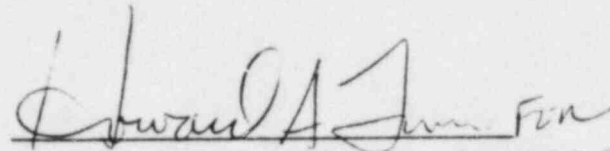
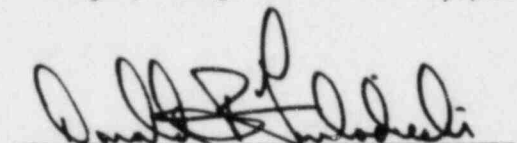


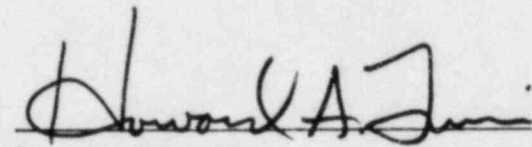
MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION PROGRAM  
MONTHLY STATUS REPORT  
NUMBER 2  
PERIOD MAY 28, 1983 THROUGH JUNE 30, 1983

Prepared by:

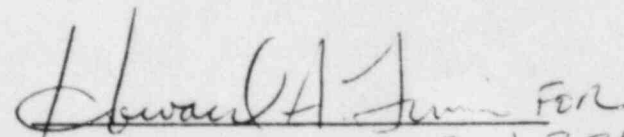
  
Manager, Design Verification *RICHARD JNAIDER*

  
Manager, Construction Verification

Reviewed by:

  
Project Manager

Approved by:

  
Principal-in-Charge *JOHN BECK*

MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION  
VERIFICATION PROGRAM (IDCV)  
MONTHLY STATUS REPORT  
NUMBER 2  
PERIOD MAY 28, 1983 THROUGH JUNE 30, 1983

1.0 Introduction and Purpose

Monthly Status Reports have been instituted by agreement between the Consumers Power Company (CPC), the Nuclear Regulatory Commission (NRC) and TERA to provide parties external to TERA's IDCV project team with up-to-date information relative to program progress and any important issues identified during the reporting period. This report covers the period from May 28, 1983 through June 30, 1983. A description of the scope, reporting periods and report issuance dates for Monthly Status Reports, as well as a summary of the background of the IDCV program were presented in the initial Monthly Status Report dated May 27, 1983.

2.0 IDCV Program Status Summary

2.1 Programmatic Activities

Attachment I provides an updated chronology of major project milestones. Several milestones warrant special highlight.

A meeting was held on June 3, 1983 at Bechtel's Ann Arbor, Michigan offices to obtain additional information related to Confirmed Items identified in the first IDCV Program Monthly Status Report. Attending this meeting were representatives of TERA, Bechtel, CPC and Babcock and Wilcox (B&W). The purpose of the discussions was to promote an understanding and any clarification necessary so that CPC, Bechtel or B&W could either identify information that may not have been available to the IDCV review team or clarify information that was available and reviewed. Minutes documenting discussions at this meeting

were issued to participants on June 13, 1983 and are included herein as Attachment 2. The objectives of the meeting were met and the information gained or identified has led to further review and disposition of OCRs. Changes in status to OCRs and newly identified Findings are documented in the following sections of this report.

During an April 13, 1983 public meeting at the NRC's Bethesda offices, the IDCV protocol for communications was discussed. This protocol is documented in a March 22, 1983 letter from J. Keppler, NRC to J. Cook, CPC. TERA indicated that "substantive" discussions would generally occur at the Findings stage of the IDCV process, at which time the opportunity for outside observation of meetings would be warranted in accordance with the IDCV protocol. On June 22, 1983, Darl Hood, NRC indicated that other meetings such as those associated with discussion of Confirmed Items should be subject to the IDCV protocol provisions and that a letter will be issued by the NRC documenting their position. Accordingly, TERA will notify the NRC Regional Administrator of future meetings of this nature.

Interfacing of Ford Amendment activities took place during the reporting period. On June 8, 1983, a meeting was held between TERA and representatives of the NRC I&E Headquarters staff to coordinate activities associated with the NRC's observation of TERA's IDCV review process. The NRC indicated that they plan to observe activities at Bechtel's Ann Arbor offices and at the Midland site. The emphasis of NRC's involvement is to study the efficacy of TERA's IDCV program methodology as well as other methodologies and report to Congress, recommending future initiatives to improve and verify the quality of plants under construction.

A meeting between TERA and CPC was held on June 22, 1983 at the Midland site to identify information that would be useful to TERA in proceeding with field verification activities and to clarify associated interfaces between the IDCV and the Construction Completion Program (CCP). It was concluded that TERA would remain abreast of CCP progress and schedule independent field verification activities after CPC has completed work in specific areas.

During the reporting period, effort was devoted to the revision of the Engineering Program Plan (EPP) and the Project Quality Assurance Plan (PQAP). Revision 3 of the EPP and revision 4 of the PQAP are being issued on this date.

The changes reflect various improvements to administrative control procedures and the project organization.

## 2.2 Design Verification Activities

### 2.2.1 Summary

During the month of June, design verification activity continued to focus on the AFW System. However, during the week of May 30, TERA's IDV team met with Bechtel personnel in Ann Arbor to identify documents applicable to the Standby Electric Power (SEP) and Control Room HVAC (CR-HVAC) systems. TERA obtained relevant design documents during those discussions and subsequently received more documents that had been requested. TERA personnel have initiated review of those documents and have begun preparation of design criteria and commitments checklists.

Confirmed Items resulting from the review of the AFW System were discussed at the June 3, 1983 meeting in Ann Arbor. The related meeting summary, which is attached, provides a synopsis of the discussion of each item, any information identified and as appropriate, the resulting action to be taken. A specific discussion of Confirmed Items for which the status has changed during the past month is included in Section 2.2.2 below.

The action items resulting from the June 3 meeting have, in some cases, meant an increase in the scope of TERA's review. For example, the IDCV team has identified that expanded review will be necessary in the areas of the station blackout event, the interface between seismic category I and non-category I piping, and the design interface between B&W and Bechtel.



### 2.2.2 Auxiliary Feedwater System Progress

The engineering evaluation for Topic I.8-I, Overpressure Protection, was completed during June. This evaluation included checking one Bechtel calculation and the performance of two independent calculations, the first pertaining to selected portions of AFW system piping and the second involving drain line piping for the AFW steam-driven turbine. The calculations and evaluation are presently being checked.

TERA was provided a copy of the latest (May 1983) revision to the B&W Balance of Plant Criteria Document. This revision, coupled with information gathered during the June 3 meeting regarding its development and usage, have resulted in the need to revise applicable in-progress engineering evaluations. These evaluations include those for System Operating Limits, Component Functional Requirements, System Hydraulic Design, and System Heat Removal Capability. Also, as noted in the Summary above, TERA has identified the need to increase the depth of review effort devoted to the interface between Bechtel and B&W. The more detailed review of this interface will begin in July.

Further progress in the mechanical review area included: (1) initiation of implementing document review for Water Supplies and Component Functional Requirements topics; (2) sample selection completion and checklist preparation initiation for Bechtel calculations to be reviewed for the System Hydraulic Design and System Heat Removal Capability topics, and; (3) completion of confirmatory calculations for the Environmental Envelopes topic.

In the AFW Electrical, Instrumentation and Control review area, substantial effort was expended during June in the review of information related to AFW system and subsystem control during normal and off-normal conditions. In addition, the following specific actions were taken: (1) in partnership with the systems lead technical reviewer, commenced a single failure review of the AFW system utilizing applicable P&ID's, electrical schematic diagrams, plant single-line drawings, and available documentation regarding power supplies; (2) developed ICV raceway input for on-site cable tray and conduit review; (3)

completed compilation of design criteria for applicable topics, and; (4) completed draft engineering evaluations for AFW topics Power Supplies, Electrical Characteristics, Protective Devices/Settings, Actuation Systems.

The following brief comments concern the specific Confirmed Items for which status changes were made by the IDV team during the month of June. These comments are in addition to those of the attached June 13 summary of the June 3 meeting.

- Confirmed Item C-001, concerning technical specification commitments, was resolved by reissuance as an Observation in accordance with Project Instruction 3201-005. This Observation, which combines Item 001 with an outstanding Open item regarding plant procedures, recognizes the draft nature of the specifications and procedures but recommends certain clarifications.
- Confirmed Item C-002, concerning technical specification requirements, has been resolved.
- Confirmed Item C-010, regarding the seismic design of the AFW System piping, has been resolved.
- Confirmed Item C-012, regarding power supplies to critical valve logic relays and their loss during station blackout conditions, has become a Finding.

### 2.2.3 Standby Electric Power System Progress

During the reporting period, the design verification program for the Standby Electric Power (SEP) System was initiated. Using the sample selection criteria in the EPP and discussions with Bechtel personnel, TERA identified and obtained relevant SEP documents. The design verification project team also initiated the identification of components which are to be the subject of reviews within the ICV. Specific progress in the IDV during the period primarily involved the review of design criteria and commitments activity on the review matrix for the SEP. To date, no open items have been identified. Implementing documents have been identified and requested for subsequent review.

#### 2.2.4 Control Room HVAC System Progress

The Engineering Program Plan for the Control Room HVAC Design Review includes 104 review activities as identified on the sample review matrix. To provide the project control for closure of all review activities, the review has been further defined in terms of work packages.

The criteria review and assembly of documentation was initiated in June. Meetings were conducted during the first week of June to identify the first set of additional documentation required for the system review. These document requests were based on the system information and criteria delineated in the FSAR, supplemented by the information from the drawings which had previously been transmitted. Industry codes, standards, and regulatory requirements and guidance for control room HVAC design and related design activities have been assembled and are being reviewed to establish a basis for determining the adequacy of the Midland criteria.

### 2.3 CONSTRUCTION VERIFICATION ACTIVITIES

#### 2.3.1 SUMMARY

Activities undertaken and events which occurred during this reporting period which are important to the overall conduct of the construction verification review portion of the IDCV program are as follows.

- A step increase in site activities on the part of ICV reviewers occurred on June 20, 1983, with the establishment of a TERA office at the Midland construction site. ICV personnel immediately commenced establishing lines of communications with CPCo and Bechtel site personnel who are cognizant of, and responsible for, the preparation and retention of selected procedures and verification documentation. The selected procedures and verification documentation are those which direct and record the results of the construction/installation process. ICV personnel commenced identifying, collecting, and assimilating required procedures and documentation -with the emphasis of these activities being focused upon components and commodities within the AFW system sample boundaries.

- On June 30, 1983, TERA signed a letter of intent to contract with LAW Engineering Testing Company (LAW). LAW was selected by TERA to provide independent NDE/Materials Testing services and also to assist in the review of selected site and vendor generated welding, NDE, and material testing procedures and verification documentation. LAW personnel will commence documentation review activities early in the next reporting period - i.e., first week of July. The performance of NDE/Materials testing, to be performed as an integral part of the physical verification review, will commence once CCP status within each of three selected IDCV review systems has been determined (see next item).
- A meeting was held on June 22, 1983, at the Midland site between lead ICV reviewers and CPCo personnel. The purpose of the meeting was to identify information that would be useful to TERA in proceeding with field verification activities and to clarify the associated interfaces between ICV review activities and the CCP. The principal understanding developed as a result of the meeting was that ICV physical verification review activities will commence once the status of the CCP is determined to be complete for affected portions of the selected IDCV systems. All other ICV reviews - i.e., those reviews other than physical verification - may proceed unaffected by CCP status.
- Lead ICV personnel, in collaboration with the IDV LTR's, developed the listings of the specific components and commodities within the SEP and CR HVAC systems which will be subject to ICV review. For those vendor-supplied components appearing on the listings, ICV reviewers commenced an extensive review of supplier documentation as indexed and retained in the Bechtel - Ann Arbor offices. This review commenced June 13, 1983.
- ICV reviewers held detailed discussions with cognizant Bechtel engineering personnel concerning the processes and procedures used to control field modifications to pipe hanger and support drawings and the mechanism used to ensure that field modifications are factored into design calculations and the design finalization process. This effort was undertaken per direction established as a result of a meeting held in Bechtel offices between TERA, CPCo, and Bechtel personnel on June 3, 1983, to discuss confirmed items specifically OCRs C-31 through C-36 concerning AFW piping hangers and supports. The discussions, and subsequent TERA evaluation, have resulted in TERA's revising the affected OCRs to reflect actions undertaken by Bechtel to rectify noted discrepancies and the continuance of the review of existing processes and procedures used to control changes to pipe hanger design necessitated by the construction/-installation process (see Section 3.0).



- ICV reviewers completed their review of that portion of the cable overinspection program applicable to the AFW system and commenced their review of the Piping System Design and Implementation Verification (PSDIV) program. Observations were also made of certain aspects of the cable overinspection program which will be necessary to characterize the program's effectiveness. These observations have been recorded and will be combined with similar observations of the CR HVAC and SEP systems to enable ICV reviewers to extrapolate the evaluated results of the cable overinspection program to other systems.

### 2.3.2 CONSTRUCTION DOCUMENTATION REVIEW PROGRESS

Construction documentation review relates to those ICV review categories which are principally concerned with the adequacy and completeness of available documentation as opposed to those ICV review categories which verify physical configuration of installed components and commodities. The following ICV review categories are considered as part of construction documentation review.

- Review of Supplier Documentation
- Review of Storage and Maintenance Documentation
- Review of Construction/Installation Documentation

A description of progress made and principal activities undertaken in each of the above, highlighted review categories are as follows:

#### Review of Supplier Documentation

- Upon defining the specific components within the SEP and CR HVAC systems which will be subject to ICV review (see Section 2.3.1, Summary), ICV reviewers prepared the matrices which define the scope of supplier documentation review to be conducted for selected CR HVAC and SEP system components. The detailed review matrices were developed as a joint effort with IDV reviewers and serve to direct the activities of ICV reviewers performing the review of supplier documentation.



- A review of all specifications for selected SEP and CR HVAC components, with the exception of certain commodities, was conducted and completed. The purpose of this first review is to record all vendor documentation requirements noted in the body of the specifications and on the applicable G-321-D forms. The documentation requirements were extracted from the specifications and G-321-D forms and recorded on the applicable check-off sheets.
- A review of vendor-supplied documents which satisfy the recorded requirements for selected CR HVAC and SEP system components was initiated on June 20, 1983, by ICV reviewers working in the Bechtel - Ann Arbor offices. It is anticipated that ICV reviewers will complete the majority of their activities in the Bechtel - Ann Arbor offices during the first two weeks in July. Subsequent activities will be undertaken at the Midland site to identify and record vendor-supplied documentation forwarded and retained as part of the applicable QA data packages.
- With the exception of certain commodities, the review of supplier documentation for selected components within the AFW system is essentially complete. Remaining activities relate principally to ensuring the accuracy of recorded information and the gathering of discrete pieces of data necessary to complete the applicable check-off sheets. An engineering evaluation of the review of supplier documentation for selected AFW system components has been initiated with completion of the evaluation anticipated during the latter part of July or early part of August.

