


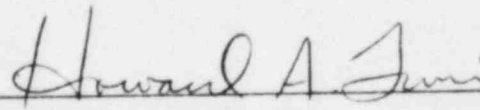
MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION PROGRAM
MONTHLY STATUS REPORT
NUMBER 7
PERIOD NOVEMBER 1, 1983 THROUGH NOVEMBER 30, 1983

Prepared by:

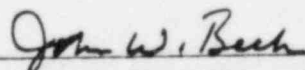

Manager, Design Verification


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Reviewed by:


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VERIFICATION PROGRAM (IDCV)
MONTHLY STATUS REPORT
NUMBER 7
PERIOD NOVEMBER 1, 1983 THROUGH NOVEMBER 30, 1983

1.0 INTRODUCTION AND PURPOSE

Monthly Status Reports have been instituted by agreement among 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 November 1, 1983 through November 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. The project chronology from inception through the beginning of this reporting period can be found in the previous monthly status reports. Several milestones warrant special highlight.

The fourth OCR status review meeting was held on November 30, 1983 at Bechtel's Ann Arbor, Michigan offices. In addition to the statusing of outstanding issues, the discussions promoted an understanding and any clarification necessary related to new issues so that CPC or Bechtel could either identify information that may not have been available to the IDCVP review team or clarify information that was available and reviewed. Minutes documenting discussions at this meeting and commitments will be issued in December. The fifth OCR status review meeting will be held on January 4, 1984, rather than during the last week of December, to avoid a conflict with the holidays.

During the November 30th meeting, CPC indicated that several constraints had compounded which may make a mid-course correction of the IDCVP desirable. These constraints include the completion status of Midland project, recognition of a schedule delay by CPC as well as CPC financial considerations. This general topic was discussed by the three parties: TERA, CPC and NRC. All parties agreed that it was reasonable for the IDCVP to respond to a changed environment. Future discussion in this regard is contemplated.

TERA IDCVP management is currently assessing alternatives that will allow the IDCVP to meet defined objectives in a cost and schedule effective manner. To date, the Midland project completion status has impacted the IDCVP, principally in the construction verification area. Most activities in the construction area are on hold indefinitely. The design verification effort is proceeding at approximately an 80-90% pace with the exceptions being in review areas that are affected by Midland project design activities which are in progress or revision. An option under consideration is to review the engineering programs that are in place for this 10 - 20%; thus, enabling completion of the design review.

In the interim period, until a definitive approach to completion of the IDCVP has been chosen, near term priorities are focused on completion of work on potential OCR track issues, completion of engineering evaluations and calculations supporting OCRs of record, and further disposition of outstanding OCRs.

2.2 Design Verification Activities

2.2.1 Summary

Design verification activities in November were concentrated in the following areas:

- Dispositioning of Confirmed Items
- Civil/structural review of the auxiliary and diesel generator buildings
- HVAC calculations, single failure analyses, and hazardous gas evaluations
- Electric power system calculations

Other design verification activities progressed as new information was received.

2.2.2 Auxiliary Feedwater System Progress

In early November, a decision was made not to complete the interim topical report on the AFW system. The scope of this proposed report was discussed in last month's status report. The basis for the decision not to complete the report was that it could not be a conclusionary report due to the number of open items which currently exist. Thus, the report could only serve as a detailed status report. Discussions among the NRC, CPC, and TERA indicated that such a report would be of limited value. Consequently, it was decided that the report should not be completed.

Since the interim report was not to be completed, activity in the AFW system concentrated on the disposition of Open and Confirmed Items and continued review in remaining design review areas including the independent piping analysis and the civil/structural review topics.

Additional information was received from Bechtel during November which will allow dispositioning of certain AFW Confirmed Items. Further requests for information to enable disposition of Confirmed Items were made by telephone and following the November 30 meeting in Ann Arbor. The review of calculation OPE-8 is continuing and is being supplemented with additional checking associated with the CR-HVAC system.

During November TERA continued to have a presence in Ann Arbor to review civil/structural design subjects. Sixteen man-days of effort were expended in Ann Arbor during November in these areas. The auxiliary building finite element model was reviewed for design loadings including underpinning loads and the preparation of the engineering evaluation initiated. Calculations for structural design of floors and walls were reviewed. The review of foundation design calculation packages was completed. Review of the auxiliary building seismic model continued.

Resolution was reached on obtaining hanger calculations from Grinnell. The calculations will be reviewed upon receipt. Information was requested on Bechtel redesign of pipe supports and a review initiated of channel inserts and other imbedments.

The review of seismic qualification of equipment continued following receipt of additional information.

2.2.3 Standby Electric Power System

Engineering evaluations begun previously progressed in many topic areas, and additional evaluations were initiated in November. An independent load tabulation of diesel generator (DG) loads has been completed and various DG load sequencing and shedding logic and schematic diagrams have been reviewed. In addition, the review of the DG control systems and interlocks was started. This review task includes evaluation of DG vendor prints such as control panel, piping, and engine pneumatic schematic drawings.

The engineering evaluation of the fire protection associated with the diesel generators is nearing completion. Fuel oil storage and piping, potential malfunctions leading to oil spillage, fire detection and suppression capabilities, fire barriers, fire systems effects on DG reliability, and potential interactions between DG rooms during a fire are being evaluated. Completion is dependent on review of recently received fuel oil piping routing drawings and upon receipt and review of additional requested fire protection system documentation (specifications, vendor drawings, and calculations).

The DG combustion air supply and engine exhaust evaluation has commenced. Associated mechanical calculations received after a calculation briefing with Bechtel personnel in Ann Arbor during mid-November, were reviewed, along with piping layout drawings. The diesel engine exhaust backpressure calculation was compared to the as-installed condition and vendor interface requirements.

Engineering evaluations continue in the following areas:

- DG cooling/heating requirements,
- DG building flood protection,
- DG and DC System Technical Specifications,

and have been initiated in:

- Component Functional Requirements, and
- Equipment Qualification.

Information necessary for the above reviews has been identified, requested, and in the process of being received.

Much of the information identified in last month's progress report has been received. However, based on an initial review of that information, additional documentation has been identified and requested. In addition to the 33 mechanical calculations received in Ann Arbor, six additional electrical calculations were obtained, as well as over 100 DG vendor prints. Also, various electrical, mechanical, and seismic qualification reports have been and are being received.

Revision I to the SEP system consolidated criteria and commitments list has been completed and its engineering evaluation continues.

The review of the civil/structural aspect of the standby electric power system was pursued at two levels:

- impact of settlement and cracks on performance and serviceability of the building
- review of analysis and design

The review of the DG Building as-built condition is progressing, with the assistance of Professors Myle J. Holley (MIT) and William J. Hall (University of Illinois). A final engineering evaluation is expected by the end of December.

Professors Holley and Hall and IDV reviewers visited the site on November 17, 1983. A meeting was organized on November 18, 1983, among TERA (including Professors Holley and Hall), Consumers Power Corporation, and Bechtel to obtain design information regarding:

- Missile design bases,
- Tornado loads
- Seismic design and loads,
- Settlement and cracking history and prediction,
- Bechtel analysis of building,
- Monitoring program,
- Repair program.

Documents were requested to substantiate topics covered in the meeting (per TERA "Request for Information" dated November 18, 1983). Those documents received on December 2, 1983 are presently being reviewed.

Review of the DGB concrete/steel design (Topic III.7-2) and foundation design (Topic III.6-2) was initiated by identifying and reviewing design criteria and calculations related to the finite element analysis which is used to verify the adequacy of the design. Methodology for including (1) seismic loads, (2) equipment loads/masses, and (3) wind and tornado loads (Topic III.2-2) in the finite element analysis was reviewed (calculations DQ-14(Q), rev. 1; DQ-23(Q), rev. 0). Several additional calculations have been identified which need to be reviewed in order to complete the evaluation. For construction chronology and history of analysis/design procedures, as implied by the DGB settlement problems, the DGB executive summary was reviewed.

