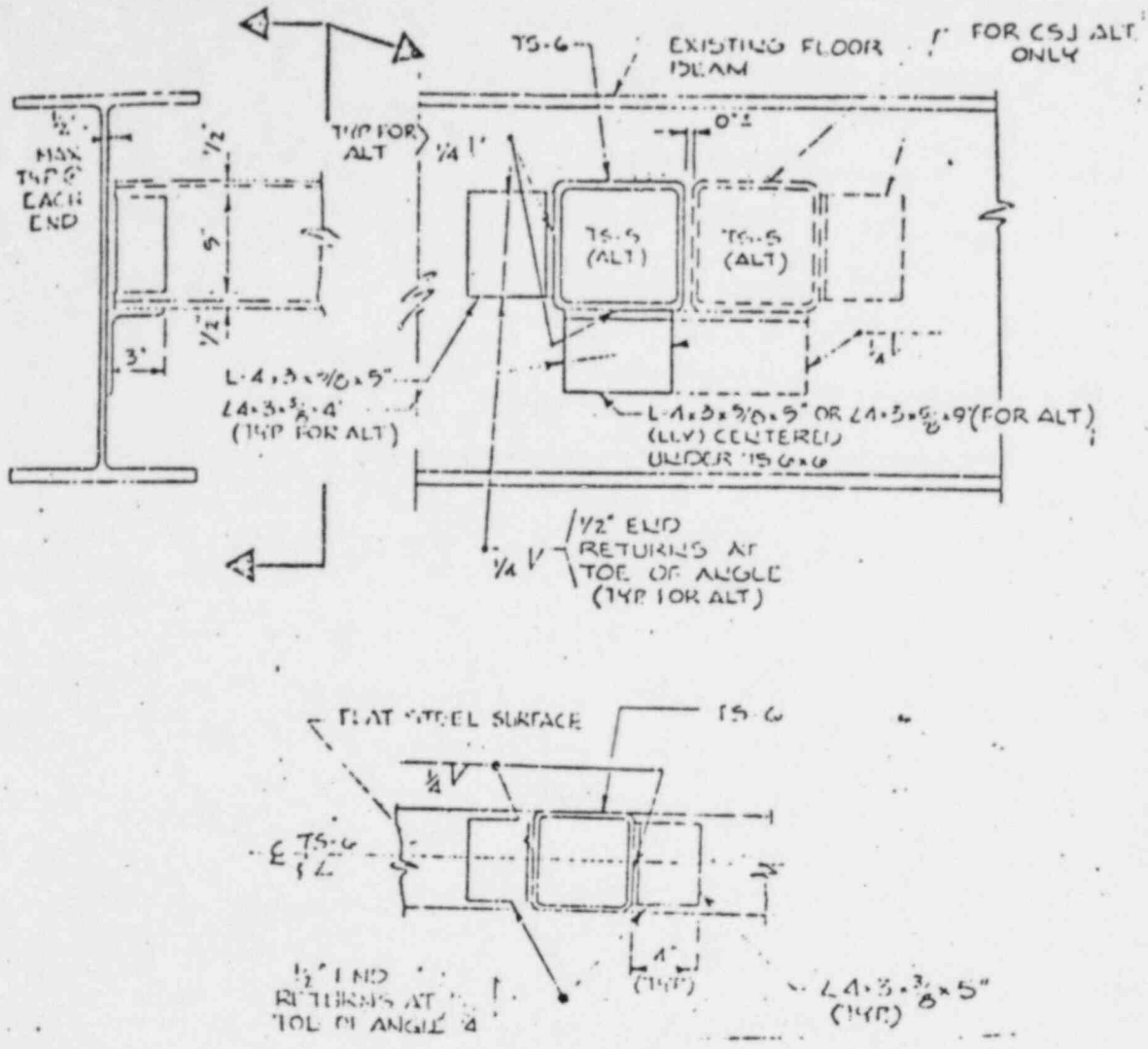

FIG. 2 TYPICAL CROSS OVER BEAM CONNECTION

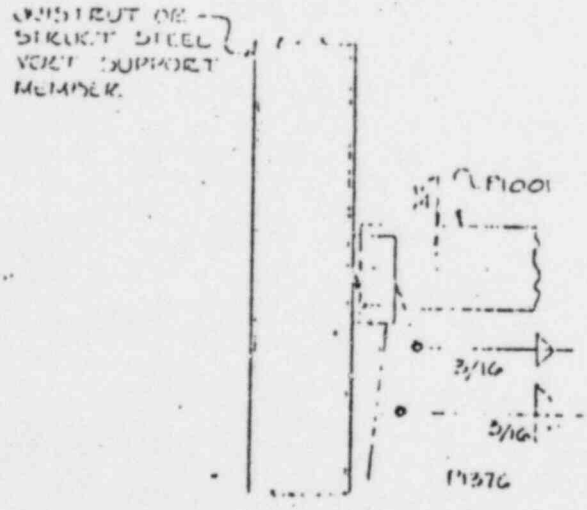