#### Review of Storage and Maintenance Documentation

- Specific components within the CR HVAC and SEP system sample boundaries have been selected and the review of storage and maintenance documentation for the selected components has been initiated. Activities undertaken during the reporting period relate principally to identifying and locating the applicable storage and maintenance records and the recording of required check-list data. It is anticipated that this review will be completed during the month of July.
- The engineering evaluation associated with the review of storage and maintenance documentation for selected AFW system components has been initiated and, as of the writing of this report, is approximately fifty percent complete.

### Review of Construction/Installation Documentation

- Specific components and commodities within the AFW, CR HVAC, and SEP systems sample boundaries have been identified and designated as being subject to this review category. ICV reviewers, in collaboration with the IDV reviewers, prepared the review matrices which list selected components and the detailed construction/installation documentation reviews to be conducted for the listed components.
- On-site activities commenced with the establishment of the TERA site office on June 20, 1983. ICV reviewers commenced the requisition and identification of required specifications, procedures and drawings which control and cause the recording of the construction/installation processes. Working relationships with cognizant and responsible CPCo and Bechtel personnel were initiated to ensure the efficient and reliable acquisition of needed information.
- Checklists were developed and are currently being reviewed for acceptability. These checklists guide and direct ICV reviewers in the acquisition of data and information from procedures, specifications, and associated documentation which control the construction process and which control tests/inspections of installed commodities and components.
- The acquisition of data necessary to complete the applicable checklists was initiated. The focus of activities to date have been directed toward selected components and commodities within the AFW system sample boundaries.

### 2.3.3 PHYSICAL VERIFICATION/SITE ACTIVITIES PROGRESS

The activities described herein address those ICV review categories which require ICV reviewers to observe, witness, or verify field activities and/or the as-built configuration of installed commodities and components. For the most part these activities require a strong site presence on the part of ICV reviewers and include the following ICV review categories:

- Review of Selected Verification Activities
- Verification of Physical Configuration

A description of progress made and principal activities undertaken in each of the above, highlighted review categories are as follows:

#### Review of Selected Verification Activities

- ICV reviewers completed their review of the cable over-inspection program as the program is applicable to the AFW System. The following activities were undertaken and completed.
  - Documents (procedures, references, etc.) which control the cable overinspection program were obtained and reviewed and the applicable document control checklist was completed.
  - Selected personnel contributing to the program were interviewed, their qualifications and training verified and the applicable training checklist completed. Two inspectors were observed during the cable inspection process.
  - Test equipment usage and control were verified and the applicable checklist completed.
  - The engineering evaluation of the cable overinspection program, as applicable to the AFW system, was initiated with completion of the evaluation projected for the middle of July.
- ICV reviewers commenced their review of the PSDIV program by establishing the necessary liaison with cognizant and responsible CPCo and Bechtel personnel. The following activities relating to the ICV review of the PSDIV program were undertaken during this reporting period.
  - Completed the collection and review of instructions and reference documents pertinent to the PSDIV program.
  - Completed the personnel qualifications and training checklist.
  - Completed the test and measuring equipment checklist.

- Witnessed inspection activities.
- ICV reviewers continue to monitor PSDIV program activities as these activities relate to selected hangers and supports in the AFW system sample boundaries.

#### Verification of Physical Configuration

- As a result of the field measurement of selected pipe, hangers and supports within the "B" AFW train, ICV reviewers prepared OCR's identifying certain inconsistencies between design documents and the as-installed configuration. These OCR's were reported in the previous status report and were, among others, the subject of a meeting held in Bechtel offices on June 3, 1983, among CPCo, Bechtel, and TERA personnel. During this reporting period cognizant TERA and Bechtel personnel met for the purpose of more clearly defining the processes, past and present, used to control field modifications and design interfaces. TERA's review of these processes continues. An additional objective of the TERA - Bechtel meetings was to obtain the most current status of activities undertaken by Bechtel to rectify the noted discrepancies, since the measurements and documentation taken and used by TERA, upon which TERA's evaluation was based, were obtained in November of 1982, prior to the implementation of the CCP and PSDIV programs. The results of these meetings are reflected in revisions to OCRs C-31 thru C-36 and the preparation of Finding and Finding Resolution Reports contained in this status report (see Section 3.0).
- Based upon understandings developed as a result of a meeting on June 22, 1983, between CPCo and TERA personnel (see Section 2.3.1), ICV review of selected, installed components and commodities within the IDCV systems sample selection boundaries will commence once the status of the CCP is determined to be complete for the affected items. Given this understanding, ICV reviewers limited their activities to the selection of components and commodities which will be subject to a physical verification review and the preparation of checklists to be used in conducting the review. ICV reviewers continue to work with cognizant and responsible CPCo and Bechtel personnel for the purpose of identifying and statusing CCP progress.



### 3.0 Summary of Confirmed and Resolved Item Reports, Finding Reports and Finding Resolution Reports

Attachment 3 provides TERA's Tracking System Summary for Open, Confirmed and Resolved (OCR) Item Reports, Finding Reports and Finding Resolution Reports. This tool assists TERA in tracking the disposition of issues as they progress through the review process. Items that have changed status or that have been added during the reporting period are noted with an asterisk. Attachment 4 provides re-typed copies of Resolved Item Reports that have closed out Confirmed Items, Finding Reports and Finding Resolution Reports.

Confirmed Items C-012 and C-032 through C-036 have been re-classified as Findings. Finding Resolution Reports have been written for Findings F-032 through F-035 based upon on-going actions by CPC to correct the identified deficiencies.

Of the identified Findings, Finding F-012 is potentially the most significant. In the relatively unlikely event of a station blackout (loss of all ac power) the steam isolation valves to the turbine driven AFW pump would close as a result of a loss of power to the FOGG relays which are not powered from a preferred power source. A loss of steam to the turbine prohibits the AFW system from providing feedwater flow until ac power is restored. The plant design criteria specify that the AFW system be operable for at least two hours under a station blackout event. CPC and Bechtel have acknowledged this condition and are in the process of taking remedial action. TERA will review CPC's plans for resolution when they are available.

Findings F-032 through F-035 relate to specific out of tolerance discrepancies associated with field measured piping and supports. These measurements were taken in late November, 1982 prior to the initiation of CPC's Construction Completion Program and Bechtel's Piping System Design and Installation Verification (PSDIV) Program. Integral to the CCP are programs which have been developed to identify and correct similar discrepancies. Future TERA field measurement activities will only proceed after the CCP has completed their activities in the area of interest. Finding Resolution Reports have been written for these Findings on the basis of specific CPC/Bechtel commitments to



evaluate and correct these discrepancies and the existence of CPC/Bechtel programs addressing these issues. Two related reports, Confirmed Item Report C-031 and Finding F-036 remain active as they relate to issues associated with the field change/design interface control process. TERA is in the process of reviewing this process as a direct result of the above Findings. Future field verification work by TERA will be undertaken to verify the quality of additional installed piping and supports.

## PROJECT CHRONOLOGY

MIDLAND INDEPENDENT DESIGN AND  
CONSTRUCTION VERIFICATION PROGRAM  
TERA PROJECT 3201  
THROUGH 6/30/83

<u>Date</u>	<u>Milestone</u>
September 2, 1982	TERA proposal to CPC for Midland Independent Design Verification (IDV) Program
September 20, 1982	CPC letter of intent to use TERA for Midland IDV
September 24, 1982	TERA identification of IDV goals, objectives, system selection criteria, methodology, tasks, and schedule (outline presented to CPC on 9/28/82)
September 28, 1982	Meeting of CPC, TERA, and MAC in Jackson to develop submittal to NRC addressing IDV and INPO evaluation programs. TERA selects candidate system for IDV program
September 30, 1982	TERA submittal of corporate Quality Assurance Plan to CPC for their review and acceptance
October 5, 1982	CPC submittal of Midland Independent Review Program to NRC
October 12, 1982	CPC approval of TERA corporate Quality Assurance Plan
October 25, 1982	Presentation on Midland IDV and INPO programs to NRC at NRC's Bethesda offices
October 27, 1982	TERA conceptual development of IDV program modifications to further address the quality of construction (telecopy to CPC)
October 28, 1982	CPC decision to separate IDV and INPO evaluation programs

## ATTACHMENT I

<u>Date</u>	<u>Milestone</u>
November 2, 1982	Introductory meeting at the Midland site to initiate IDV and INPO programs
November 3, 1982	Midland site tour and walkdown of the AFW system
November 4, 1982	TERA project team meetings in Jackson to review Midland project experience (e.g., 50.55e reports, NRC inspection reports, etc.); identification of information needs
November 5, 1982	Meeting of TERA, CPC and Bechtel management in Ann Arbor to discuss programmatic details of the IDV program, logistics for TERA-Bechtel interaction on the IDV; review of Bechtel organization, interfaces, etc.; identification of information needs
November 11, 1982	NRC issues meeting summary for October 25, 1982 meeting
November 15, 1982	TERA issues Revision 0 of the Midland Independent Design and Construction Verification (IDCV) Project Quality Assurance Plan
November 23, 1982	CPC approval of TERA Project Quality Assurance Plan
November 29, 1982	TERA issues draft Engineering Program Plan for interim use and comments
November 29 - December 3, 1982	TERA field verification team is on-site conducting physical configuration verification of AFW system piping and supports inside containment
December 3, 1982	CPC submittal to NRC of response to NRC comments during October 25, 1982 meeting; CPC commits to separate IDV and INPO evaluation, identifies candidate systems for adding an additional system to the IDV scope, expansion of IDV program to include a verification of the quality of construction of the IDV systems; details of IDV interactions and INPO reporting

## ATTACHMENT I

<u>Date</u>	<u>Milestone</u>
December 6, 1982	TERA project team meets individually with Bechtel group supervisors and group leaders to give a programmatic overview of the expanded IDCV; identify elements of the design process, interfaces, logistics for conducting the IDCV review; identify information, etc.
December 8-15, 1982	Lead technical reviewers interview Bechtel personnel as part of the IDCV review process; identification of information needs
December 10, 1982	Agreement reached with Bechtel on proprietary information
December 16, 1982	TERA completes Engineering Program Plan
January 17-21, 1983	TERA design review team in Ann Arbor
January 24, 1983	TERA begins ICV program -- review of supplier documentation, storage, and maintenance documentation
January 24-26, 1983	TERA construction review team on-site reviewing supplier documentation and storage and maintenance documentation
January 25-27, 1983	TERA design review team in Ann Arbor
February 7-11, 1983	TERA construction review team on-site
February 8, 1983	Public meeting on Midland Construction Completion Program and Independent Design and Construction Verification Program
February 9, 1983	TERA transmits Engineering Program Plan (EPP) and Project Quality Assurance Plan (PQAP) to the NRC
February 17, 1983	TERA issues Revision 1 of the EPP and Revision 2 of PQAP

## ATTACHMENT I

<u>Date</u>	<u>Milestone</u>
February 28 - March 4, 1983	TERA construction review team on-site and design review team at Ann Arbor
February 28, 1983	TERA meeting with B&W in Lynchburg
March 1, 1983	TERA meets with Bechtel management in Ann Arbor to clarify requests for information
March 2, 1983	Project team meeting, Ann Arbor
March 11, 1983	Project quality assurance audit conducted by the Project Quality Assurance Engineer
March 18, 1983	TERA transmits information to NRC regarding corporate and individual independence, professional qualifications, scope of review, reporting and auditability, and program status
March 21-25, 1983	TERA construction review team on-site and TERA design review team at Ann Arbor
March 22, 1983	NRC selects Standby Electric Power System as the second system and the HVAC system assuring control room habitability as the third system for the IDCV program
March 24, 1983	NRC provides TERA with a service list for Midland IDCV program
March 28, 1983	NRC issues the protocol for the Midland IDCV program
March 30, 1983	TERA transmits supplemental information to NRC regarding affidavits of independence and professional qualifications, including additional affidavits by individuals previously employed by NRC



## ATTACHMENT I

<u>Date</u>	<u>Milestone</u>
April 8, 1983	Project quality assurance audit report issued by the Project Quality Assurance Engineer
April 9, 1983	Senior Review Team meets to review project status, review OCRs, and develop recommendations for the project team
April 13, 1983	Meeting at NRC, Bethesda, including TERA, CPC, GAP, and NRC. TERA presents synopsis of progress to date of AFW system review, plus discussion of topics to be reviewed for the two additional systems (Standby Electric Power; Control Room HVAC) selected by NRC. All parties discuss protocol for Midland IDC V Program
April 21, 1983	TERA transmits supplemental information to NRC regarding affidavits of independence for individuals previously employed by NRC
May 3, 1983	NRC letter, Novak to Cook (CPC) stating acceptance of TERA Corporation to conduct IDC V Program and acceptance of Engineering Program Plan for the Auxiliary Feedwater System
May 18, 1983	TERA issues general Revision 2 of the EPP and Revision 3 of the PQAP to incorporate the addition of the Standby Electric Power System and Control Room HVAC System to the IDC V scope, update personnel qualifications, add project instructions and reference new protocol for communications
May 18, 1983	TERA meets with NRC, I&E HQ management to discuss consideration of the Midland IDC V program within NRC's response to the Ford Amendment legislation.
May 27, 1983	TERA issues first Monthly Status Report.

## ATTACHMENT I

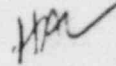
<u>Date</u>	<u>Milestone</u>
May 31 - June 1, 1983	TERA construction review team on-site.
May 31 - June 3, 1983	TERA construction and design review teams at Bechtel's Ann Arbor offices.
June 3, 1983	Meeting at Bechtel's Ann Arbor offices to discuss Confirmed Items documented in the first Monthly Status Report dated May 27, 1983.
June 6-9, 1983	TERA construction review team on-site.
June 8, 1983	Meeting with NRC I&E Headquarters staff at TERA's Bethesda offices to coordinate Ford Amendment activities.
June 13, 1983	Meeting minutes issued documenting discussions during the 6/3/83 meeting on Confirmed Items.
June 13-17, 1983 and June 20-24, 1983	TERA construction review teams on-site and at Bechtel's Ann Arbor offices.
June 22, 1983	Meeting between TERA and CPC at the Midland site to identify information that would be useful to TERA in proceeding with field verification activities and to clarify associated interfaces between the IDCV and CCP.
June 22, 1983	Meeting with NRC, NRR and I&E staff at TERA's Bethesda offices. NRC observation of the IDCV filing system and review of selected documents.
June 27, 1983	Senior Review Team meets to review project status, review OCRs and Findings and develop recommendations for the project team with emphasis in the area of root cause determination.
June 27 - July 1, 1983	TERA construction review team at Bechtel's Ann Arbor offices.
June 30, 1983	TERA forwards letter of intent to use Law Engineering Testing Company professional services in support of IDCV activities related to NDE, welding and materials testing/evaluation.