2.2.4 Control Room HVAC System Progress

Responses to all the Confirmed Items from the previous month were provided by Bechtel in a November 11, 1983, letter. These have been reviewed and sufficient information is available to disposition them. Additionally, the outstanding items in the static pressure calculations have been discussed and clarified, which will allow completion of that review in early December. A revision to the calculation is pending, which will be reviewed to determine if significant changes occurred.

Structural review of the duct and duct supports focused on the methods described in the design guide and standard calculation. That effort identified several documents and drawings which would require review to complete the evaluation. These have been requested and a portion received, permitting continuation of the effort in December; however, a first sample of duct supports selected for review were all found to be pending revision. The status of the revision effort in general will have to be assessed to continue with design review of a valid sample.

During November, information was requested from CPC regarding studies performed to support the FSAR conclusions regarding hazardous gas releases and the capability of the hazardous gas monitor.

The HVAC power supply (Topic I.15-3) review is nearing completion. The power supplies to forty-eight (48) major components of the CR-HVAC system have been tabulated from applicable schematic diagrams and reviewed against power supply separation and redundancy requirements. The review included a verification of the power supplies and isolation features incorporated into the design of interlocks for the HVAC components.

A preliminary review of the CR-HVAC system against single failure (Topic I.3-3) and system operating criteria has also been conducted. This review incorporated the results of the power supply review into a check of the system P&ID (M-465), while considering the normal and control room isolation modes of system operation. This review resulted in an OCR concerning single failure and the ability to re-establish make-up flow three hours after control room isolation. The failure modes and effects review (FMEA - Topic I.23-3) is proceeding.

The CR-HVAC system schematic and logic diagrams have been verified to incorporate appropriate actuation features (Topic I.20-3) to comply with the design criteria. The Control Room Isolation System (CRIS) material requisition is being reviewed. The CRIS is a subsystem of ESFAS. The actuating logic has been checked from logic diagrams and schematic diagrams and has included the consideration of system operating modes. This review has also included the consideration of system alignment/switchover (Topic I.5-3) from normal operation to its alignment in response to high radiation, hazardous gas, or main steam line isolation signals. The review of system interlocks associated with fans and dampers is near completion (Topic I.7-3).

Drawings applicable to CR-HVAC instrumentation have been requested and received. A review of the radiation monitoring and hazardous gas monitoring system design is in progress (Topic I.12-3). The logic and schematic diagrams for major CR-HVAC components (44) are being checked against each other and the applicable design criteria (Topic I.19-3).

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:

- During the first two weeks of this reporting period ICV reviewers completed their review of selected commodities within the sample boundaries of the CR HVAC system. This review was comprised of the collection and evaluation of pertinent controlling procedures and verification documentation in addition to verification of the physical configuration of selected ductwork sections and hangers. The verification of physical configuration review was only performed on those commodities and components which were statused by the related quality documentation review as being complete with no outstanding design or QA/QC holds. As a result of these reviews and subsequent evaluations, four Confirmed Items have been identified (OCRs C-093 thru 096). The Confirmed Items are discussed in more detail in the Construction/Installation Documentation Review and Physical Configuration Verification Review portions of this status report and provided in Attachment 3.
- As a result of the nine (9) stop work orders issued during the latter part of October/early November and announcements by CPC concerning the overall progress of the CCP and Midland Project, TERA program management assessed the feasibility of continuance of the ICV Construction/Installation Documentation and Physical Verification reviews for the present and immediate future. With the exception of those activities necessary to pursue a final disposition for Confirmed Items and Findings, most ICV activities are being held in abeyance. During the middle of this reporting period ICV program management terminated TERA's constant on-site presence which had been in effect since the latter part of June. TERA program management is currently assessing alternatives for accomplishing the goals and objectives of the ICV review in a cost and schedule effective manner.

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 the physical configuration of installed components and commodities. The following ICV review categories are 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 review categories are as follows:

Review of Supplier Documentation

- As a result of discussions conducted during the OCR Status Review Meeting on November 30, 1983, the following OCRs, previously statused as Confirmed Items, are statused as Findings.
 - Finding F-052 addresses certain inconsistencies and gaps in vendor documentation submittals required by Midland Project Specifications. During the OCR Status Review Meeting, CPC advised that a program has recently been undertaken which has as one of its principal objectives the review and collation of design and quality-related documentation important to the verification of vendor-supplied components and to the safe operation and maintenance of the equipment. ICV reviewers will defer, for the near term, pursuing a final disposition of this Finding pending CPC's implementation of their program. Once the program is implemented and guidelines for its conduct clearly defined, ICV reviewers will recommence pursuing a final disposition for Finding F-052 which will include an overview of the CPC design/quality documentation program.

- Finding F-056 addresses the results of a review of vendor-supplied material selection verification documentation. ICV reviewers will pursue the disposition of this Finding through discussions with cognizant CPC/Bechtel personnel.
- Near-term activities associated with conducting the Vendor Documentation Review relate to preparing the engineering evaluation documenting the results of this review for selected vendor-supplied components in the CR HVAC, AFW and SEP systems.

Review of Storage and Maintenance Documentation

- Activities undertaken by ICV reviewers during this reporting period were focused principally upon the preparation of the engineering evaluation documenting the results of this review for selected components in the CR HVAC, AFW and SEP systems.
- Near-term activities associated with this review will be focused upon continuing the finalization of the engineering evaluation and pursuing the disposition of Finding F-047.

Review of Construction/Installation Documentation

- As a result of discussions conducted during the OCR Status Review Meeting on November 30, 1983, the following OCRs, previously statused as Confirmed Items, are statused as Findings
 - Findings F-053 and 054 delineate inconsistencies observed in certain quality-verification documentation and instructions controlling the conduct of quality inspections for components and commodities within the AFW System. Pursuing a disposition to these Findings will be deferred pending completion of CCP Phase I activities for the affected components and commodities.

- Finding F-055 addresses certain inconsistencies associated with welding procedures and procedure qualification records applicable to welding performed for AFW systems and components. TERA reviewers will initiate discussions with cognizant Bechtel/CPC personnel in determining a disposition for the items/inconsistencies noted by this Finding.
- TERA ICV reviewers completed their evaluation of selected components and commodities within the CR HVAC system. The review consisted of collecting and evaluating the adequacy of pertinent controlling procedures (welding and installation) and associated verification documentation. As a result of this review and subsequent evaluation conducted to record the results of the review three (3) Confirmed Items were prepared. The Confirmed Items C-093, C-095 and C-096 note and address inconsistencies observed in certain welding procedures and documentation used to verify the quality of installation of certain CR HVAC ducts and hangers. One of the Confirmed Items, C-095, addresses more of a process-oriented issue related to the certification of Zack welders.
- The Construction/Installation Documentation review was terminated during the middle of this reporting period and is tentatively scheduled to recommence after the QVP has reached appropriate milestones. This postponement of review activities is deemed prudent and cost-effective in light of recent CPC announcements concerning the anticipated progress of the Midland Project. Near-term activities for this review task will be focused upon dispositioning certain OCRs which highlight process-oriented issues as a potential root cause or which are not affected nor influenced by ongoing CCP activities.

2.3.3 Physical Verification/Site Activities Program

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 reviewers and include the following review categories:

- Review of Selected Verification Activities
- Verification of Physical Configuration

Review of Selected Verification Activities

- As a result of discussions during the November 30 OCR Status Review Meeting, ICV reviewers established previous Confirmed Item C-091 into a Finding. This Finding addresses a potential inconsistency in the training program used to qualify personnel for the hanger re-inspection activities. Disposition of this Finding will be pursued by ICV personnel through discussions with cognizant CPC personnel.
- Near-term activities associated with this review task will be focused upon disposition of existing Findings and Confirmed Items and updating existing engineering evaluations used to document the results of the ICV reviews of the Cable and Pipe Hanger Reinspection Programs.
- Further progress has not been made relative to the pursuit of a statistical model to assist in evaluating ICV reviews of the Cable and Pipe Hanger Reinspection programs. Use of the model is anticipated as ICV reviewers prepare their final statements for incorporation into the final IDCVP report.