FIG. 3 TYPICAL HORIZANTAL TO VERTICAL STRUCT MEMBER CONNECTION

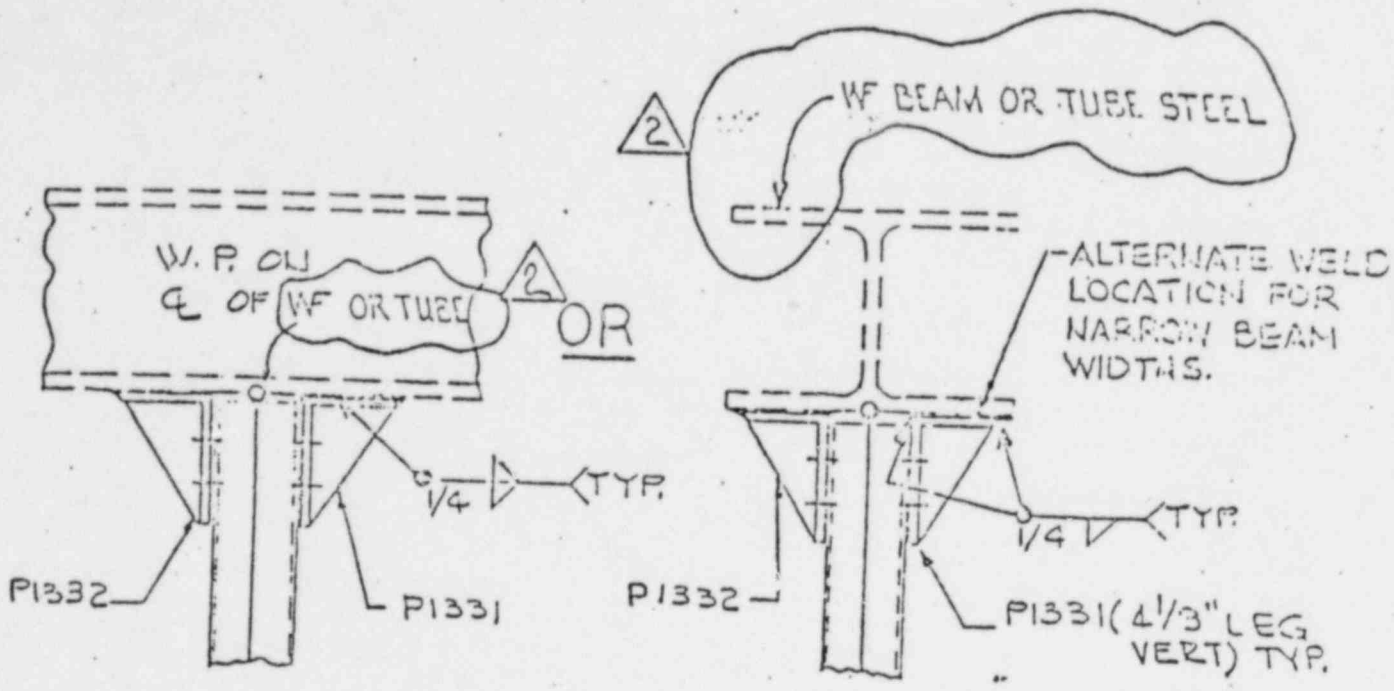

FIG. 4 TYPICAL VERTICAL HANGER CONNECTION