# TERA

## MEMORANDUM

TO: Distribution

DATE: June 13, 1983

FROM: H. Levin, Project Manager,   
Midland IDCV Program

COPIES TO:

SUBJECT: Meeting Minutes - First Meeting on Confirmed Items, June 3, 1983

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A meeting summary for the first meeting on Confirmed Items for the Midland IDCV Program is attached for your information.

Attachment

Distribution:

File 3201-007  
File 3201-010  
D.F. Lewis, Bechtel  
T.E. Johnson, Bechtel  
S. Rao, Bechtel  
D.S. Riat, Bechtel  
G. Borsteins, Bechtel  
Mark Mau, Bechtel  
Frank Levandoski, B&W  
Linnel Bates, TERA  
Martin Jones, TERA  
R.P. Snaider, TERA  
G. Eagle, CPC  
J. Knight, CPC  
W. Neilson, Bechtel  
J. Beck, TERA  
D. Davis, TERA  
R. Wilson, TERA  
R. Cleland, TERA  
M. Polit, TERA

J.A. Clements, Bechtel  
E.H. Smith, Bechtel  
Patrick Corcoran, Bechtel  
S.L. Sobkowski, Bechtel  
R. Tulloch, Bechtel  
R.C. Hollar, Bechtel  
Dennis Kelly, Bechtel  
Donald Tulodieski, TERA  
Jim Agar, B&W  
Robert Snyder, TERA  
F.A. Dougherty, TERA  
H.A. Levin, TERA  
L. Gibson, CPC  
T. Ballweg, Bechtel  
E.M. Hughes, Bechtel  
D.D. Simpson, Bechtel  
J. Martore, TERA  
D. Witt, TERA  
F. Pellerin, TERA  
W. Hall, U of I

HAL/djb

**SUMMARY OF FIRST MEETING ON  
CONFIRMED ITEMS  
JUNE 3, 1983  
MIDLAND IDCX PROGRAM**

A meeting was held on June 3, 1983 at Bechtel's Ann Arbor, Michigan offices to obtain additional information related to Confirmed Items identified in the first IDCX Monthly Status Report, dated May 27, 1983. Attachment 1 identifies the participants of the meeting which included representatives from TERA, CPC, Bechtel and B&W. Attachment 2 presents the agenda for the meeting.

The meeting was opened by Jerry Clements, Bechtel with an introduction of participants. Lou Gibson, CPC provided a statement of the purpose of the meeting and more generally the IDCX program. Howard Levin, TERA followed with a discussion of important features and objectives of an "IDV type" review, a summary of the status of the IDCX program to date as documented in the first Monthly Status Report and a presentation of details related to the IDCX program reporting process as shown in Attachment 3. The discussion on the reporting process focused on a definition of the various types of reports to be generated within the IDCX program and the circumstances under which these reports are generated.

Lead TERA personnel then led a discussion of Confirmed Items identified in the AFW system review. The purpose of the discussion was to promote an understanding and any clarification necessary so that CPC, Bechtel or B&W could either identify information that may not have been available to the IDCX review team or clarify information that was available and reviewed. The Confirmed Items were discussed in the order shown on the attached agenda. CPC, Bechtel and B&W personnel generally participated in discussions of Confirmed Items by discipline, consistent with the responsibilities shown on the agenda. The following description, by Confirmed Item, highlights important issues discussed and any course of action identified during the meeting.



3201-008-C-037

Discussion: Bechtel pointed out that Revision 47 of the FSAR put the subject figures in congruence with the descriptive portion of the FSAR. They indicated that the delay was caused by an effort to catch-up resulting from the massiveness of the FSAR revision process associated with soil-related activities. The civil discipline indicated that project specs serve as their design input versus the FSAR and therefore there is no impact due to the delay. TERA asked whether there could be a potential impact in other disciplines where the FSAR serves as the primary design input document. Bechtel replied that the responsibility for FSAR revisions rests with the group supervisors who keep their personnel informed of changes. They also pointed out that the SAR Change Notice was an important milestone that keyed attention to these issues.

Action: The status of the item will remain unchanged subject to TERA's review of the SAR Change process. TERA indicated that specific changes would be tracked to verify the adequacy of the process.

3201-008-C-011

Discussion: CPC pointed out that the auxiliary shutdown panel did not serve an emergency function and therefore FOGG override control was not provided at this location. TERA asked B&W to describe their rationale for the BOP criteria document (section 3.12) specifying FOGG override control at both the main control and auxiliary shutdown panels. B&W pointed out that certain BOP criteria document information is considered critical from an interface standpoint and should be treated as a specific design requirement to permit interface compatibility between the NSSS and BOP as opposed to general design criteria. This information is identified by a double asterisk and B&W must concur in deviations. TERA had reviewed a draft of Revision I of the BOP criteria document, dated June 25, 1982 which did not include the double asterisk notation. The final version of Revision I was approved on May 31, 1983. The first BOP criteria document (Revision 0) was issued in 1978. Prior to this time, criteria were identified in design or guide specs. CPC indicated that they are



contemplating revision of the FOGG logic to improve certain human factors considerations.

Action: The status of the item will remain unchanged pending further review. TERA will review issues related to the B&W deviation concurrence process for this specific issue and the rationale for deviation from a double asterisk item. TERA will review the BOP/NSSS interface in greater detail with particular emphasis on the period prior to 1978 (guide specs) and operability of the "double asterisk system" thereafter. TERA will factor CPC's revised FOGG thinking into the IDCV design review process including a review of the ATOG document.

#### 3201-008-C-012

Discussion: Bechtel indicated that their preliminary evaluation verified TERA's conclusion that during a loss of all AC power, the power to the FOGG interlock relays for channels AA and BA would be cut, causing valves 2MO-3277A and B to shut, cutting off steam to the AFW turbine.

Action: Subject to any further clarification received from Bechtel as part of their final evaluation, TERA will process the item in accordance with Project Instruction PI-3201-008 and issue a Finding. TERA will factor this information into the IDCV review of Topics 1.23-1, -2 and -3, FMEA and consider enlarging the sample size to verify that this issue is not a systematic problem.

#### 3201-008-C-025

Discussion: CPC pointed out that a steam generator tube rupture is a limiting fault versus the more probable leaking scenario. Bechtel indicated that they had determined through discussions with the manufacturer that the Terry turbine would run on water and not be damaged under such conditions. The scenario was identified as being controlled by timing and the ability of the operator to identify the event and take appropriate action. TERA questioned the bases for the FSAR conclusion that the operator would override FOGG in time.

Action: The status of the issue will remain unchanged pending further review. TERA will review information supporting the FSAR conclusion relative to operator action. TERA will review the Terry tests supporting operation when subjected to water.

3201-008-C-038

Discussion: Bechtel indicated that the minimum flow scenario would be about 100 gpm. Under this condition, Bechtel determined that damage would not occur to the pump during the 2-hour period of service that may be required. They received a telex from the manufacturer attesting to this assertion.

Action: The status of the issue will remain unchanged pending further review. TERA will review Bechtel's 100 gpm minimum flow calculation and the pump manufacturer's minimum flow evaluation or test data supporting the pumps performance under this condition.

3201-008-C-005

Discussion: TERA pointed out that this item was a "process" oriented OCR that served as an umbrella to identify a more generic issue that has arisen as a direct result of several specific OCRs (i.e. C-017, -018, -020, -027 and -028).

Action: The status of this issue will remain unchanged pending further review of Confirmed Items C-017, -018, -020, -027 and -028. CPC/Bechtel/B&W will provide clarification resolving potentially conflicting data relative to AFW system design parameters.

3201-008-C-018

Discussion: B&W indicated that they originally utilized a proprietary decay heat curve that is less conservative than the ANS 5.1 curve, assuming required AFW flow at 30 sec.; however, 40 sec. is the earliest that required AFW is available. CPC indicated that it was their intent to meet the BTP APCSB 9.2 position which requires approximately a 20% margin over the ANS 5.1 curve. B&W stated that 1035 gpm AFW flow was required to meet 1.2 times ANS 5.1 at

40 sec. at a 2552 Mw ultimate power level plus 16 Mw for the RCPs. They also indicated that the 850 gpm design flow would be adequate for 1.0 times ANS at 40 sec. at 2552 Mw plus 16 Mw level. TERA pointed out that the BOP criteria document is unclear relative to the required time for AFW in that 30 sec. and 40 sec. are both specified. Also, TERA indicated that the acceptability of AFW sizing was contingent upon the power level specified (i.e. 2452 Mw (license), 2552 (ultimate) or 1.02 times these values to account for instrument drift). B&W agreed with TERA's C-018 write-up that statements in the FSAR relative to the use and application of decay heat curves were conflicting.

Action: The status of this issue will remain unchanged pending further review. TERA will review the rationale for criteria related to decay heat removal capability with emphasis on performance criteria necessary for maintaining primary pressure within required limits. In conjunction with the review of other Confirmed Items associated with the specification of AFW system parameters (e.g. power level, margin for instrument error, timing, etc.), TERA will conduct another independent analysis to verify AFW system flow capacity utilizing appropriate parameters. Bechtel/CPC will review the FSAR to determine the need to correct conflicting information.

#### 3201-008-C-20

Discussion: Bechtel indicated that the 108°F service water temperature was a conservative value used in the stress analysis calcs and not an expected temperature at the point where AFW is required in response to a transient. The 105°F service water temperature was based upon a calculation which conservatively modeled the cooling pond during a LOCA for purposes of determining the maximum service water temperature. Bechtel indicated that the 90°F was a reasonable design temperature for evaluating AFW in consideration of the timing of demands on AFW and the expected temperatures of the cooling pond and condensate storage tank.

Action: The status of this issue remains unchanged pending TERA's review of Bechtel's evaluation supporting the 90°F criteria.

3201-008-C-027

Discussion: CPC indicated that the design basis or licensed power level (2452 Mw) of the plant represents their licensing basis and commitment relative to safety analyses. They have exercised the option of conducting various analyses such as dose calcs assuming higher power levels for conservatism and to avoid future work by conducting bounding evaluations.

Action: The status of this issue remains unchanged pending TERA's review of the Bechtel/CPC/B&W bases for the specification of various other AFW system parameters in conjunction with the review of other Confirmed Items (i.e. C-005, -017, -018, -020, -028). Bechtel/CPC will review FSAR App. 3A and 10A for consistency and clarity.

3201-008-C-028

Discussion: B&W indicated that their stress analyses were based upon a 40°F AFW inlet temperature. The normal line-up to the CST assures meeting this criterion since the CST is heated to maintain at least 40°F. B&W and CPC maintain that in the unlikely event that AFW draws service water at temperatures between 32° and 40°F, an evaluation would follow. Notwithstanding this, B&W asserts that the fatigue usage factor associated with a one time occurrence of this nature would not invalidate the plant design.

Action: This status of this issue remains unchanged pending TERA's review of the bases for the specification of other AFW system parameters in conjunction with other Confirmed Items (i.e. C-005, -017, -018, -020, -027).

3201-008-C-010

Discussion: Bechtel indicated that certain segments of non-Category I pipe had been seismically evaluated. There are three categories of Items: 1. S-I: seismic, Q-listed, full QA; 2. seismic designed and supported; 3. non-seismic. The portion of pipe in question was seismically designed; however, without ASME



III certification. The systems interaction review for seismic II/I identified lines in category 2; however, these are not identified on P&IDs.

Action: This specific item is resolved. TERA will review the bases for the seismic/non-seismic interface considerations and classification as part of other topics within the IDCV program.

320I-008-C-001

Discussion: CPC indicated that independent valve line-up verification is accomplished after maintenance by a signoffs of the responsible maintenance personnel prior to return and by logging in the control room in accordance with the tech specs.

Action: The status of this issue is unchanged pending TERA's review of the tech spec language to verify clear specification of verification of line-up subsequent to maintenance.

320I-008-C-002

Discussion: CPC indicated that the Midland tech specs are consistent with the B&W Standard Tech Specs as applied to a 2 pump plant.

Action: The status of this issue is unchanged pending TERA's review of the tech spec language to verify clear specification of action requirements if both trains of AFW are inoperable.

320I-008-C-036

Discussion: Bechtel conceded that offset dimensions to the reactor building centerline may be off because these drawing dimensions are not always corrected as part of the Field Change Request process; however, these dimensions are not very important after the line is originally located. Bechtel stated that placement tolerance is plus or minus 2 inches in any direction.

Action: This issue will be considered for re-classification as a Finding. TERA will conduct further review to verify the frequency of drawing errors of this type and determine the impact.

**f** 320I-008-C-035

Discussion: Bechtel indicated that they had revised hanger iso H-639 sh. 14(Q), rev. 11 on May 26, 1983 reflecting the as-built dimensions and that the stress group had re-evaluated the line. TERA indicated that they had secured red lines from Bechtel (Zenovy) at the site. Bechtel and TERA were unable to reach full agreement on all dimensions.

Action: The status of the issue remains unchanged pending TERA's review of Bechtel's latest information which was unavailable to TERA. TERA will review the red-line and FCR process to verify that it was operable. TERA will continue a review and resolution of the field data collected in November 1982 against Bechtel information available then and now.

320I-008-C-032, -033, -031

Discussion: Bechtel discussed the FCR process and indicated that they had instituted a new program, the PSDIVP (Piping System Design and Installation Verification Program) which would apply to all Q piping and supports, superceding the red-line process. Specific agreement was not reached on the deviations noted on these Confirmed Items.

Action: The status of these items remains unchanged pending TERA's review of the chronology of various primary verification programs and a determination of a course of action necessary for TERA's verification that the process (new and/or old) is operable. A review of the appropriate process will be undertaken along with specific closeout of these Confirmed Items.

320I-008-C-045

Discussion: TERA indicated that C-045 should be revised reflecting a 30 day shaft rotation period rather than a 90 day period. TERA provided clarification that maintenance activities had taken place; however, Bechtel's procedures were in conflict with the manufacturer's recommendation.

Action: The status of the issue will remain unchanged pending the identification and review of any generic superceeding guidance that may justify a relaxation of requirements.

320I-008-C-046

Discussion: TERA provided details related to the Confirmed Item and clarification of the concern.

Action: The status of the issue will remain unchanged pending TERA's observation of the pump and turbine disassembly and inspection and review of results.