Verification of Physical Configuration

- ICV reviewers completed their review, and documented their evaluation, of selected components and commodities within the CR HVAC system. The physical verification was conducted only on those components and commodities within the CR HVAC System that were statused by the Construction/Installation Documentation

Review as being complete and without design or QA/QC "hold." As a result of this review, and the subsequent evaluation of the review results, Confirmed Item C-094 was written to document certain inconsistencies noted during the review. This item notes defects in workmanship and other discrepancies observed during the review of selected CR HVAC duct sections and associated supports and hangers.

- Subsequent to discussions held during the November 30 OCR Status Review Meeting, TERA obtained a copy of Rev. I of the Field Change Request/Field Change Notice procedure currently in use on the Midland Project. TERA ICV reviewers commenced an evaluation of the procedure as part of activities necessary to further disposition Findings F-031 and F-036.
- Near-term activities to be conducted in this review task relate to dispositioning of existing Findings and Confirmed Items. Physical Verification of installed components and commodities will be deferred until completion of CCP Phase I activities.

3.0 SUMMARY OF CONFIRMED AND RESOLVED ITEM REPORTS, FINDING REPORTS, AND FINDING RESOLUTION REPORTS

Attachment 2 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 3 provides retyped copies of Resolved Item Reports (that have closed out Confirmed Items), Confirmed Items, Observations, Finding Reports, and Finding Resolution Reports. The following paragraphs discuss items which have changed status in the past month.

Eight findings were identified during the reporting period. Finding F-043 is related to the requirements for "hanger critical" piping. In response to C-043, TERA was informed that review of M-480 and M-327 would provide adequate information to demonstrate the control applied to "hanger critical" piping. A review of M-480 showed that the piping in question is not listed as "hanger critical." Findings F-052 through F-056 are all associated with the construction verification program. F-052 is concerned with the unavailability of vendor documentation and uncertainty as to whether such vendor documentation was received. CPC has indicated that a program is in progress to address the documentation issue. F-053 is similar, but applies to construction and installation documents. F-054 relates to incorrect, conflicting or outdated information in PQCI's. F-054 results from reviews of certain welding procedures and procedure qualification report and inconsistencies or gaps in information which should be recorded. F-056 focuses upon two concerns associated with materials test report. In one case, the test report showed carbon content in excess of allowable and in the other, there was no report available. F-091 is associated with the construction verification review of pipe supports. F-091 noted that the lesson plan associated with PQCI-P-2.30, Rev. 3 did not address snubbers. R-066 resolves a Confirmed Item based upon information that the capability to re-establish makeup flow to the control room is a design basis for the CR-HVAC (although the initiation of this flow is at the operator's discretion). Since no further action is required, C-066 was resolved.

31 Confirmed Items were identified during the reporting period. They are:

- C-069 - This item is concerned with the seismic qualification of pump 2P-05A.
- C-071 - This item concerns the finite element review of calculation IQ 59.!(Q).
- C-089 - This item is a revision of the same item which was included in last month's report. The revised item was discussed at the November 30th meeting and is included in this report only for completeness.
- C-093 - C-096 - These items are all associated with the construction verification effort for CR-HVAC ducts and supports
- C-097 - Application of single failure criteria to dampers in the CR-HVAC system.
- C-099 - C-108 - All of these items are concerned with seismic design including stick and finite element model assumptions and calculation package consistency. (Item 100 is resolved as an Observation)
- C-109 - Diesel-generator fuel system lockout under certain conditions.
- C-110 - Diesel-generator load tabulation.
- C-111 - Inconsistency in initiation of load shedding on bus under-voltage.
- C-112 - Diesel-generator exhaust backpressure calculation.
- C-113 - 117 - These items are concerned with concrete and steel design or with foundations.
- C-119-122 - These items are concerned with seismic equipment qualification.

ATTACHMENT I

MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION PROGRAM TERA PROJECT 3201

PERIOD NOVEMBER 1, 1983 THROUGH NOVEMBER 30, 1983

<u>Date</u>	<u>Milestone</u>
November 1-11, 1983	TERA construction verification reviewers on-site completing CR HVAC documentation review and physical verification of selected duckwork and hangers.
November 7-18, 1983	TERA design review team at Bechtel's Ann Arbor office
November 15, 1983	Sixth Monthly Status Report issued
November 17, 1983	TERA civil/structural review team members and Professors Hall and Holley onsite to inspect diesel-generator building
November 18, 1983	TERA civil/structural review team members and Professors Hall and Holley at Bechtel's Ann Arbor office
November 22, 1983	Meeting notice issued for November 30, 1983, OCR status review meeting
November 29 - December 2, 1983	TERA design review team at Bechtel's Ann Arbor Office
November 30, 1983	Fourth OCR status review meeting at Bechtel's Ann Arbor office

ATTACHMENT 2

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

12/16/83

<u>OCR No.</u>	<u>Resp. LTR</u>	<u>Potential Open Item</u>	<u>Open Item</u>	<u>Confirmed Item</u>	<u>Resolved Item/ Observation</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			1.4-1 Tech Specs	
002	RPS	12/21/83	3/4/83	3/4/83	7/12/83			1.4-1 Tech Specs	
003	RPS	1/3/83	3/4/83		3/4/83			1.8-1 Overpressure Protection	
004	RPS	1/3/83	3/4/83		3/4/83			1.8-1 Overpressure Protection	
005	RPS	1/4/83	3/4/83	3/4/83				1.1-1 System Operating Limits	
006	RPS	1/12/83	3/4/83		3/4/83			1.2-1 Accident Analysis Considerations	
007	RPS	1/12/83	3/4/83		3/4/83			1.2-1 Accident Analysis Considerations	
008	LB	1/19/83	3/4/83		7/12/83			1.19-1 Control Systems	
009	JAM	1/20/83	3/4/83		3/4/83			11.1-1 Seismic Design	
010	FAD	1/20/83	3/4/83	4/14/83	7/12/83			1.10-1 Hydraulic Design	
011	LB	1/27/83	3/4/83	3/4/83	8/8/83			1.19-1 Control Systems	
012	LB	2/7/83	3/4/83	3/4/83		7/12/83	9/30/83	1.15-1 Power Supplies	
013	RPS	2/8/83	3/4/83		7/12/83			1.5-1 Syst. Align./Switchover	

-1-

* Change in Status During Reporting Period

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

12/16/83 (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/ Observation</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	JAM	2/10/83	3/4/83	10/11/83				III.1-I Seismic Design/Input to Equipment	
016	JAM	2/10/83	3/4/83					III.5-I Civil/Str Design Consid.	
017	FAD	2/17/83	3/4/83	3/4/83	10/5/83			I.11-I Heat Removal Cap	
								I.10-I Hydraulic Design	
018	FAD	2/17/83	3/4/83	3/4/83		11/11/83	11/11/83	I.11-I Heat Removal Cap.	
019	LB	2/21/83	3/4/83		8/8/83			I.18-I Instrumentation	
020	FAD	2/24/83	3/4/83	3/4/83	11/11/83			I.11-I Heat Removal Cap.	B-080 Relate
								I.9-I Comp. Func. Req.	
021	FAD	2/24/83	3/4/83					II.10-I Eq. Qual.	0-21, Rev. 1, 4/14/83
022	LB	2/24/83	3/4/83	8/8/83				I.19-I Control Syst.	
023	LB	2/28/83	3/4/83		8/8/83			I.18-I Instrumentation	
								I.19-I Control	

OCR, FINDING REPORT, AND FINDING RESOLUTION REPORT TRACKING SYSTEM
MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION PROGRAM
12/16/83(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/ Observation</u>	<u>Finding Report</u>	<u>Finding Resolution Report</u>	<u>Topic</u>	<u>Comments</u>
024	RPS	3/1/83	3/4/83					1.2-1 Acc. Anal. Consid.	
025	RPS	3/1/83	3/4/83	3/4/83				1.2-1 Acc. Anal. Cor sid.	
026	RPS	3/1/83	3/4/83	11/11/83				1.8-1 Overpress. F. it.	
027	FAD	3/1/83	3/4/83	3/4/83	11/11/83			1.9-1 Comp. Func. Req.	
								11.9-1 Env. Eng.	
028	FAD	3/2/83	3/4/83	4/14/83	11/11/83			1.9-1 Comp. Func. Req.	
029	LB	2/22/83	3/4/83		3/4/83			1.18-1 Instrumentation	
								1.19-1 Control System	
030	LB	1/19/83	3/4/83		3/4/83			1.19-1 Control System	
031	DBT	2/11/83	3/4/83	3/4/83		8/30/83		1.3-1c Pipe Supports	C-31, Rev. 1, 7/12/83
032	DBT	2/11/83	3/4/83	3/4/83		7/12/83	7/12/83	1.3-1c Pipe Supports	C-32, Rev. 1, 7/12/83
033	DBT	2/11/83	3/4/83	3/4/83		7/12/83	7/12/83	1.3-1c Pipe Supports	C-33, Rev. 1, 7/12/83
034	DBT	2/11/83	3/4/83	3/4/83		7/12/83	7/12/83	1.3-1c Pipe Supports	C-34, Rev. 1, 7/12/83
035	DBT	2/11/83	3/4/83	3/4/83		7/12/83	7/12/83	1.3-1c Pipe Supports	C-35, Rev. 2, 7/12/83

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

12/16/83 (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/ Observation</u>	<u>Finding Report</u>	<u>Finding Resolution Report</u>	<u>Topic</u>	<u>Comments</u>
036	JAM	2/11/83	3/4/83	3/4/83		7/12/83		II.2-1 Pressure Boundary	C-36, Rev. 2, 7/12/83
037	JAM	1/20/83	3/4/83	3/4/83	8/30/83			III.1-1 Seismic Design/Input to Equipment	
038	LB	3/1/83	3/4/83	3/4/83				I.15-1 Power Supplies	
039	LB	3/30/83	4/14/83	8/30/83				II.10-1 Env. Eq. Qual.	
040	LB	3/8/83	4/14/83	9/30/83				I.16-1 Elec. Characteristics	
041	LB	3/25/83	4/14/83		9/30/83			I.15-1 Power Supplies	
042	LB	3/31/83	4/14/83		9/30/83			I.10-1 Env. Eq. Qual.	
043	FAD	3/15/83	4/14/83	10/6/83		12/2/83		I.10-1 System Hydraulic Design	*10"-2HBD-605
044	FAD	3/15/83	4/14/83		10/6/83			II.10-1 Env. Eq. Qual.	Resolved as Observation
045	DBT	3/17/83	4/14/83	5/25/83		8/8/83	11/11/83	II.1-1C Electrical Equipment/ Storage & Maintenance	C-45, Rev. 1, 7/12/83
046	DBT	3/17/83	4/14/83	5/25/83		8/8/83	11/11/83	I.1-1C Mechanical Equipment/ Storage & Maintenance	
047	DBT	7/7/83	7/26/83	8/8/83		8/30/83		I.1-1C Mechanical Equipment/ Storage & Maintenance	C-47, Rev. 1, 8/30/83

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

12/16/83 (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/ Observation</u>	<u>Finding Report</u>	<u>Finding Resolution Report</u>	<u>Topic</u>	<u>Comments</u>
048	FAD	7/29/83	7/29/83	8/8/83				11.10-1 Environmental Equipment Qualification	
049	RC	8/28/83	8/29/83	8/29/83		11/11/83		11.4-1c Cable	
050	RC	8/28/83	8/29/83	8/29/83		11/11/83		11.4-1c Cable	
051	JAM	8/12/83	8/30/83		8/30/83			111.1-1 Seismic Design/Input to Equipment	
052	DBT	9/30/83	9/30/83	9/30/83		12/1/83		All ICV Topics for AFW	*Supplier Doc
053	FEP	9/27/83	9/29/83	9/29/83		12/1/83		All ICV Topics for AFW	*Const./Installation Documentation
054	FEP	9/27/83	9/29/83	9/29/83		12/1/83		All ICV Topics for AFW	*Const./Installation - PQCs
055	DBT	9/19/83	9/29/83	11/11/83		12/1/83		All ICV Topics	*Const./Installation Documentation - WPs & PGRs
056	DBT	9/26/83	9/29/83	11/11/83		12/1/83		All ICV Topics for AFW & SEP	*Supplier/Doc. - Materials
057	DW	9/29/83	9/30/83		9/30/83			1.34-3 Pressurization	Resolved as Observation

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

12/16/83 (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/ Observation</u>	<u>Finding Report</u>	<u>Finding Resolution Report</u>	<u>Topic</u>	<u>Comments</u>
058	DW	10/6/83	10/6/83					1.12-3 Cooling/Heating Requirements	
059	RPS	8/11/83			9/30/83			1.3-1 Single Failure 1.23-1 Failure Modes & Effects	Resolved as Observation
060	DW	9/29/83	9/30/83					1.1-3 System Operating Limits	
061	DW	9/29/83			9/30/83			1.18-3 Instrumentation	Resolved as Observation
062	FAD	9/30/83	9/30/83					1.9-1 Component Functional Requirements	
063	FAD	10/5/83			10/6/83			1.10-1 System Hydraulic Design	Resolved as Observation
064	FAD	10/5/83			10/6/83			1.10-1 System Hydraulic Design	Resolved as Observation
065	FAD	10/4/83	10/6/83					All IDV Topics	
066	DW	9/29/83	10/6/83	10/6/83	11/30/83			1.5-3 System Alignment/Switchover 1.7-3 System Isolation/Interlocks	*
067	DW	9/29/83	9/30/83		9/30/83			1.34-3 Pressurization	Resolved as Observation

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

12/16/83 (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/ Observation</u>	<u>Finding Report</u>	<u>Finding Resolution Report</u>	<u>Topic</u>	<u>Comments</u>
068	JAM	9/27/83	9/30/83	9/30/83				II.4-1 EQ/Seismic	
069	JAM	9/27/83	9/30/83	11/5/83				II.4-1 *EQ/Seismic	
070	JAM	9/27/83	9/30/83		11/5/83			I.4-1 *EQ/Seismic	Consolidated with C-069
071	JAM	9/27/83	9/30/83	12/14/83				III.1-1 *Seismic Design/ Input to Equipment	
072	FAD	9/30/83	10/6/83					I.9-1 Component Functional Requirements	
								II.2-1 Seismic Design - Pressure Boundary	
073	DW	9/29/83	10/6/83	10/6/83	11/11/83			I.12-3 Cooling/Heating Requirements	OCR-058 related
074	DW	9/29/83	10/6/83	10/6/83				I.1-3 System Operating Limits I.2-3 Accident Analysis Considerations I.15-3 Power Supplies	
075	DW	9/29/83	10/6/83	10/6/83				I.1-3 System Operating Limits I.2-3 Accident Analysis Considerations	
076	DW	9/29/83	10/6/83	10/6/83				I.12-3 Cooling/Heating Requirements	
077	JAM	9/27/83	10/6/83	10/6/83				II.4-1 EQ/Seismic	