IDCV Meeting - 6/3/83

List of Attendees

<u>NAME</u>	<u>COMPANY</u>	<u>NAME</u>	<u>COMPANY</u>
J.A. Clements	Bechtel		
E.M. Hughes	Bechtel		
E.H. Smith	Bechtel		
D.F. Lewis	BECHTEL		
PATRICK CARCIN	BECHTEL		
D.D. SIMPSON	BECHTEL		
T.C. JOHNSON	BECHTEL		
S.L. Sobkowski	Bechtel		
S. RAO	BECHTEL		
R. TULLOCH	BECHTEL		
D.S. RIAT	Bechtel		
R.C. HOLLAR	Bechtel		
G. Borsteins	Bechtel		
Dennis Kree	BECHTEL		
MARK MAU	BECHTEL		
DONALD TULODIECKI	TERA		
FRANK LEVANDOSKI	BW		
Jim Agar	BEW		
Lionel Bates	TERA		
Robert C. Snyder	TERA		
MARTIN JONES	TERA		
F.A. Dougherty	TERA		
R.P. SNIDER	TERA		
H.A. LEVIN	TERA		
C. OTELE	CPL		
L. GIBSON	"		
J. KNIGHT	"		
T. BALLWELL	B		
W. NELSON	B		



## IDCV MEETING

Friday, June 3, 1983

Conference Room 5D5

Initial Discussion on Results of Review of AFWs

## AGENDA

- I. Summary review of status of IDCV for AFW system. TERA
- II. Review/discussion of confirmed items:

<u>No.</u>	<u>Subject</u>	<u>Responsible Party</u>		
		<u>Bechtel</u>	<u>B&amp;W</u>	<u>CPCo</u>
37	Seismic Design Criteria	Civil		
11	Control for FOGG	CS	X	
12	Power Supply - FOGG	CS/E		
25	Accident Analysis - FOGG	CS/M		
38	Power Supply - Min. Flow	M/E		
5	System Operating Limits	M	X	
17	Heat Removal Capability		X	
18	Heat Removal Capability		X	
20	Heat Removal Capability	M	X	
27	Power Level for AFW Anal.		X	
28	Min. Temp. for AFW Anal.	M	X	
10	Water Volume in AFW Pipes	M		
1	Technical Specifications	M		X
2	Technical Specifications	M		X
31	Physical Config. - Supports	PD/Const.		
32	Physical Config. - Supports	PD/Const.		
33	Physical Config. - Supports	PD/Const.		
34	Physical Config. - Supports	PD/Const.		
35	Physical Config. - Supports	PD/Const.		
36	Physical Config. - Pipes	PD/Const.		
45	Storage & Maintenance	Constr.		
46	Storage & Maintenance	Constr.		

- III. Establish plan, format and schedule for responding to the confirmed items.

B/CPCo/B&amp;W/TERA

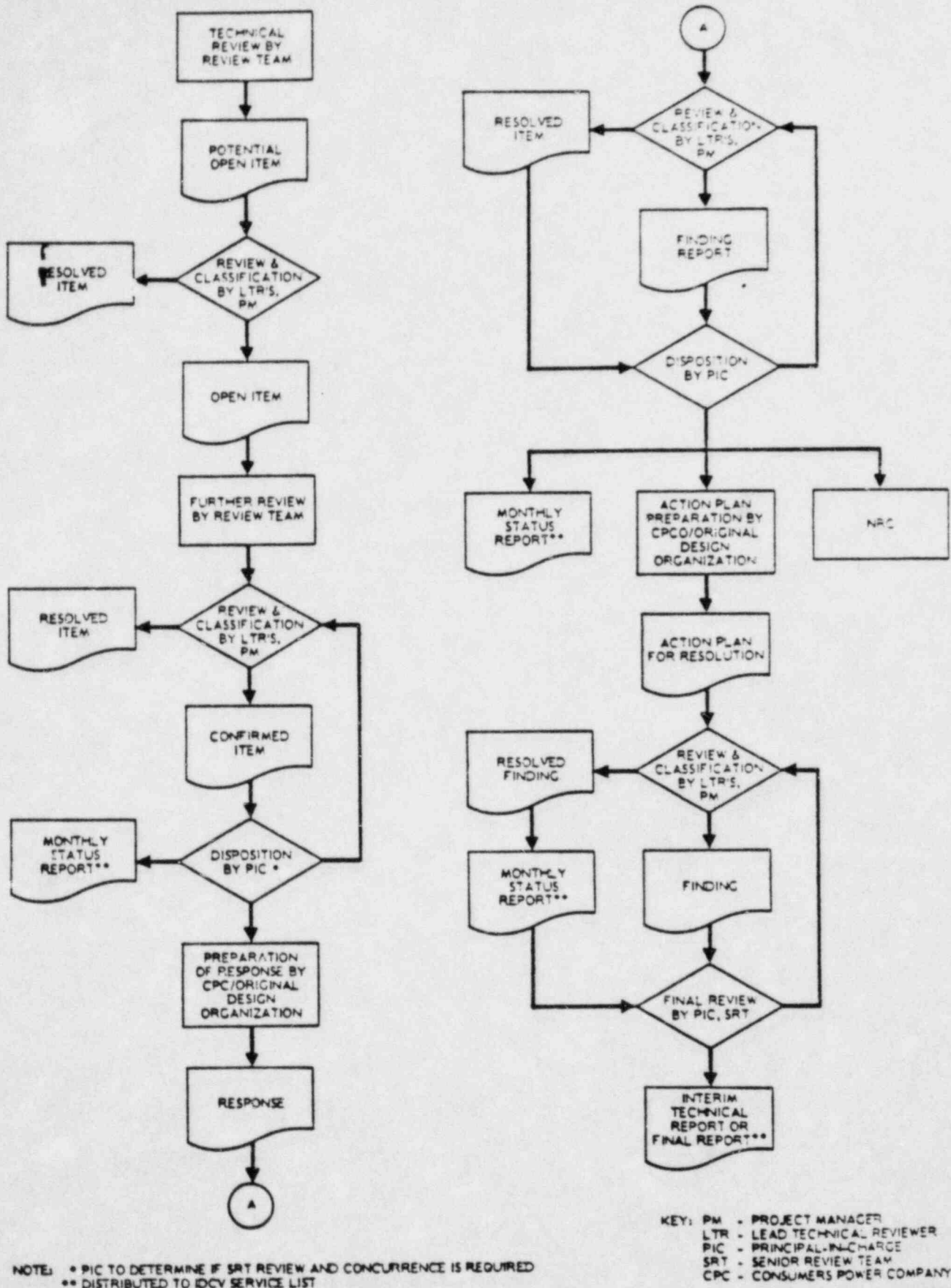


FIGURE 1  
 REPORT FLOW CHART  
 MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION  
 VERIFICATION PROGRAM

# ATTACHMENT 3

## OCR, FINDING REPORT, AND FINDING RESOLUTION REPORT TRACKING SYSTEM MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION PROGRAM

7/15/83

<u>OCR No.</u>	<u>Resp. LTR</u>	<u>Potential Open Item</u>	<u>Open Item</u>	<u>Confirmed Item</u>	<u>Resolved Item</u>	<u>Finding Report</u>	<u>Finding Resolution Report</u>	<u>Topic</u>	<u>Comments</u>
001	RPS	12/21/83	3/4/83	3/4/83	7/12/83			I.4-1 Tech Specs	*
002	RPS	12/21/83	3/4/83	3/4/83	7/12/83			I.4-1 Tech Specs	*
003	RPS	1/3/83	3/4/83		3/4/83			I.8-1 Overpressure Protection	
004	RPS	1/3/83	3/4/83		3/4/83			I.8-1 Overpressure Protection	
005	RPS	1/4/83	3/4/83	3/4/83				I.1-1 System Operating Limits	
006	RPS	1/12/83	3/4/83		3/4/83			I.2-1 Accident Analysis Considerations	
007	RPS	1/12/83	3/4/83		3/4/83			I.2-1 Accident Analysis Considerations	
008	LB	1/19/83	3/4/83		7/12/83			I.19-1 Control Systems	*
009	CS	1/20/83	3/4/83		3/4/83			II.1-1 Seismic Design	
010	FAD	1/20/83	3/4/83	4/14/83	7/12/83			I.10-1 Hydraulic Design	*
011	LB	1/27/83	3/4/83	3/4/83				I.19-1 Control Systems	
012	LB	2/7/83	3/4/83	3/4/83		7/12/83		I.15-1 Power Supplies	
013	RPS	2/8/83	3/4/83		7/12/83			I.5-1 Syst. Align./Switchover	*

\* Change in Status During Reporting Period

OCR, FINDING REPORT, AND FINDING RESOLUTION REPORT TRACKING SYSTEM  
MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION PROGRAM

(Continued)

<u>OCR No.</u>	<u>Resp. LTR</u>	<u>Potential Open Item</u>	<u>Open Item</u>	<u>Confirmed Item</u>	<u>Resolved Item</u>	<u>Finding Report</u>	<u>Finding Resolution Report</u>	<u>Topic</u>	<u>Comments</u>
014	RPS	2/8/83	3/4/83		7/12/83			I.5-I Syst. Align./Switchover	*
015	CS	2/10/83	3/4/83					III.I-I Seismic Design/Input to Equipment	
016	CS	2/10/83	3/4/83					III.5-I Civil/Stu Design Consid.	
017	FAD	2/17/83	3/4/83	3/4/83				I.II-I Heat Removal Cap	
								I.I0-I Hydraulic Design	
018	FAD	2/17/83	3/4/83	3/4/83				I.II-I Heat Removal Cap.	
019	LB	2/21/83	3/4/83					I.I8-I Instrumentation	
020	FAD	2/24/83	3/4/83	3/4/83				I.II-I Heat Removal Cap.	
								I.9-I Comp. Func. Req.	
021	FAD	2/24/83	3/4/83					II.I0-I Eq. Qual.	0-21, Rev. 1, 4/14/83
022	LB	2/24/83	3/4/83					I.I9-I Control Syst.	
023	LB	2/28/83	3/4/83					I.I8-I Instrumentation	
								I.I9-I Control	



OCR, FINDING REPORT, AND FINDING RESOLUTION REPORT TRACKING SYSTEM  
MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION PROGRAM

(Continued)

<u>OCR No.</u>	<u>Resp. LTR</u>	<u>Potential Open Item</u>	<u>Open Item</u>	<u>Confirmed Item</u>	<u>Resolved Item</u>	<u>Finding Report</u>	<u>Finding Resolution Report</u>	<u>Topic</u>	<u>Comments</u>
024	RPS	3/1/83	3/4/83					I.2-I Acc. Anal. Consid.	
025	RPS	3/1/83	3/4/83	3/4/83				I.2-I Acc. Anal. Consid.	
026	RPS	3/1/83	3/4/83					I.8-I Overpress. Prot.	
027	FAD	3/1/83	3/4/83	3/4/83				I.9-I Comp. Func. Req.	
								II.9-I Env. Eng.	
028	FAD	3/2/83	3/4/83	4/14/83				I.9-I Comp. Func. Req.	
029	LB	2/22/83	3/4/83		3/4/83			I.18-I Instrumentation	
								I.19-I Control System	
030	LB	1/19/83	3/4/83		3/4/83			I.19-I Control System	
031	CS	2/11/83	3/4/83	3/4/83				I.3-Ic Pipe Supports	C-31, Rev. 1, 7/12/83*
032	CS	2/11/83	3/4/83	3/4/83		7/12/83	7/12/83	I.3-Ic Pipe Supports	C-32, Rev. 1, 7/12/83*

OCR, FINDING REPORT, AND FINDING RESOLUTION REPORT TRACKING SYSTEM  
MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION PROGRAM

(Continued)

<u>OCR No.</u>	<u>Resp. LTR</u>	<u>Potential Open Item</u>	<u>Open Item</u>	<u>Confirmed Item</u>	<u>Resolved Item</u>	<u>Finding Report</u>	<u>Finding Resolution Report</u>	<u>Topic</u>	<u>Comments</u>
033	CS	2/11/83	3/4/83	3/4/83		7/12/83	7/12/83	I.3-Ic Pipe Supports	C-33, Rev. 1, 7/12/83*
034	CS	2/11/83	3/4/83	3/4/83		7/12/83	7/12/83	I.3-Ic Pipe Supports	C-34, Rev. 1, 7/12/83*
035	CS	2/11/83	3/4/83	3/4/83		7/12/83	7/12/83	I.3-Ic Pipe Supports	C-35, Rev. 2, 7/12/83*
036	CS	2/11/83	3/4/83	3/4/83		7/12/83		II.2-I Pressure Boundary	C-36, Rev. 2, 7/12/83*
037	CS	1/20/83	3/4/83	3/4/83				III.1-I Seismic Design/Input to Equipment	
038	LB	3/1/83	3/4/83	3/4/83				I.15-I Power Supplies	
039	LB	3/30/83	4/14/83					II.10-I Env. Eq. Qual.	
040	LB	3/8/83	4/14/83					I.16-I Elec. Characteristics	
041	LB	3/25/83	4/14/83					I.15-I Power Supplies	
042	LB	3/31/83	4/14/83					I.10-I Env. Eq. Qual.	
043	FAD	3/15/83	4/14/83					I.10-I System Hydraulic Design	
044	FAD	3/15/83	4/14/83					II.10-I Env. Eq. Qual.	
045	Tulo	3/17/83	4/14/83	5/25/83				II.1-IC Electrical Equipment/ Storage & Maintenance	C-45, Rev. 1, 7/12/83*
046	Tulo	3/17/83	4/14/83	5/25/83				I.1-IC Mechanical Equipment/ Storage & Maintenance	

ATTACHMENT 4

CURRENT PERIOD CONFIRMED AND RESOLVED  
ITEM REPORTS, FINDING REPORTS AND  
FINDING RESOLUTION REPORTS

**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION  
OPEN, CONFIRMED AND RESOLVED (OCR) ITEM REPORT**

TYPE OF REPORT: OPEN _____ CONFIRMED _____ RESOLVED <u>X</u> ITEM		FILE NO. <u>3201-008</u> DOC NO. <u>3201-008-R-001</u> REV. NO. <u>0</u>		
DATES REPORTED TO: LTR <u>7/12/83</u> SRT _____ PRINCIPAL-IN-CHARGE <u>7/12/83</u>		PROJECT TEAM/PROJECT MGR. <u>7/12/83</u> CPC/DESIGN ORG. _____		
STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED: AFW System operability and surveillance requirements in Technical Specifications				
IDCV PROGRAM AREA OR TASK (IF APPLICABLE): Topic 1.4-1, Technical Specifications				
DESCRIPTION OF CONCERN: A commitment made in response to NRC requests has not been incorporated into the Midland Technical Specifications. That commitment involved NUREG-0611, Appendix III, recommendation GS-6 regarding verification of proper AFW system valve lineup. It is not clear that the Technical Specifications do incorporate the means to assure dual valve lineup after maintenance. Also, the associated draft procedure does not incorporate a requirement for valve lineup verification (see OCR-014).				
SIGNIFICANCE OF CONCERN: Valve lineup after maintenance or testing may not be correct.				
RECOMMENDATION _____ OR RESOLUTION <u>X</u> : This item is resolved by classification as an Observation (B-001)				
COMMENTS BY SRT (IF REQUIRED):				
REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):				
SIGNATURE(S):				
RPS _____ OCR ITEM REPORT ORIGINATOR  <u>7/12/83</u> DATE	RPS _____ LTR  <u>7/12/83</u> DATE	HAL _____ PROJECT MANAGER FOR PROJECT TEAM  <u>7/12/83</u> DATE	JWB _____ PRINCIPAL- IN-CHARGE  <u>7/14/83</u> DATE	SRT (IF REQUIRED) _____ DATE