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

12/16/83 (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/ Observation</u>	<u>Finding Report</u>	<u>Finding Resolution Report</u>	<u>Topic</u>	<u>Comments</u>
078	FAD	9/30/83	10/6/83					I.9-1 Component Functional Requirements	
079	JAM	8/29/83	10/6/83					III.5-1 Civil/Structural Design Considerations III.6-1 Foundations	
080	FAD	11/1/83			11/11/83			I.9-1 Component Functional Requirements	Resolved as Observation
081	FAD	11/1/83	11/11/83	11/11/83				II.2-1 Pressure Boundary I.9-1 Component Functional Req.	
082	DW	10/18/83	11/11/83					I.9-3 Component Functional Requirements	Chemical Conc./ Dow Interface
083	DW	10/31/83	11/11/83					I.2-3 Accident Analysis Considerations	
084	DW	10/31/83	11/11/83	11/11/83				I.2-3 Accident Analysis Considerations	
085	DW	10/31/83	11/11/83					All IDV Topics	Noted issues identified in CR-HVAC review
086	FAD	10/13/83			11/11/83			II.12-1 Fire Protection	Resolved as Observation

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

12/16/83 (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/ Observation</u>	<u>Finding Report</u>	<u>Finding Resolution Report</u>	<u>Topic</u>	<u>Comments</u>
087	FAD	10/13/83	11/11/83	11/11/83				11.12-1 Fire Protection	
088	FAD	10/13/83	11/11/83	11/11/83				11.12-1 Fire Protection	
089	FAD	10/13/83	11/11/83	11/11/83				11.12-1 Fire Protection	*C-089, Rev. 1 11/29/83
090	FAD	10/13/83			11/11/83			11.12-1 Fire Protection	Resolved as Observation
091	RSC	10/18/83	11/11/83	11/11/83		12/1/83		1.3-1C Pipe Supports	Overinspection Prog.
092	RSC	10/18/83	11/11/83	11/11/83				1.3-1C Pipe Supports	Overinspection Prog.
093	DBT	11/10/83	11/21/83	11/28/83				IV.2-3C Const. Doc. Review	*HVAC Ducts
094	DBT	11/10/83	11/21/83	11/28/83				IV.2-3C Physical Verif.	*HVAC Ducts
095	DBT	11/10/83	11/21/83	11/28/83				IV.2-3C Const. Doc. Review	*HVAC Welding Docs
096	DBT	11/10/83	11/11/83	11/28/83				IV.2-3C Const. Doc. Review	*HVAC Ducts and supports
097	LDB	11/30/83	12/5/83	12/9/83				1.3-3 Single Failure 1.5-3 Sys. Alignment	*
098	DMW	11/7/83	12/5/83					III.1-1 Seismic Design	*RG 1.92

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

12/16/83 (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/ Observation</u>	<u>Finding Report</u>	<u>Finding Resolution Report</u>	<u>Topic</u>	<u>Comments</u>
099	JAM	11/30/83	12/5/83	12/9/83				III.1-1 Seismic Design	*Slab Rotation
100	JAM	12/9/83			12/9/83			III.1-1 Seismic Design	*Resolved as Observations
101	JAM	11/30/83	12/5/83	12/9/83				III.1-1 Seismic Design	*DQ-38(Q)
102	JAM	11/30/83	12/5/83	12/9/83				III.1-1 Seismic Design	*Computer Input
103	JAM	11/30/83	12/5/83	12/9/83				III.1-1 Seismic Design	*
104	JAM	11/30/83	12/5/83	12/9/83				III.1-1 Seismic Design	*Moment of Inertia Calc
105	JAM	11/30/83	12/5/83	12/9/83				III.1-1 Seismic Design	*Program CE-207
106	JAM	11/30/83	12/5/83	12/9/83				III.1-1 Seismic Design	*Soil Structure Interaction
107	JAM	11/30/83	12/5/83	12/9/83				III.1-1 Seismic Design	*Stick Model Assumptions
108	JAM	11/30/83	12/5/83	12/9/83				III.1-1 Seismic Design	*Stick Model Input
109	LDB	12/1/83	12/6/83	12/14/83				I.19-2 DG Control	*Fuel Lockout
110	LOB	12/1/83	12/6/83	12/14/83				I.24-2 DG Load Capacity	*Load Tabulation
111	GES	12/2/83	12/6/83	12/14/83				I.24-2 DG Load Capacity	*Undervoltage

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

12/16/83 (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/ Observation</u>	<u>Finding Report</u>	<u>Finding Resolution Report</u>	<u>Topic</u>	<u>Comments</u>
112	GES	12/9/83	12/14/83	12/14/83				1.30-2 DG Exhaust	*
113	JAM	11/3/83	11/7/83	12/14/83				111.7-1 Conc/steel design	*
114	JAM	11/3/83	11/7/83	12/14/83				111.7-1 Conc/steel design	*
115	JAM	11/10/83	11/10/83	12/14/83				111.7-1 Conc/steel design	*
116	JAM	11/10/83	11/10/83	12/14/83				111.7-1 Conc/steel design	*
117	JAM	10/31/83	11/10/83	12/14/83				111.6-1 Foundations 111.7-1 Conc/steel design	*
118	JAM	10/31/83			12/14/83			111.6-1 Foundations	*
119	JAM	10/5/83	11/14/83	12/14/83				11.4-1 Seismic Qual	*
120	JAM	10/26/83	11/14/83	12/14/83				11.4-1 Seismic Qual	*
121	JAM	10/26/83	11/14/83	12/14/83				11.4-1 Seismic Qual	*
122	JAM	10/26/83	11/14/83	12/14/83				11.4-1 Seismic Qual	*

ATTACHMENT 3

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

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

CLASS: SAFETY X NON-SAFETY _____

FILE NO. 3201-008
DOC NO. 3201-008-F-043
REV. NO. _____

DATES REPORTED TO: PROJECT TEAM/PROJECT MGR. 12/2/83 PRINCIPAL-IN-CHARGE 12/3/83
SRT 12/12/83 CPC/DESIGN ORG. _____

STRUCTURE(S), SYSTEMS(S), OR COMPONENT(S) INVOLVED:
AFW - Piping and Valves

DESCRIPTION OF FINDING: At the 10/28/83 OCR meeting C-043 was discussed. We were advised that piping which was seismically analyzed, but not Q-listed, is subject to the controls specified in M-327 and that such piping is specified as "hanger critical" in M-480. Our review of M-480 for the line of interest (10"-2HBD-605) indicates that it is NOT designated hanger critical. See attached page from M-480.

SIGNIFICANCE OF FINDING:

This finding indicates the possibility that design information for "special" piping (i.e. non-Section III piping subject to special requirements) may not be controlled adequately. This could lead to situations where installed piping does not in fact meet requirements established by the system engineer.

RECOMMENDATION:

Review the previously provided list of seismically-analyzed, non-Q piping against M-480 to determine if this is an isolated case.