**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION  
OPEN, CONFIRMED AND RESOLVED (OCR) ITEM REPORT**

TYPE OF REPORT: OPEN \_\_\_\_\_ CONFIRMED \_\_\_\_\_  
Observation RESOLVED \_\_\_\_\_ ITEM \_\_\_\_\_

FILE NO. 3201-008  
DOC NO. 3201-008-B-001  
REV. NO. 0

DATES REPORTED TO: LTR 7/12/83 SRT \_\_\_\_\_ PROJECT TEAM/PROJECT MGR. 7/12/83  
PRINCIPAL-IN-CHARGE 7/12/83 CPC/DESIGN ORG. \_\_\_\_\_

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:

Procedures and Technical Specifications regarding AFW System valve alignment

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

Topic 1.4-1, Technical Specifications  
Topic 1.5-1, AFW System Alignment/Switchover

DESCRIPTION OF CONCERN:

I. Review of Technical Specifications has shown that there is no requirement expressly stated for a second valve lineup check after AFW system maintenance, contrary to a commitment made in FSAR App. 10A.3 in response to recommendation GS-6 of NUREG-0611, App. III. II. Review of draft procedure OPS Surv 3395.1 (Unit 2), dated January 14, 1982, has also raised questions regarding valve alignment after maintenance and/or testing. Although each valve lineup enclosure includes "position required", it then calls for logging the "original position" & signing for "returned to original position", thus potentially resulting in assumptions that ori-

SIGNIFICANCE OF CONCERN: ginal positions are correct. Also there is no requirement that the plant/shift supervisor review the valve lineup sheets to assure AFW system readiness.

Potential misalignment of AFW system valves after maintenance and/or testing.

RECOMMENDATION \_\_\_\_\_ OR RESOLUTION X \_\_\_\_\_:

This observation is a combination of related items: confirmed item 001 and open item 014. It is recommended that the procedure be reviewed to remove any ambiguity and that the Technical Specifications specifically incorporate the requirement for a second valve alignment check after either maintenance or testing.

COMMENTS BY SRT (IF REQUIRED):

REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):

SIGNATURE(S):

RPS	RPS	HAL	JB	
OCR ITEM REPORT	LTR	PROJECT MANAGER	PRINCIPAL-	SRT (IF REQUIRED)
ORIGINATOR		FOR PROJECT TEAM	IN-CHARGE	
<u>7/12/83</u>	<u>7/12/83</u>	<u>7/12/83</u>	<u>7/14/83</u>	
DATE	DATE	DATE	DATE	DATE

10A.3 COMPARISON OF THE MIDLAND AUXILIARY FEEDWATER SYSTEM DESIGN WITH THE RECOMMENDATION OF NUREG-0611, APPENDIX III (continued)

Recommendation	Response
(1) Procedures should be implemented to require an operator to determine that the AFW system valves are properly aligned and a second operator to independently verify that the valves are properly aligned.	Maintenance and technical specification surveillance test procedures require that valves be returned to their original position after the completion of maintenance or surveillance testing. In addition, Subsection 16.4.7.1.2.A.3 requires a valve lineup verification following maintenance or testing of the AFW system. The combination of these verifications constitutes two, independent valve lineup checks.
(2) The licensee should propose Technical Specifications to assure that, prior to plant startup following an extended cold shutdown, a flow test would be performed to verify the normal flow path from the primary AFW system water source to the steam generators. The flow test should be conducted with AFW system valves in their normal alignment.	Subsection 16.3/4.7.1.2 requires a flowpath test every 18 months or after an extended cold shutdown. Extended cold shutdown is defined as a cold shutdown of 30 days or longer. The technical specification also specifies the flowpath as: motor driven pump with suction lined up to the condensate storage tank and discharging to both steam generators through the auxiliary feed nozzles.

16.4.7.1.2 Each auxiliary feedwater system shall be demonstrated OPERABLE:

- a. At least once per 31 days on a STAGGERED TEST BASIS by:
  1. Verifying that the steam turbine driven pump develops a discharge pressure of  $\geq 1,160$  psig above suction pressure at a flow of  $\geq 850$  gpm when the secondary steam supply pressure is greater than 885 psig when tested as required by the specification in Subsection 16.4.0.5.
  2. Verifying that the motor driven pump develops a discharge pressure of  $\leq$  (by amendment) psig at a flow of  $\geq$  (by amendment) gpm when tested as required by the specification in Subsection 16.4.0.5.
  3. Verifying that each valve (manual, power operated, or automatic) in the flowpath that is not locked, sealed or otherwise secured in position, is in its correct position.
  4. Entry into Mode 3 is allowed for the purpose of performing the surveillance testing requirement in Subsection 16.4.7.1.2.a.1.

**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION  
OPEN, CONFIRMED AND RESOLVED (OCR) ITEM REPORT**

TYPE OF REPORT: OPEN \_\_\_\_\_ CONFIRMED \_\_\_\_\_  
RESOLVED X ITEM \_\_\_\_\_

FILE NO. 3201-008  
DOC NO. 3201-008-R-002  
REV. NO. 0

DATES REPORTED TO: LTR 7/6/83 SRT \_\_\_\_\_ PROJECT TEAM/PROJECT MGR. 7/12/83  
PRINCIPAL-IN-CHARGE 7/12/83 CPC/DESIGN ORG. \_\_\_\_\_

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:  
AFW System Operability and Surveillance Requirements in Technical Specifications

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):  
Topic 1.4-1, Technical Specifications

**DESCRIPTION OF CONCERN:**

Midland Technical Specifications do not meet NRC B&W Standard Technical Specifications in that:

An action statement is needed to require immediate action if both AFW systems are inoperable.

**SIGNIFICANCE OF CONCERN:**

Lack of action statement may result in inadequate plant protection.

RECOMMENDATION \_\_\_\_\_ OR RESOLUTION X \_\_\_\_\_: The concern was that the T.S. lack a specific statement delineating action to be taken in the event both AFW trains are out of commission; the T.S. do require action within an allotted time period if one train is inoperable. CPCo contends, and we concur, that the addition of a statement similar to that contained in the NRC's standard Technical Specifications ("...immediately initiate corrective action to restore at least one auxiliary feedwater pump to operable status as soon as possible") adds no real substance to the Technical Specifications and is therefore unnecessary. This issue is resolved.

**COMMENTS BY SRT (IF REQUIRED):**

**REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):**

**SIGNATURE(S):**

RPS  
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OCR ITEM REPORT  
ORIGINATOR  
7/6/83  
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DATE

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SRT (IF REQUIRED)  
\_\_\_\_\_  
DATE

PLANT SYSTEMS

AUXILIARY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

---

16.3.7.1.2 Two independent steam generator auxiliary feedwater pumps and associated flowpaths shall be OPERABLE with: | 33

- a. One auxiliary feedwater pump capable of being powered from an OPERABLE emergency bus.
- b. One auxiliary feedwater pump capable of being powered from an OPERABLE steam supply system.
- c. Operation of the steam driven auxiliary feedwater pump for MODES 1, 2, 3, and 4, except for surveillance and testing requirements and when actuated by station emergency conditions, is prohibited unless the electric driven feedwater pump is inoperable.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With one auxiliary feedwater system inoperable, restore the inoperable system to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

---

16.4.7.1.2 Each auxiliary feedwater system shall be demonstrated OPERABLE: | 33

- a. At least once per 31 days on a STAGGERED TEST BASIS by:
  1. Verifying that the steam turbine driven pump develops a discharge pressure of  $\geq 1,160$  psig above suction pressure at a flow of  $\geq 850$  gpm when the secondary steam supply pressure is greater than 885 psig when tested as required by the specification in Subsection 16.4.0.5.

| 33

## PLANT SYSTEMS

### AUXILIARY FEEDWATER SYSTEM

#### LIMITING CONDITION FOR OPERATION

---

3.7.1.2 At least three independent steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE with:

- a. Two motor-driven auxiliary feedwater pumps, each capable of being powered from separate emergency busses, and
- b. One steam turbine-driven auxiliary feedwater pump capable of being powered from an OPERABLE steam supply system.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTION:

- a. With one auxiliary feedwater pump inoperable, restore the required auxiliary feedwater pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With two auxiliary feedwater pumps inoperable, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With three auxiliary feedwater pumps inoperable, immediately initiate corrective action to restore at least one auxiliary feedwater pump to OPERABLE status as soon as possible.

#### SURVEILLANCE REQUIREMENTS

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4.7.1.2 Each auxiliary feedwater system shall be demonstrated OPERABLE:

- a. At least once per 31 days by:
  1. Verifying that each motor-driven pump develops a discharge pressure of greater than or equal to \_\_\_\_ psig at a flow of greater than or equal to \_\_\_\_ gpm.
  2. Verifying that the steam turbine-driven pump develops a discharge pressure of greater than or equal to \_\_\_\_ psig at a flow of greater than or equal to \_\_\_\_ gpm when the secondary steam supply pressure is greater than \_\_\_\_ psig. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3.



**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION  
OPEN, CONFIRMED AND RESOLVED (OCR) ITEM REPORT**

TYPE OF REPORT: OPEN \_\_\_\_\_ CONFIRMED \_\_\_\_\_  
RESOLVED X ITEM \_\_\_\_\_

FILE NO. 3201-008  
DOC NO. 3201-008-R-010  
REV. NO. \_\_\_\_\_

DATES REPORTED TO: LTR 7/5/83 SRT \_\_\_\_\_  
PRINCIPAL-IN-CHARGE 7/12/83

PROJECT TEAM/PROJECT MGR. 7/12/83  
CPC/DESIGN ORG. \_\_\_\_\_

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:

AFW - Piping and valves

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

Hydraulic design (I.10-1)

**DESCRIPTION OF CONCERN:**

The original open item was concerned with the volume of water available after a seismic event. Bechtel had taken credit for piping not designated as Section III and not designated as Seismic Cat I as being capable of retaining a minimum volume of water after an SSE.

**SIGNIFICANCE OF CONCERN:**

Failure of the section of pipe shown on the P&ID (M 439) as being non-Cat I would result in damage to the AFW pumps and prevention of the achievement of their safety function.

RECOMMENDATION \_\_\_\_\_ OR RESOLUTION X \_\_\_\_\_:

Although not designated as seismic on the P&ID, a review of Bechtel calculations showed that the piping in question was analyzed for seismic events.

COMMENTS BY SRT (IF REQUIRED):

**REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):**

- (1) See OCR 3201-008-C-010
- (2) P&ID M439 Sheets 3A (Rev 9) and 3B (Rev 10)

- (3) Bechtel Calculation  
SC-2-634-3(Q)H

SIGNATURE(S)

OCR ITEM REPORT  
ORIGINATOR

6/30/83

DATE

LTR

6/30/83

DATE

PROJECT MANAGER  
FOR PROJECT TEAM

7/12/83

DATE

JB

PRINCIPAL-  
IN-CHARGE

7/14/83

DATE

SRT (IF REQUIRED)

DATE

**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION  
FINDING REPORT**

CLASS: SAFETY X NON-SAFETY \_\_\_\_\_

FILE NO. 3201-008  
DOC NO. 3201-008-F-012  
REV. NO. \_\_\_\_\_

DATES REPORTED TO: PROJECT TEAM/PROJECT MGR. 6/30/83 PRINCIPAL-IN-CHARGE 7/12/83  
SRT 7/12/83 CPC/DESIGN ORG. \_\_\_\_\_

**STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:**

Steam isolation valves 2 MO-3277A and B and FOGG Relays  
3x-1, 3x-2, 3x-4, 3x-5

**DESCRIPTION OF FINDING:**

The FOGG relays 3x-1, 3x-2, 3x-4 and 3x-5 located in panel 2C14 are powered from 120 VAC power (not preferred power). During a station blackout (loss of all ac) these relays would deenergize causing the steam isolation valves 2MO-3277A and B to close. This would result in the inability of the turbine driven AFW pump to function.

**SIGNIFICANCE OF FINDING:**

The loss of power to the FOGG relays during a station blackout prohibits the AFW system from providing feedwater flow until ac power is restored. The AFW system does not meet the design requirement to be operable for two (2) hours under station blackout conditions.

**RECOMMENDATION:**

Corrective action be taken to power the FOGG relays from preferred power.

**COMMENTS BY SRT (IF REQUIRED):**

**REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):**

OCR 3201-008-C-012; Schematic Diagrams E-158 SH 24,25,41,42  
Midland FSAR Section 10.4.9.1.1.

**SIGNATURE(S):**

*L. Braker*  
FINDING REPORT  
ORIGINATOR (LTR)

6/29/83

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*[Signature]*  
PROJECT MANAGER  
FOR PROJECT TEAM

7/5/83

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PRINCIPAL-IN-CHARGE

7/14/83

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SRT (IF REQUIRED)

7/14/83

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# MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION OPEN, CONFIRMED AND RESOLVED (OCR) ITEM REPORT

TYPE OF REPORT: OPEN \_\_\_\_\_ CONFIRMED X  
RESOLVED \_\_\_\_\_ ITEM \_\_\_\_\_

FILE NO. 3201-008  
DOC NO. 3201-008-C-031  
REV. NO. 1

DATES REPORTED TO: LTR 6/27/83 SRT \_\_\_\_\_  
PRINCIPAL-IN-CHARGE 7/12/83

PROJECT TEAM/PROJECT MGR. 6/27/83  
CPC/DESIGN ORG. \_\_\_\_\_

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:

AFW System Pipe Supports

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

Topic 1.3.1c - Pipe Supports  
Verification of Physical Configuration

DESCRIPTION OF CONCERN:

Refer to OCR's C-32 thru 36, same program area as above, for description of concerns related to inconsistencies in dimensions and orientation noted during the field verification of AFW system piping, pipe supports and hangers. The five OCR's, when taken as a group, establish a trend potentially affecting the design finalization progress - i.e., that process used to ensure that changes to the original design, warranted by construction/installation activities, are accurately and consistently incorporated into the original design documents.

SIGNIFICANCE OF CONCERN:

Changes to design caused by construction/installation activities may not be accurately and consistently factored into the original design resulting in situations whereby the as-installed condition may not be analyzed nor evaluated to determine that original design criteria are satisfied by the as-installed configuration.

RECOMMENDATION X OR RESOLUTION \_\_\_\_\_:

ICV reviewers have initiated a review of the processes used to control field modifications to piping and pipe hanger drawings. It is recommended that this review continue in order to confirm that the existing processes used to control field changes to piping and pipe hanger and support drawings are effective in ensuring that original design documentation accurately and consistently reflects the as-installed configuration.

COMMENTS BY SRT (IF REQUIRED):

REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):

Dwg. 7220-H-639, Sh. 14(Q), Rev. 11  
Spec. 7220-M-326(Q), Rev. 8 "Installation, Inspect. & Doc. of Pipe Supports)"

SIGNATURE(S):

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6/30/83  
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SRT (IF REQUIRED)  
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# MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION OPEN, CONFIRMED AND RESOLVED (OCR) ITEM REPORT

TYPE OF REPORT: OPEN \_\_\_\_\_ CONFIRMED X \_\_\_\_\_  
RESOLVED \_\_\_\_\_ ITEM \_\_\_\_\_

FILE NO. 3201-008  
DOC NO. 3201-008-C\_032  
REV. NO. 1

DATES REPORTED TO: LTR 5/27/83 SRT \_\_\_\_\_  
PRINCIPAL-IN-CHARGE 7/12/83

PROJECT TEAM/PROJECT MGR. 6/27/83  
CPC/DESIGN ORG. \_\_\_\_\_

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:

AFW System Pipe Supports

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

Topic 1.3-1c- Pipe Supports  
Verification of Physical Configuration

DESCRIPTION OF CONCERN:

- Hanger H-10, a horizontal snubber, is properly installed in accordance with the red-lined detail hanger drawing. Changes indicated on the drawings were approved by the site resident engineer.
- Hanger location for hanger H-10 was field measured to be approximately 3' from its design location (along the direction of the pipe axis) as shown on the piping isometric drawing.

SIGNIFICANCE OF CONCERN:

- Changes to design caused by construction/installation activities may not necessarily be fed back into the design finalization process in an accurate and consistent manner.
- Since the piping isometric drawing is used as input to the piping stress analysis, the piping analysis for this portion of the system may be adversely affected leading to higher support loads and piping stresses than calculated.

RECOMMENDATION X OR RESOLUTION \_\_\_\_\_:

- Confirm that as-installed dimensions are indicated on the piping isometric drawing - the document controlling input to the piping stress analysis.
- Review existing processes and procedures utilized to ensure that field changes are consistently and accurately reflected in design documentation.

COMMENTS BY SRT (IF REQUIRED):

REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):

Dwg. 7220-H-639, Sh. 14 (Q), Rev. 11, attached redline for H-10  
Spec. 7220-M-326, Rev. 8 "Installation, Inspect. & Doc. of Pipe Supports"

SIGNATURE(S):

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OCR ITEM REPORT  
ORIGINATOR  
6/30/83  
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7/12/83  
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7/14/83  
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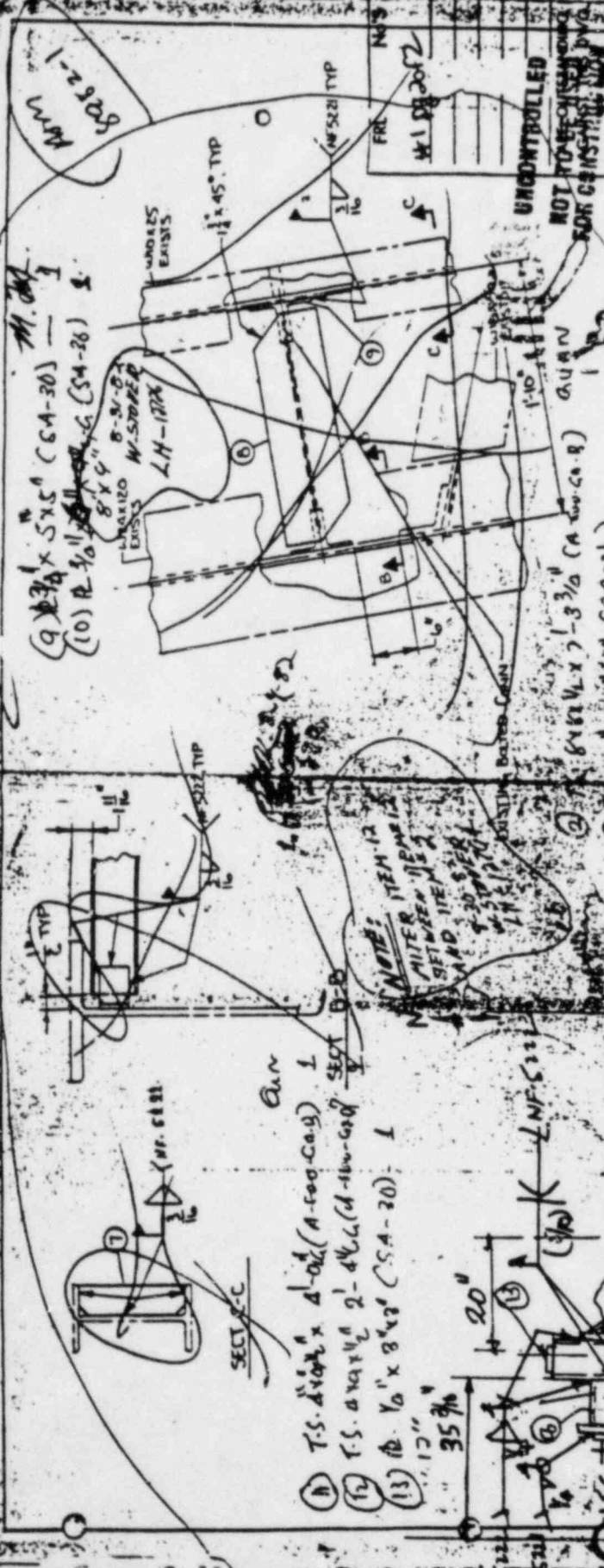
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DATE







# CRITICAL



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THIRD PARTY INSPECTION <input type="checkbox"/>	JOB NO.
CODE CLASS: ASME III CL 2	
REF. DRAWING NUMBERS	7220
PIPE: M-25(1)R-4	
ELECT: —	
STEEL: C-51 R-15	

CUSTOMER: Consumers Power Co.

ORDER OR CONT. NO. 7220-NE USG AC	JOB NAME MIDLAND 16.2-HGR-MATL
MARK NO. 6-2E8B-6-HIO	NO. 2-659-1A-10(8)
SHEET 2 OF 2	

**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION  
FINDING REPORT**

CLASS: SAFETY X NON-SAFETY \_\_\_\_\_

FILE NO. 3201-008  
DOC NO. 3201-008F-032  
REV. NO. 0

DATES REPORTED TO: PROJECT TEAM/PROJECT MGR. 7/1/83 PRINCIPAL-IN-CHARGE 7/12/83  
SRT 7/12/83 CPC/DESIGN ORG. \_\_\_\_\_

STRUCTURE(S), SYSTEMS(S), OR COMPONENT(S) INVOLVED:

AFW System Pipe Supports

DESCRIPTION OF FINDING:

Hanger location for hanger H-10 was field measured to be approximately 3' from its design location (along the direction of the pipe axis) as shown on the piping isometric drawing.

SIGNIFICANCE OF FINDING:

Since the piping isometric drawing is used as input to the piping stress analysis, the piping analysis for this portion of the system may be adversely affected leading to higher support loads and piping stresses than calculated.

RECOMMENDATION:

Pursue resolution of finding with cognizant Bechtel engineering personnel and ensure that processes are in place which would ensure that field modifications to the design are accurately and consistently reflected in the design documentation.

COMMENTS BY SRT (IF REQUIRED):

REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):

Dwg. 7220-H-639, Sh. 14(Q), Rev. 13, & Rev. 14 - OCR 3201-008-C-032  
Spec. 7220-M-326, Rev. 8 "Installation, Inspection & Doc. of Pipe Supports"

SIGNATURE(S):

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ORIGINATOR (LTR)  
7/1/83  
DATE

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PROJECT MANAGER  
FOR PROJECT TEAM  
7/12/83  
DATE

JB  
PRINCIPAL-IN-CHARGE  
7/14/83  
DATE

DKD  
SRT (IF REQUIRED)  
7/14/83  
DATE

# MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION FINDING RESOLUTION REPORT

CLASS: SAFETY   X   NON-SAFETY           

FILE NO. 3201-008  
DOC NO. 3201-008-Z -032  
REV. NO. 0

DATES REPORTED TO: PROJECT TEAM/PROJECT MGR. 7/1/83 PRINCIPAL-IN-CHARGE 7/12/83  
SRT 7/12/83 CPC/DESIGN ORG.           

STRUCTURE(S), SYSTEMS(S), OR COMPONENT(S) INVOLVED:

AFW System Pipe Supports

DESCRIPTION OF FINDING (OR REFERENCE DOC. NO. OF FINDING REPORT):

Hanger location for Hanger H-10 was field measured to be approximately 3' from its design location (along the direction of the pipe axis) as shown on the piping isometric drawing.

DESCRIPTION OF RESOLUTION:

The dimensions appearing on the piping isometric drawing utilized to locate pipe hanger H-10 have been changed to reflect the as-measured and as-installed location. Since the piping isometric drawing is being revised to accurately locate hanger H-10, the piping stress analysis will be revised to analyze the as-installed location for hanger H-10. TERA will review the revised piping isometric drawing and piping stress analysis. (The piping isometric drawing is the controlling design document for input to the piping stress analysis). Procedures and processes have been revised and implemented which are designed to ensure that field-generated modifications to hanger locations are compared against the piping isometric drawing.

RESOLUTION BASED UPON FOLLOWING DOCUMENTATION:

Marked-up Dwg. 7220-H-639,  
Sh. 14 (Q), Rev. 14

Bechtel Procedure FPD-2.000, FCR/FCN Procedure, has been implemented as the procedures controlling the revisions to detail hanger dwgs., replacing the previously used red-line procedure. The above actions, when coupled with the CCP & PSDIV programs, indicate that CPCo & Bechtel have implemented significant program modifications to control & verify field-generated changes to design documentation.

COMMENTS BY SRT (IF REQUIRED):

TERA continues to evaluate the implementation and outputs of these programs (refer to "Recommendation" section of OCR-C031) as they specifically relate to piping systems within the IDCV systems sample selection boundaries.

SIGNATURE(S):

DT

FINDING RESOLUTION  
REPORT ORIGIN. (LTR)

7/1/83

DATE

HAL

PROJECT MANAGER  
FOR PROJECT TEAM

7/12/83

DATE

JB

PRINCIPAL-IN-CHARGE

7/14/83

DATE

DKD

SRT (IF REQUIRED)

7/14/83

DATE

**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION  
OPEN, CONFIRMED AND RESOLVED (OCR) ITEM REPORT**

TYPE OF REPORT: OPEN \_\_\_\_\_ CONFIRMED   X    
RESOLVED \_\_\_\_\_ ITEM \_\_\_\_\_

FILE NO. 3201-008  
DOC NO. 3201-008-C-033  
REV. NO. 1

DATES REPORTED TO: LTR 7/12/83 SRT \_\_\_\_\_ PROJECT TEAM/PROJECT MGR. 7/12/83  
PRINCIPAL-IN-CHARGE 7/12/83 CPC/DESIGN ORG. \_\_\_\_\_

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:  
AFW System Pipe Supports

**IDCV PROGRAM AREA OR TASK (IF APPLICABLE):**

Topic 1.3-1c Pipe Supports  
Verification of Physical Configuration

**DESCRIPTION OF CONCERN:**

- Hanger H-7, a vertical and horizontal restraint type hanger is not installed per redline dwg. nor per hanger isometric.
- E/W - redline dim. 24-5½" west of centerline, H-639 Sh. 14 calc'd dim. 31'-0", measured 28'-10 19/32"
- N/S - redline dim. 37'-8 15/16 south of centerline, H-639, Sh. 14 calc'd dim. 38' - 1 1/8", measured 40' - 2 17/32"

**SIGNIFICANCE OF CONCERN:**

- Change to design caused by construction/installation activities may not necessarily be fed back into design finalization process in an accurate and consistent manner.
- Updating the isometric with erroneous redline data for stress analysis may lead to higher support loads and piping stress than calculated.

**RECOMMENDATION   X   OR RESOLUTION \_\_\_\_\_:**

- Confirm that as-installed dimensions are indicated on the pipe isometric dwgs. - the document controlling input to the pipe stress analysis.
- Review existing processes and procedures utilized to ensure that field changes are consistently and accurately reflected in design documentation. Quality review against ECR, ECN, redline or other change documentation prior to incorporation may help.