COMMENTS BY SRT (IF REQUIRED):

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

SIGNATURE(S):

FAD

FINDING REPORT
ORIGINATOR (LTR)
11/30/83

DATE

HAL

PROJECT MANAGER
FOR PROJECT TEAM
12/2/83

DATE

JVB

PRINCIPAL-IN-CHARGE
12/12/83

DATE

DKD

SRT (IF REQUIRED)
12/12/83

DATE

DATE: 9/21/83

LINE INDEX

PAGE 569

IDENTITY		LINE DESCRIPTION	SYS	P&ID		DESIGN RATING		SERVICE-CONDITIONS NORMAL		MAXIMUM		C	SC	CC	HC	IC	M	LAY	R
U	CLASS SEQ			NO	SH	PSIG	F	PSIG	F	PSIG	F	T	IT	NS	RT	SS	S	UP	E
2	HBD	0605 UNIT-2 COND. STORAGE TK TO 2HBC-537 **IDCN 21734**	2APA	439	3	35	135	25	90	35	135	-	2	C	(N)	NR	-	C	10
2	HBD	0606 DUMP FRM 2HBD-80 TO CONDENSER MANIFOLD	2AFD	437	1	83	500	54	301	83	500	-	2	C	H	II	-	C	9
2	HBD	0607 DRAIN FRM STM PLNT SMPL PANEL 2C-130	2RCA	445	8	120	135	ATM	110	ATM	135	-	2	D	N	NR	-	D	15
2	HBD	0608 LP TURB BRG CASE OIL DRAIN	2CCA	437	2	50	200	0	140	1	180	-	2	D	N	NR	-	D	9
2	HBD	0609 LP TURB BRG CASE OIL DRAIN	2CCA	437	2	50	200	0	140	1	180	-	2	D	N	NR	-	D	9
2	HBD	0610 LP TURB BRG CASE OIL DRAIN	2CCA	437	2	50	200	0	140	1	180	-	2	D	N	NR	-	D	9
2	HBD	0611 LP TURB BRG CASE OIL DRAIN	2CCA	437	2	50	200	0	140	1	180	-	2	D	N	NR	-	D	9
2	HBD	0612 DEAERATOR (2E-03B) BYPASS	2ADA	439	1	105	338	70	316	105	338	-	2	C	H	III	-	A	9
2	HBD	0613 DEAERATOR (2E-03A) BYPASS	2ADA	439	1	105	338	70	316	105	338	-	2	C	H	III	-	A	9
2	HBD	0614 DRN LN FRM VENT 10"-2HBD-228	2CBA	451	-	2	180	ATM	140	2	180	-	2	D	N	NR	-	D	10
2	HBD	0615 FROM LOOP SEAL 2HBD-228 TO TURB L.O. SUMP	2CBA	451	-	2	180	ATM	140	2	180	-	2	D	N	NR	-	D	10
2	HBD	0616 FRM 8"-2EBD-36 TO DRN COLLECTION TANK	1AFC	437	1	225	300	55	300	55	300	-	2	D	H	III	-	D	9
2	HBD	0617 FRM 10"-2GBD-4 TO DRN COLLECTION TANK	1AFC	437	1	225	300	55	300	55	300	-	2	D	H	III	-	D	9
2	HBD	0618 FRM 8"-2GBD-20 TO DRN COLLECTION TANK	1AFC	437	1	225	300	55	300	55	300	-	2	D	H	III	-	D	9
2	HBD	0619 FRM 10"-2EBD-6 TO DRN COLLECTION TANK	1AFC	437	1	225	300	55	300	55	300	-	2	D	H	III	-	D	9
2	HBD	0620 DRN FRM COLLECTION TANK	2AFC	437	1	55	300	55	300	55	300	-	2	D	H	III	-	D	9
2	HBD	0621 FRM COLLECTION TANK TO HEADER	2AFC	437	1	55	470	35	300	35	300	-	2	D	H	III	-	D	9
2	HBD	0622 OTSG 2E-51A N2 PURGE TO RB HVAC PURGE EXHAUST	OKHA	439	3	5	175	5	175	5	175	-	2	D	N	NR	-	D	9
2	HBD	0623 OTSG 2E-51B N2 PURGE TO RB HVAC PURGE EXHAUST	OKHA	439	3	5	175	5	175	5	175	-	2	D	N	NR	-	D	9
2	HBD	0624 WASTE DRN-STM SAMP PNL 2C-130	2RCA	445	8	ATM	120	ATM	77	ATM	120	-	2	D	N	NR	-	D	15
2	HBD	0625 2SUS-3901A DRAIN LINE	2ADA	439	1	15	135	-9	135	15	135	-	2	D	N	NR	-	A	10
2	HBD	0626 2SUS-3901B DRAIN LINE	2ADA	439	1	15	135	-9	135	15	135	-	2	D	N	NR	-	A	10
2	HBD	0627 SERVICE WTR DRN FROM PUMP 2P-232A CLASS BRK TO EQUIPMENT DRAIN	2EAD	419	-	125	108	95	95	100	108	-	2	D	H	IIIA	-	D	16

REVISION 16

JOB NO. 7220-001

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

CLASS: SAFETY X NON-SAFETY _____

FILE NO. 3201-008
DOC NO. 3201-008-F-052
REV. NO. _____

DATES REPORTED TO: PROJECT TEAM/PROJECT MGR. 12/1/83 PRINCIPAL-IN-CHARGE 12/2/83
SRT 12/4/83 CPC/DESIGN ORG. _____

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

Various vendor supplied components in the AFW system.

DESCRIPTION OF FINDING:

Vendor documentation not available/not recorded as being received from the vendor although specified as a requirement as delineated in Confirmed Item No. 3201-008-C-052.

SIGNIFICANCE OF FINDING:

Refer to OCR 3201-008-C052

The significance of this finding is directly dependent upon whether the documentation has simply been misplaced or never created. There exists a potential for a defect to exist in the process used to verify the completeness of vendor submittals when gauged against the total of specification and purchase order requirements.

RECOMMENDATION:

Based upon discussions during the 11/30/83 OCR Status Review Meeting, CPC advised that they have undertaken a program to collate quality verification and design documentation pertinent to a particular system/component into one file or file point. As an integral part of this program CPC is to review and verify the availability of important design documentation and the requirements which identify the need for the documentation:

- Defer further end-product review pending selected completion of the CPC program.
- Determine & evaluate the process used to verify the completeness of vendor documentation submittals (i.e., merging of design & quality-related documentation req's).

COMMENTS BY SRT (IF REQUIRED):

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

Various component specifications as delineated in OCR 3201-008-C-052

SIGNATURE(S):

DBT

FINDING REPORT
ORIGINATOR (LTR)

12/1/83

DATE

HAL

PROJECT MANAGER
FOR PROJECT TEAM

12/1/83

DATE

JWB

PRINCIPAL-IN-CHARGE

12/3/83

DATE

DKD

SRT (IF REQUIRED)

12/12/83

DATE

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

CLASS: SAFETY X NON-SAFETY _____

FILE NO. 3201-008
DOC NO. 3201-008-F-053
REV. NO. _____

DATES REPORTED TO: PROJECT TEAM/PROJECT MGR. 12/1/83 PRINCIPAL-IN-CHARGE 12/2/83
SRT 12/4/83 CPC/DESIGN ORG. _____

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

AFW System: components and commodities as enumerated in the description of concern,
OCR 3201-008-C-053.

DESCRIPTION OF FINDING:

As a result of conducting the review of construction/installation documentation certain documentation necessary to verify the completeness and adequacy of an installation and installation inspection was either not available or an inconsistency was observed as documented in OCR 3201-008-C-053.

SIGNIFICANCE OF FINDING:

Lack of complete and consistent documentation necessary to verify the quality of installed components and commodities promotes questions as to 1) the quality of the installation and 2) the effectiveness of the processes which are used to verify the quality of the installation.

RECOMMENDATION:

Since Phase I of the CCP is designed to address items similar to those noted in the Description of Concern (OCR 3201-008-C-053), the items enumerated in the OCR are provided as being indicative of the types of inconsistencies to be encountered as the CCP progresses through Phase I activities.

- Monitor and observe the QVP and CCP's approach in reconciling and resolving the inconsistencies noted in the OCR.
- Defer verification of the resolution to inconsistencies noted in OCR C-053 pending completion of CCP Phase I activities.

COMMENTS BY SRT (IF REQUIRED):

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

Applicable PQCI's and related documentation as defined in OCR 3201-008-C-053.