**COMMENTS BY SRT (IF REQUIRED):**

**REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):**

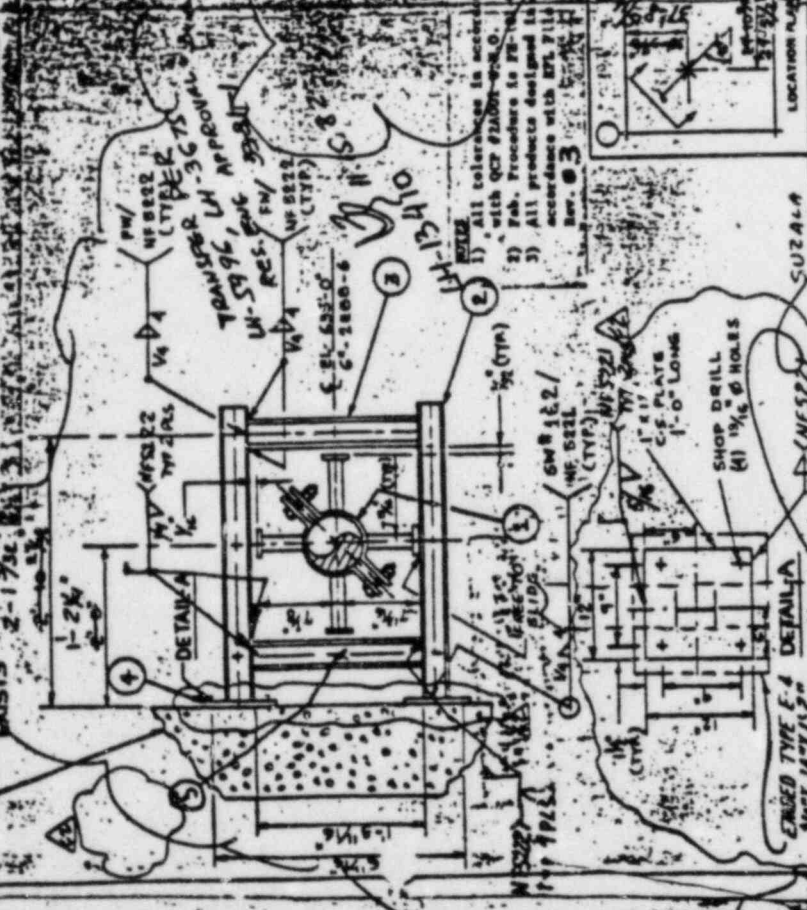
Dwg. 7220-H-639, Sh. 14(Q), Rev. 11, Rev. 13 & Rev. 14 & attached redline for H-7  
Spec. 7220-M-326, Rev. B installation inspection & doc. of pipe supports

**SIGNATURE(S):**

RCS	DT	HAL	JB	
OCR ITEM REPORT ORIGINATOR	LTR	PROJECT MANAGER FOR PROJECT TEAM	PRINCIPAL- IN-CHARGE	SRT (IF REQUIRED)
<u>7/11/83</u>	<u>7/12/83</u>	<u>7/12/83</u>	<u>7/14/83</u>	_____
DATE	DATE	DATE	DATE	DATE



ITEM NO.	DESCRIPTION	QUANTITY	UNIT
1	5 THRU 10"	1-0111-11/271	I-56-1502NF
2	1-01-1-11	1-01-1-11	I-56-1750M2
3	WELD PROCEDURE		



ITEM NO.	DESCRIPTION	QUANTITY	UNIT
1	5 THRU 10"	1-0111-11/271	I-56-1502NF
2	1-01-1-11	1-01-1-11	I-56-1750M2
3	WELD PROCEDURE		

MATERIALS LIST		ITEM NO.		DESCRIPTION		QUANTITY		UNIT	
1	5 THRU 10"	1-0111-11/271	I-56-1502NF	5	THRU 10"	1-0111-11/271	I-56-1502NF		
2	1-01-1-11	1-01-1-11	I-56-1750M2	2	1-01-1-11	1-01-1-11	I-56-1750M2		
3	WELD PROCEDURE			3	WELD PROCEDURE				

SPECIFICATIONS		ITEM NO.		DESCRIPTION		QUANTITY		UNIT	
1	5 THRU 10"	1-0111-11/271	I-56-1502NF	5	THRU 10"	1-0111-11/271	I-56-1502NF		
2	1-01-1-11	1-01-1-11	I-56-1750M2	2	1-01-1-11	1-01-1-11	I-56-1750M2		
3	WELD PROCEDURE			3	WELD PROCEDURE				

MATERIALS LIST		ITEM NO.		DESCRIPTION		QUANTITY		UNIT	
1	5 THRU 10"	1-0111-11/271	I-56-1502NF	5	THRU 10"	1-0111-11/271	I-56-1502NF		
2	1-01-1-11	1-01-1-11	I-56-1750M2	2	1-01-1-11	1-01-1-11	I-56-1750M2		
3	WELD PROCEDURE			3	WELD PROCEDURE				

**WORK PRINT**

**CRITICAL**

JOB NO. 7220

REF. DRAWING NUMBERS

REF. DRAWING NO. 1-56-1502NF

REF. DRAWING NO. 1-56-1750M2

REF. DRAWING NO. 1-56-1750M2

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
1	5 THRU 10"	1-0111-11/271	I-56-1502NF
2	1-01-1-11	1-01-1-11	I-56-1750M2
3	WELD PROCEDURE		

47 "B" SYSTEM

4-7



**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION  
FINDING REPORT**

CLASS: SAFETY   X   NON-SAFETY           

FILE NO. 3201-008  
DOC NO. 3201-008- F- 033  
REV. NO.           

DATES REPORTED TO: PROJECT TEAM/PROJECT MGR. 7/1/83 PRINCIPAL-IN-CHARGE 7/12/83  
SRT 7/12/83 CPC/DESIGN ORG.           

STRUCTURE(S), SYSTEMS(S), OR COMPONENT(S) INVOLVED:

AFW System Pipe Supports

DESCRIPTION OF FINDING:

Hanger 7 location field measured to be 2' to 3' from redline dimensions.

SIGNIFICANCE OF FINDING:

Incorporation of redline data did not match field condidions stress analysis of erroneous data will not establish loading conditions representative of "as built" conditions.

RECOMMENDATION:

Pursue resolution of finding with cognizant Bechtel engineering personnel and insure that processes are in place which would ensure that field modifications to design are accurately and consistently reflected in design documentation.

COMMENTS BY SRT (IF REQUIRED):

REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):

Dwg. 7220-H-639-Sh. 14 (Q), Rev. 11, 13 & 14 - attached redline M-2-639-14(Q)7, Sh. 9 of 45  
Spec. 7220-M-326, Rev. 8 Installation, inspection & doc. of pipe supports

SIGNATURE(S):

DT  
FINDING REPORT  
ORIGINATOR (LTR)  
7/1/83  
DATE

HAL  
PROJECT MANAGER  
FOR PROJECT TEAM  
7/12/83  
DATE

JB  
PRINCIPAL-IN-CHARGE  
7/14/83  
DATE

DKD  
SRT (IF REQUIRED)  
7/14/83  
DATE

**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION  
FINDING RESOLUTION REPORT**

CLASS: SAFETY X NON-SAFETY \_\_\_\_\_

FILE NO. 3201-008  
DOC NO. 3201-008-Z-033  
REV. NO. 0

DATES REPORTED TO: PROJECT TEAM/PROJECT MGR. 7/1/83 PRINCIPAL-IN-CHARGE 7/12/83  
SRT 7/12/83 CPC/DESIGN ORG. \_\_\_\_\_

STRUCTURE(S), SYSTEMS(S), OR COMPONENT(S) INVOLVED:  
AFW System Pipe Support

DESCRIPTION OF FINDING (OR REFERENCE DOC. NO. OF FINDING REPORT):

Hanger 7 location field measured to be 2' to 3' from redline dimensions.

DESCRIPTION OF RESOLUTION:

Bechtel personnel have become aware of the dimensional errors and are in the process of revising H-639, Sh. 14 hanger isometric and related stress analysis to conform to "as built" conditions.

RESOLUTION BASED UPON FOLLOWING DOCUMENTATION:

Discontinued use of redline procedure, replacement with FCR/FCN procedures and implementation of the CCP and PSDIV programs.

TERA continues to evaluate the implementation and outputs of these programs (refer to "recommendations" of OCR C-031) as they specifically relate to piping systems within the IDCV system sample selection boundaries.

COMMENTS BY SRT (IF REQUIRED):

SIGNATURE(S):

DT  
FINDING RESOLUTION  
REPORT ORIGIN. (LTR)  
7/1/83  
DATE

HAL  
PROJECT MANAGER  
FOR PROJECT TEAM  
7/12/83  
DATE

JB  
PRINCIPAL-IN-CHARGE  
7/14/83  
DATE

DKD  
SRT (IF REQUIRED)  
7/14/83  
DATE

# MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION OPEN, CONFIRMED AND RESOLVED (OCR) ITEM REPORT

TYPE OF REPORT: OPEN \_\_\_\_\_ CONFIRMED X  
RESOLVED \_\_\_\_\_ ITEM

FILE NO. 3201-008  
DOC NO. 3201-008-C-034  
REV. NO. 1

DATES REPORTED TO: LTR 6/30/83 SRT \_\_\_\_\_ PROJECT TEAM/PROJECT MGR. 6/30/83  
PRINCIPAL-IN-CHARGE 7/12/83 CPC/DESIGN ORG. \_\_\_\_\_

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:  
AFW System Pipe Supports

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):  
Topic 1.3-1 - Pipe Supports  
Verification of Physical Configuration

**DESCRIPTION OF CONCERN:**

- Red-lined detail hanger drawing shows hanger H-4 on opposite side of 90° elbow than the actual, as-installed location. Red-lined hanger drawing depicts hanger installation on the N-S run of pipe; actual installation is on the E-W run of pipe.
- Piping isometric drawing shows hanger H-4 on opposite side of 90° elbow than the actual, as-installed location.
- Dimensionally the red-lined detail hanger drawing is correct - i.e., dimensions

SIGNIFICANCE OF CONCERN: for locating hanger H-4 are correct but the orientation of the hanger relative to E-W and N-S is incorrect.

- Changes to design caused by construction/installation activities may not necessarily be fed back into the design finalization process in an accurate and consistent manner.
- Since the piping isometric drawing is used as input to the piping stress analysis, the piping stress analysis for this portion of the system may be adversely affected

RECOMMENDATION X OR RESOLUTION \_\_\_\_\_:

leading to higher support loads & piping stresses than calculated.

- Confirm with cognizant Bechtel engineers that the as-installed configuration of Hanger H-4 is incorporated into the detail hanger drawing and the piping isometric drawing.
- Review existing processes and procedures utilized to ensure that the as-installed configuration is consistently and accurately reflected in design documentation.

COMMENTS BY SRT (IF REQUIRED):

**REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):**

Dwg. 7220-H-639, Sh. 14 (Q) Rev. 11, attached redline for H-4  
Spec. 7220-M-326(Q), Rev. 8 "Installation, Inspect. & Doc. of Pipe Supports"

**SIGNATURE(S):**

DT  
OCR ITEM REPORT  
ORIGINATOR  
6/30/83  
DATE

DT  
LTR  
6/30/83  
DATE

HL  
PROJECT MANAGER  
FOR PROJECT TEAM  
7/12/83  
DATE

JB  
PRINCIPAL-  
IN-CHARGE  
7/14/83  
DATE

SRT (IF REQUIRED)  
\_\_\_\_\_  
DATE





**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION  
FINDING REPORT**

CLASS: SAFETY   X   NON-SAFETY           

FILE NO. 3201-008  
DOC NO. 3201-008F - 034  
REV. NO.           

DATES REPORTED TO: PROJECT TEAM/PROJECT MGR. 7/1/83 PRINCIPAL-IN-CHARGE 7/12/83  
SRT            CPC/DESIGN ORG.           

STRUCTURE(S), SYSTEMS(S), OR COMPONENT(S) INVOLVED:

AFW System Pipe Supports

**DESCRIPTION OF FINDING:**

Detail hanger drawing and piping isometric drawing show hanger H-4 on opposite side of 90° elbow than the actual, as-installed location. The drawings depict hanger installation on the N-S run of pipe-actual installation is on the E-W run of pipe.

**SIGNIFICANCE OF FINDING:**

Since the piping isometric drawing is used as input to the piping stress analysis, the piping analysis for this portion of the system may be adversely affected leading to higher support loads and piping stresses than calculated.

**RECOMMENDATION:**

Pursue resolution of finding with cognizant Bechtel engineering personnel and ensure that processes are in place which would ensure that the as-installed configuration is accurately and consistently reflected in the design documentation.

**COMMENTS BY SRT (IF REQUIRED):**

REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):  
Dwg. 7220-H-639, Sh. 14 (Q), Rev. 14  
OCR 3201-008-C-034

SIGNATURE(S):

CT  
FINDING REPORT  
ORIGINATOR (LTR)  
7/1/83  
DATE

HAL  
PROJECT MANAGER  
FOR PROJECT TEAM  
7/12/83  
DATE

JB  
PRINCIPAL-IN-CHARGE  
7/14/83  
DATE

DKD  
SRT (IF REQUIRED)  
7/14/83  
DATE



**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION  
FINDING RESOLUTION REPORT**

CLASS: SAFETY   X   NON-SAFETY           

FILE NO. 3201-008  
DOC NO. 3201-008-Z-034  
REV. NO.           

DATES REPORTED TO: PROJECT TEAM/PROJECT MGR. 7/1/83 PRINCIPAL-IN-CHARGE 7/12/83  
SRT            CPC/DESIGN ORG.           

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:

AFW System Pipe Supports

DESCRIPTION OF FINDING (OR REFERENCE DOC. NO. OF FINDING REPORT):

Detail hanger drawing and piping isometric drawing show hanger H-4 on opposite side of 90° elbow than the actual, as-installed location, the drawings depict hanger installation on the N-S run of pipe-actual installation is on the E-W run of pipe.

**DESCRIPTION OF RESOLUTION:**

- The orientation of Hanger H-4 as depicted on the detail hanger drawing & the piping isometric dwg. has been marked to indicate that the as-installed location of the hanger on the E-W run of pipe next to the 90° elbow. The detailed hanger dwg. & piping isometric are being revised & will be reviewed by TERA upon completion of the revision.
- Since the piping isometric dwg. is being revised, the piping stress analysis will also undergo revision to analyze for the as-installed location. TERA will review the revised piping stress analysis.
- Procedures & processes have been revised & implemented which are designed to ensure that the as-installed configuration of piping hangers & supports are accurately and consistently compared against the piping isometric drawing. The above action, when coupled with the CCP and PSDIV programs, indicate that CPCo & Bechtel have implemented significant program modifications to control & verify as-installed configuration to design documentation. TERA continues to evaluate the implementation & outputs of these programs (refer to "Recommendation" section of OCR C-031) as they specifically relate to piping systems within the IDCV systems sample selection boundaries.

RESOLUTION BASED UPON FOLLOWING DOCUMENTATION:

Marked-up drawing 7220-H-639, Sh. 14(Q), Rev. 13

COMMENTS BY SRT (IF REQUIRED):

SIGNATURE(S):

FINDING RESOLUTION  
REPORT ORIGIN. (LTR)

DATE

PROJECT MANAGER  
FOR PROJECT TEAM

DATE

PRINCIPAL-IN-CHARGE

DATE

SRT (IF REQUIRED)

DATE

**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION  
OPEN, CONFIRMED AND RESOLVED (OCR) ITEM REPORT**

TYPE OF REPORT: OPEN \_\_\_\_\_ CONFIRMED X  
RESOLVED \_\_\_\_\_ ITEM

FILE NO. 3201-008  
DOC NO. 3201-008C - 035  
REV. NO. 2

DATES REPORTED TO: LTR 6/27/83 SRT \_\_\_\_\_ PROJECT TEAM/PROJECT MGR. 6/27/83  
PRINCIPAL-IN-CHARGE 7/12/83 CPC/DESIGN ORG. \_\_\_\_\_

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:  
AFW System Pipe Supports

**IDCV PROGRAM AREA OR TASK (IF APPLICABLE):**

Topic 1.3-1c Pipe Supports  
Verification of Physical Configuration

**DESCRIPTION OF CONCERN:**

- Hanger H-11 is correctly shown on the detailed red-lined hanger drawing, approved by the cognizant resident engineer.
- Changes depicted on the detailed red-lined hanger drawing were not factored into the piping isometric drawing.
- When changes on the detailed hanger drawing are factored into the piping isometric drawing, a change of 1'2" in the locating dimensions for Hanger H-11 will occur.