SIGNATURE(S):

<u>DBT</u>	<u>HAL</u>	<u>JWB</u>	<u>END</u>
FINDING REPORT ORIGINATOR (LTR)	PROJECT MANAGER FOR PROJECT TEAM	PRINCIPAL-IN-CHARGE	SRT (IF REQUIRED)
<u>12/1/83</u>	<u>12/1/83</u>	<u>12/3/83</u>	<u>12/12/83</u>
DATE	DATE	DATE	DATE

MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION FINDING REPORT

CLASS: SAFETY X NON-SAFETY _____

FILE NO. 3201-008
DOC NO. 3201-008-F-054
REV. NO. _____

DATES REPORTED TO: PROJECT TEAM/PROJECT MGR. 12/1/83 PRINCIPAL-IN-CHARGE 12/2/83
SRT 12/4/83 CPC/DESIGN ORG. _____

STRUCTURE(S), SYSTEMS(S), OR COMPONENT(S) INVOLVED:
Project Quality Control Instructions (PQCI's) to be used/used in the inspection of selected AFW system components.

DESCRIPTION OF FINDING:

Deficiencies/inconsistencies noted as a result of reviewing applicable PQCI's as enumerated in OCR 3201-008-C-054.

SIGNIFICANCE OF FINDING:

Incorrect, conflicting, outdated or redundant instructions contained within a PQCI may affect the consistent application of the instruction to all inspections - i.e., inspections already performed in addition to the re-inspections planned as an integral part of the CCP Phase I activities.

RECOMMENDATION:

- Address and verify the resolution of inconsistencies recorded in OCR 3201-008-C-054.
- Where reinspections are not to be performed as part of CCP Phase I activities (e.g. for inaccessible items) review and verify the process with which the CCP will determine the adequacy of previous inspections when compared to current inspection requirements.

COMMENTS BY SRT (IF REQUIRED):

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

As noted in the Description of Concern - OCR 3201-008-C-054.

SIGNATURE(S):

<u>DBT</u> FINDING REPORT ORIGINATOR (LTR) <u>12/1/83</u> DATE	<u>HAL</u> PROJECT MANAGER FOR PROJECT TEAM <u>12/1/83</u> DATE	<u>JWB</u> PRINCIPAL-IN-CHARGE <u>12/3/83</u> DATE	<u>DKD</u> SRT (IF REQUIRED) <u>12/12/83</u> DATE
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**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION
FINDING REPORT**

CLASS: SAFETY X NON-SAFETY _____

FILE NO. 3201-008
DOC NO. 3201-008-F - 055
REV. NO. _____

DATES REPORTED TO: PROJECT TEAM/PROJECT MGR. 12/1/83 PRINCIPAL-IN-CHARGE 12/2/83
SRT 12/4/83 CPC/DESIGN ORG. _____

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

Site Welding Procedures (WP's) and Procedure Qualification Reports (PQR's)

DESCRIPTION OF FINDING:

Certain WP's and PQR's (see OCR 3201-008-C-055) were evaluated and found to possess inconsistencies and/or gaps in typically recorded data and information.

SIGNIFICANCE OF FINDING:

Lack of completeness in welding procedures and procedure qualification records is inconsistent with industry practices for specifying welding processes and qualifying welding procedures.

RECOMMENDATION:

- Discuss with cognizant Bechtel/CPC personnel and evaluate actions to be taken in addressing inconsistencies observed in welding procedures and procedure qualification reports as enumerated in OCR 3201-008-C-055.
- Note and evaluate the disposition of the inconsistencies delineated in OCR 3201-008-C-055.

COMMENTS BY SRT (IF REQUIRED):

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

As indicated in the Description of Concern - See OCR 3201-008-C-055.

SIGNATURE(S):

DBT
FINDING REPORT
ORIGINATOR (LTR)
12/1/83
DATE

HAL
PROJECT MANAGER
FOR PROJECT TEAM
12/1/83
DATE

JWB
PRINCIPAL-IN-CHARGE
12/3/83
DATE

DKD
SRT (IF REQUIRED)
12/12/83
DATE

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

CLASS: SAFETY X NON-SAFETY _____

FILE NO. 3201-008
DOC NO. 3201-008-F-056
REV. NO. _____

DATES REPORTED TO: PROJECT TEAM/PROJECT MGR. 12/1/83 PRINCIPAL-IN-CHARGE 12/2/83
SRT 12/4/83 CPC/DESIGN ORG. _____

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

Air Receiver 2T-93A
AFW Pumps 2P005A&B

DESCRIPTION OF FINDING:

- 1) Air receiver 2T-93A
Carbon content tested and recorded to be in excess of maximum allowable of 0.03% for 1/2" pipe and nozzle.
- 2) AFW Pumps 2P-05 A&B
No material test report on file for the pump shafts.

SIGNIFICANCE OF FINDING:

Utilization of a material which possesses chemical and/or physical characteristics potentially not suitable for the intended application.

RECOMMENDATION:

- For Finding #1, determine the potential for degraded component performance in light of using materials which possess less than specified chemical properties.
- For Finding #2, verify the availability and review of material test reports for the pump shafts.

COMMENTS BY SRT (IF REQUIRED):

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

Refer to OCR 3201-008-C-056.

SIGNATURE(S):

DBT
FINDING REPORT
ORIGINATOR (LTR)
12/1/83
DATE

HAL
PROJECT MANAGER
FOR PROJECT TEAM
12/1/83
DATE

JWB
PRINCIPAL-IN-CHARGE
12/3/83
DATE

DKD
SRT (IF REQUIRED)
12/12/83
DATE

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-066
REV. NO. _____

DATES REPORTED TO: LTR 11/30/83 SRT _____ PROJECT TEAM/PROJECT MGR. 11/30/83
PRINCIPAL-IN-CHARGE: 12/5/83 CPC/DESIGN ORG. _____

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:
HEPA filters in makeup air and recirculating portions of HVAC system and associated air handling units

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

Topics 1.5-3 System Alignment/Switchover and 1.7-3 System Isolation/Interlocks

DESCRIPTION OF CONCERN:

After an accident involving an airborne radioactive release, the Control Room can be isolated and pressurized for three hours. The system alignment during subsequent phases of the event is not identified. Knowledge of the proper alignment is needed to correctly analyze control room habitability.

SIGNIFICANCE OF CONCERN:

The dose for personnel in the Control Room will be different for various system alignments depending upon if air is supplied through the system makeup air handling units as opposed to the supply of outside air by infiltration as Control Room pressure drops. The calculated dose should be consistent with intended alignment for the system.

RECOMMENDATION _____ OR RESOLUTION X :

Based on the response provided in the November 11, 1983 Bechtel letter to Consumers Power (BLC-18472) and clarification at the November 30, 1983 meeting, this OCR is resolved. The alignment of the system after 3 hours is at the discretion of the operator, but the design basis for system includes the requirement for capability to realign the system for 200 cfm makeup air supply.

COMMENTS BY SRT (IF REQUIRED):

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

SIGNATURE(S):

DW
OCR ITEM REPORT
ORIGINATOR

11/30/83
DATE

DW
LTR

11/30/83
DATE

HAL
PROJECT MANAGER
FOR PROJECT TEAM

11/30/83
DATE

JB
PRINCIPAL-
IN-CHARGE

12/05/83
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. 3201-008-C - 069
REV. NO. _____

DATES REPORTED TO: LTR 11/18/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/14/83
PRINCIPAL-IN-CHARGE 12/14/83 CPC/DESIGN ORG. _____

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

AFW Motor Driven Pump 2P-05-A

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

Seismic Equipment Qualification 11.4-1

DESCRIPTION OF CONCERN:

- (1) It appears that shear stress was not included in the calc of the pump nozzles.
- (2) The pump pedestal weld does not include consideration of shear stresses.
- (3) The nozzle load combinations used in the pump analyses are unclear.
- (4) Bases for criteria for allowable misalignment of the shaft coupling (deflection and rotation) is not established.

SIGNIFICANCE OF CONCERN:

Pump qualification analyses may not be conservative.