**SIGNIFICANCE OF CONCERN:**

- Changes to design caused by construction/installation activities may not necessarily be fed back into the design finalization process in an accurate and consistent manner.
- Since the piping isometric drawing is used as the input to the piping stress analysis, the piping analysis for this portion of the system may be adversely affected leading to higher support loads and piping stresses than calculated.

RECOMMENDATION X OR RESOLUTION \_\_\_\_\_:

- Confirm that as-installed dimensions are indicated on the piping isometric drawing - the document controlling input the the piping stress analysis.
- Review existing processes and procedures utilized to ensure that field changes are consistently and accurately reflected in the design documentation.

COMMENTS BY SRT (IF REQUIRED):

**REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):**

Drawing 7220-H639, Sh. 14 (Q), Rev. 11, attached redline foil H-11  
Engineering Evaluation 3201-001-001, pages 7 & 8

**SIGNATURE(S):**

DBT  
\_\_\_\_\_  
OCR ITEM REPORT  
ORIGINATOR  
6/30/83  
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DATE

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FOR PROJECT TEAM  
7/12/83  
\_\_\_\_\_  
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PRINCIPAL-  
IN-CHARGE  
7/12/83  
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DATE

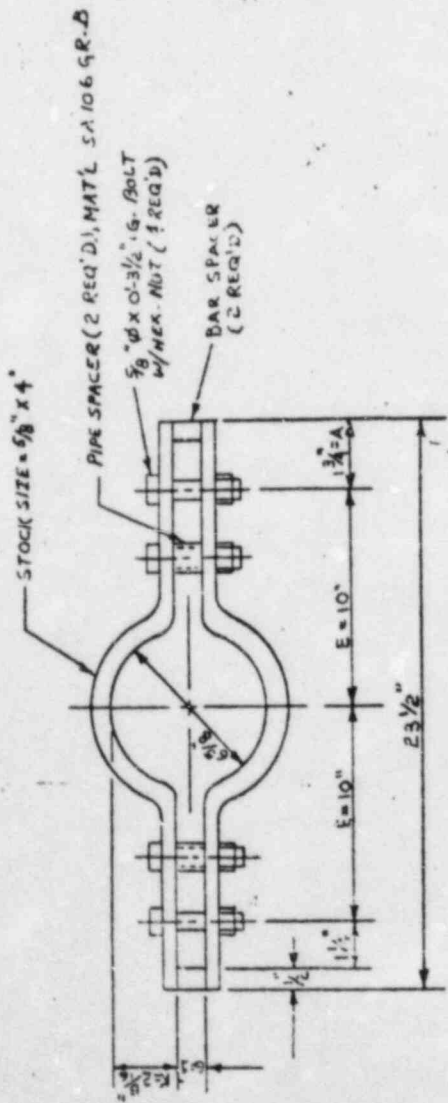
SRT (IF REQUIRED)  
\_\_\_\_\_  
DATE











SHOP DRILL  
(4) 1/2" Ø Holes



HEX. NUT MAT'L: SA-307 GR. B  
BOLT MAT'L: SA-193 GR. B7  
CLAMP MATERIAL: ASTM A515 GR. 65  
DEVELOPED LENGTH/HALF LENGTH OF CLAMP = 25-3/4"  
TOTAL WEIGHT = 41 lbs.

DETAIL 'C'

UNCONTROLLED  
NOT TO BE USED  
FOR CONSTRUCTION

THIRD PARTY INSPECTION	CODE CLASS	JOB NO.
PIPE M-74 Gr. A ELEC. E-650 REV. 0	STEEL C-601 ELEC. HVAC 11-511 REV. A	7220
CUSTOMER: CONSTRUCTION		
DESIGN: J. J. J.		
FOR: 11-511 ELEC. HVAC 11-511 REV. A		
HAWKINS: 11-511 ELEC. HVAC 11-511 REV. A		
JULY 15, 1964		
SHEET 15 OF 45		
REV. 0 / FI		

H-11-B SYSTEM

**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION  
FINDING REPORT**

CLASS: SAFETY X NON-SAFETY \_\_\_\_\_

FILE NO. 3201-008  
DOC NO. 3201-008-F-035  
REV. NO. 0

DATES REPORTED TO: PROJECT TEAM/PROJECT MGR. 7/1/83 PRINCIPAL-IN-CHARGE 7/12/83  
SRT \_\_\_\_\_ CPC/DESIGN ORG. \_\_\_\_\_

STRUCTURE(S), SYSTEMS(S), OR COMPONENT(S) INVOLVED:  
AFW System Pipe Supports

**DESCRIPTION OF FINDING:**

Hanger location for Hanger H-11 was field measured to be 1'2" from its design location as shown on the piping isometric drawing.

**SIGNIFICANCE OF FINDING:**

Since the piping isometric drawing is used as input to the piping stress analysis, the piping analysis for this portion of the system may be adversely affected leading to higher support loads and piping stresses than calculated.

**RECOMMENDATION:**

Pursue resolution of finding with cognizant Bechtel engineers and ensure that processes are in place which would ensure that field modifications to the design are accurately and consistently reflected in the design documentation.

**COMMENTS BY SRT (IF REQUIRED):**

**REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):**

Drawing 7220-H639, Sh. 14 (Q), Rev. 14  
Engineering Evaluation 3201-001-001

OCR 3201-008-C-035

**SIGNATURE(S):**

<u>DT</u>	<u>HAL</u>	<u>JB</u>	<u>DKD</u>
FINDING REPORT ORIGINATOR (LTR)	PROJECT MANAGER FOR PROJECT TEAM	PRINCIPAL-IN-CHARGE	SRT (IF REQUIRED)
<u>7/1/83</u>	<u>7/12/83</u>	<u>7/14/83</u>	<u>7/14/83</u>
DATE	DATE	DATE	DATE

**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION  
FINDING RESOLUTION REPORT**

CLASS: SAFETY X NON-SAFETY \_\_\_\_\_

FILE NO. 3201-008  
DOC NO. 3201-008-Z 035  
REV. NO. \_\_\_\_\_

DATES REPORTED TO: PROJECT TEAM/PROJECT MGR. 7/1/83 PRINCIPAL-IN-CHARGE 7/12/83  
SRT \_\_\_\_\_ CPC/DESIGN ORG. \_\_\_\_\_

STRUCTURE(S), SYSTEMS(S), OR COMPONENT(S) INVOLVED:

AFW System Pipe Supports

DESCRIPTION OF FINDING (OR REFERENCE DOC. NO. OF FINDING REPORT):

Hanger location for Hanger H-11 was field measured to be 1'2" from its design location as shown on the piping isometric drawing.

DESCRIPTION OF RESOLUTION:

- The dimensions appearing on the piping isometric drawing utilized to locate pipe hanger H-11 have been marked & the drawing is being revised to reflect the as-measured and as-installed location. TERA will review the piping isometric drawing upon completion of the revision.
- Since the piping isometric drawing is being revised, the piping stress analysis will also undergo revision to analyze for the as-installed location of hanger H-11. TERA will review the revised piping stress analysis.
- Procedures & processes have been revised & implemented which are designed to ensure that field-generated modifications to hanger locations are compared against the piping isometric drawing, Bechtel procedure FPD-2.000, FCR/FCN Procedure, has been implemented as the procedure controlling the revisions to detail hanger drawings, replacing the previously-used red-line procedure. The above actions, when coupled with the CCP & PSDIV programs, indicate that CPCo & Bechtel have implemented significant program modifications to control & verify field-generated changes to design documentation. TERA continues to evaluate the implementation and outputs of these programs (refer to "Recommendation" section of OCR C-031) as they specifically relate to piping systems within the IDCV systems sample selection boundaries.

RESOLUTION BASED UPON FOLLOWING DOCUMENTATION: Marked-up Dwg. 7220-H639, Sh. 14(Q), Rev. 1

COMMENTS BY SRT (IF REQUIRED):

SIGNATURE(S):

DT

HAL

FINDING RESOLUTION  
REPORT ORIGIN. (LTR)

PROJECT MANAGER  
FOR PROJECT TEAM

PRINCIPAL-IN-CHARGE

SRT (IF REQUIRED)

6/30/83

7/12/83

DATE

DATE

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DATE

**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION  
OPEN, CONFIRMED AND RESOLVED (OCR) ITEM REPORT**

TYPE OF REPORT: OPEN \_\_\_\_\_ CONFIRMED X  
RESOLVED \_\_\_\_\_ ITEM \_\_\_\_\_

FILE NO. 3201-008  
DOC NO. 3201-008-C - 036  
REV. NO. 2

DATES REPORTED TO: LTR 6/27/83 SRT \_\_\_\_\_  
PRINCIPAL-IN-CHARGE 7/12/83

PROJECT TEAM/PROJECT MGR. 6/30/83  
CPC/DESIGN ORG. \_\_\_\_\_

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:  
AFW System Piping

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):  
Topic 11.2-1 Pressure Boundary  
Drawing Review

DESCRIPTION OF CONCERN:  
The offset dimensions to the reactor centerline are not consistent with dimensions given along pipe centerline as follows: Distances between DP 270 and 280, 280 and 285, 300 and 306. Differences range from 5/16 & 7/16. Drawings that have been signed have not been adequately checked.

SIGNIFICANCE OF CONCERN: Inconsistencies in design drawings could lead to deviation of constructed structures, systems & components from design assumptions; however, in this specific case the noted discrepancies would have no impact upon the piping installation or design and are primarily due to inattention to detail during the dwg. checking process.  
Reference dimensions, as indicated above, are typically not used as input data to piping stress analyses.

RECOMMENDATION X OR RESOLUTION \_\_\_\_\_:  
• This OCR relates principally to more attention to detail being exercised during the drawing-checking process.  
• A Finding should be issued and resolution should proceed in conjunction with C-031 to assess process oriented issues and the potential that similar errors could have adverse impact in other situations.

COMMENTS BY SRT (IF REQUIRED):

REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):  
Drawing 7220-H-639 (Q), Sh. 14, Rev. 11 & Eng. Eval. 3201-001-001, page 9

SIGNATURE(S):

DBT  
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OCR ITEM REPORT  
ORIGINATOR  
6/30/83  
DATE

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6/30/83  
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PROJECT MANAGER  
FOR PROJECT TEAM  
7/12/83  
DATE

JB  
\_\_\_\_\_  
PRINCIPAL-  
IN-CHARGE  
7/14/83  
DATE

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SRT (IF REQUIRED)  
\_\_\_\_\_  
DATE



**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION  
FINDING REPORT**

CLASS: SAFETY X NON-SAFETY \_\_\_\_\_

FILE NO. 3201-008  
DOC NO. 3201-008F - 036  
REV. NO. \_\_\_\_\_

DATES REPORTED TO: PROJECT TEAM/PROJECT MGR. 6/27/83 PRINCIPAL-IN-CHARGE 7/12/83  
SRT 7/12/83 CPC/DESIGN ORG. \_\_\_\_\_

STRUCTURE(S), SYSTEMS(S), OR COMPONENT(S) INVOLVED:  
AFW System, Piping

**DESCRIPTION OF FINDING:**

Approved drawings (7220-H-639(Q), Sh. 14, Rev. 11, 12, 13, 14) have not been adequately checked. Dimensional errors on hanger isometric drawings were confirmed through discussions with cognizant Bechtel engineers.

**SIGNIFICANCE OF FINDING:**

Inconsistencies in design drawings could lead to deviations of constructed structures, systems and components from design assumptions; however, in this specific case, the noted discrepancies would have no impact upon the piping installation or design and are primarily due to inattention to detail during the drawing checking process.

**RECOMMENDATION:**

Bechtel personnel have become aware of the identified drawing errors and have initiated steps to establish corrective action. This activity should be monitored by the review team and selected drawings checked for similar errors. Resolution should be considered in conjunction with activities associated with C-031.

**COMMENTS BY SRT (IF REQUIRED):**

**REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):**

OCR 3201-008-C-036, Rev. 2 Drawing 7220-H-639(Q), Sh. 14, Rev. 11, 12, 13 & 14  
Eng'g Eval. 3201-001-001, page 9

**SIGNATURE(S):**

DT  
FINDING REPORT  
ORIGINATOR (LTR)  
6/27/83  
DATE

HAL  
PROJECT MANAGER  
FOR PROJECT TEAM  
7/12/83  
DATE

JB  
PRINCIPAL-IN-CHARGE  
7/14/83  
DATE

DKD  
SRT (IF REQUIRED)  
7/14/83  
DATE

**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION  
OPEN, CONFIRMED AND RESOLVED (OCR) ITEM REPORT**

TYPE OF REPORT: OPEN \_\_\_\_\_ CONFIRMED X \_\_\_\_\_  
RESOLVED \_\_\_\_\_ ITEM \_\_\_\_\_

FILE NO. 3201-008  
DOC NO. 3201-008-C - 045  
REV. NO. 1

DATES REPORTED TO: LTR 6/10/83 SRT \_\_\_\_\_ PROJECT TEAM/PROJECT MGR. 6/15/83  
PRINCIPAL-IN-CHARGE 7/12/83 CPC/DESIGN ORG. \_\_\_\_\_

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:

AFW System: AFW Pump Motor 2P005A

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

**DESCRIPTION OF CONCERN:**

1. Manufacturer's recommended storage instructions require motor shaft rotation every two weeks while motor is in storage (Ref: Vendor Doc. No. 7220-M14-68).
2. Bechtel procedure governing in-place maintenance (F-10-247) requires rotation of motor shaft every 30 days (which has been accomplished). Warehouse storage procedure F-1-435 only required rotation every 90 days. The vendor recommends rotation every two (2) weeks.

**SIGNIFICANCE OF CONCERN:**

Failure to comply with manufacturer's recommended shaft rotation schedule for the motor may have a deleterious effect upon the shaft bearing surfaces, shaft bearings, and rotating elements of the motor.

RECOMMENDATION X OR RESOLUTION \_\_\_\_\_:

Recommended motor inspection by manufacturer's rep. and ICV reviewer of motor bearing surfaces.

COMMENTS BY SRT (IF REQUIRED):

**REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):**

Bechtel Storage Procedure F-10-247  
Vendor Document No. 7220-M14-68

**SIGNATURE(S):**

MBJ  
OCR ITEM REPORT  
ORIGINATOR

6/9/83

DATE

DBT  
LTR

6/14/83

DATE

HAL  
PROJECT MANAGER  
FOR PROJECT TEAM

7/12/83

DATE

JB  
PRINCIPAL-  
IN-CHARGE

7/14/83

DATE

SRT (IF REQUIRED)

DATE