RECOMMENDATION x OR RESOLUTION _____:

Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

7220-M-14-124-3-Seismic Analysis-Pump
ASME B&PV Code, Div. 1, Sect. 3

SIGNATURE(S):

D. Segal
OCR ITEM REPORT
ORIGINATOR
11/16/83
DATE

J.M.
LTR
11/18/83
DATE

HAL
PROJECT MANAGER
FOR PROJECT TEAM
12/14/83
DATE

JWB
PRINCIPAL-
IN-CHARGE
12/14/83
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 11/18/83 ITEM

FILE NO. 3201-008
DOC NO. 3201-008-C-071
REV. NO. _____

DATES REPORTED TO: LTR 11/18/83 SRT _____ PROJECT TEAM/PROJECT MGR. 11/18/83
PRINCIPAL-IN-CHARGE 12/14/83 CPC/DESIGN ORG. _____

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

AFW System - All

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

Topic III.1-1 - Seismic Design/Input to Equipment
Check of Calculations and Evaluations

DESCRIPTION OF CONCERN:

Calculation package DQ 59.1 (Q) "Finite Element Review for FSAR Load Combinations" for the Aux. Bldg. underpinning model analysis, references BSAP run file TIEN OBQ, input to the calculation. However, this file may have been superseded, by TIEN QJY or TIEN ORA files. In addition, file TIEN OBQ could not be located for review by TERA.

SIGNIFICANCE OF CONCERN:

Superseded, or incorrect, information could affect design. Requirements of the Aux. Bldg. structure and revised information should be incorporated. Incorrect documentation or failure to incorporate revised information could lead to deficiencies in the design product. The revision process for calculations may not be fully operative.

RECOMMENDATION X OR RESOLUTION _____:

Review any other calculations which may have superseded 59.1 (e.g. 62.0?) to determine whether current design of Aux. Bldg. is adequate and is based on most up-to-date references.

COMMENTS BY SRT (IF REQUIRED):

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

DQ-59.1(Q), DQ59.1C(Q), DQ62.0C1

SIGNATURE(S):

JAM
OCR ITEM REPORT
ORIGINATOR

11/18/83
DATE

JAM

LTR

11/18/83
DATE

HAL

PROJECT MANAGER
FOR PROJECT TEAM

12/14/83
DATE

JWB

PRINCIPAL-
IN-CHARGE

12/14/83
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. 3201-008-C - 089
REV. NO. 1

DATES REPORTED TO: LTR 11/29/83 SRT _____ PROJECT TEAM/PROJECT MGR. 11/29/83
PRINCIPAL-IN-CHARGE 11/29/83 CPC/DESIGN ORG. _____

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:
Auxiliary Feedwater System - Emergency Lighting

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):
11.12-1, Fire Protection

DESCRIPTION OF CONCERN:

FSAR Section 9.5.3.2.2 states that the emergency lighting system provides adequate illumination levels of lighting at main points of control of shutdown equipment, and access routes to and from this equipment. However, the access area to the auxiliary shutdown panel room adjacent to line K, between column lines 8.1 and 8.6 at elevation 659' of the auxiliary building was not specified to contain an emergency lighting unit.

SIGNIFICANCE OF CONCERN:

The significance of this open item is that the lack of emergency lighting in the above access area could result in insufficient lighting for access from the control room to the auxiliary shutdown panel room. Additionally, this does not satisfy commitments in FSAR Section 9.5.3.2.2.

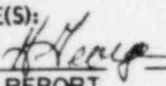
RECOMMENDATION X OR RESOLUTION _____:

Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

SIGNATURE(S):

JR/HG 
OCR ITEM REPORT
ORIGINATOR

11/29/83

DATE

FAD 
LTR

11/29/83

DATE

HAL
PROJECT MANAGER
FOR PROJECT TEAM

11/29/83

DATE

JB
PRINCIPAL-
IN-CHARGE

11/29/83

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-091
REV. NO.

DATES REPORTED TO: PROJECT TEAM/PROJECT MGR. 12/1/83 PRINCIPAL-IN-CHARGE 12/2/83
SRT 12/4/83 CPC/DESIGN ORG.

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

Pipe Supports

DESCRIPTION OF FINDING:

As part of the review of the pipe support re-inspection program, ICV reviewers noted that Lesson Plan #PQCI-P-2.30, Rev. 3 LP Rev. 5 omitted the Activity 3.4, instructions for snubber assemblies. Refer to OCR 3201-008-C-091.

SIGNIFICANCE OF FINDING:

Lack of correct and appropriate training of QCE's in all aspects of components/ commodities to be inspected fosters less than consistent application of inspection requirements and raises questions as to the validity of the inspection results.

RECOMMENDATION:

- Verify that Activity 3.4 is included in Lesson Plan PQCI-P-2.30
- Determine whether Activity 3.4 was omitted from the training sessions and evaluate and determine the significance of not including Activity 3.4 in the Lesson Plan.

COMMENTS BY SRT (IF REQUIRED):

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

Refer to OCR 3201-008-C-091.

SIGNATURE(S):

DBT
FINDING REPORT
ORIGINATOR (LTR)
12/1/83
DATE

HAL
PROJECT MANAGER
FOR PROJECT TEAM
12/1/83
DATE

JWB
PRINCIPAL-IN-CHARGE
12/3/83
DATE

DKD
SRT (IF REQUIRED)
12/12/83
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 - 093
REV. NO. 0

DATES REPORTED TO: LTR 11/28/83 SRT _____ PROJECT TEAM/PROJECT MGR. 11/28/83
PRINCIPAL-IN-CHARGE 12/12/83 CPC/DESIGN ORG. I

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:
Review of controlling specification for the installation of HVAC system components within the CR HVAC system

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):
Construction/Installation Documentation Review, Topic IV.2-3c

DESCRIPTION OF CONCERN:
Project Specification 7220-M-151A, Rev. 15, Tech Spec for Seismic Class 1 HVAC Equipment and Ductwork Installation, was reviewed and compared to the requirements of applicable codes and standards. As a result of this review, the following inconsistencies are noted:
1) Para. 14.8.3.c: No limits provided for convexity height or size of reinforcement contrary to the requirements of AWS D1.1-79, Structural Welding Code, paras. 3.6.1 & 3.6.2 (continued on attached sheet)

SIGNIFICANCE OF CONCERN:
The specification of limits on the acceptability of welds which are not in direct compliance with pertinent codes and standards may result in the acceptance of weldments which are not in compliance with applicable codes and standards and therefore of questionable quality.

RECOMMENDATION X OR RESOLUTION _____:

- 1) Discuss with cognizant engineering personnel the inconsistencies noted herein to determine additional considerations which may have been applied at the time the specification was written.
- 2) Based upon the results of the above activity, evaluate the ramifications of those inconsistencies which remain in conflict with applicable codes and standards and which were not previously considered nor addressed.

COMMENTS BY SRT (IF REQUIRED):

REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):
Specification 7220-M-151A, Rev. 15, Technical Specification for Seismic Class 1 HVAC Equipment & Ductwork Installation
AWS D1.1-79, Structural Welding Code: AWS D9.1-80, Spec. for Welding of Sheet Metal

SIGNATURE(S):

FEP _____ OCR ITEM REPORT ORIGINATOR 11/28/83 _____ DATE	DBT _____ LTR 11/28/83 _____ DATE	HAL _____ PROJECT MANAGER FOR PROJECT TEAM 11/28/83 _____ DATE	JWB _____ PRINCIPAL- IN-CHARGE 12/12/83 _____ DATE	SRT (IF REQUIRED) _____ DATE
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Description of Concern (Continued)

- 2) Para 14.8.3,e: undercut up to and including 1/32" is indicated as acceptable contrary to the requirement of AWS D1.1-79, para. 3.6.4 which limits to size of undercut to 0.010" for undercut which is transverse to the direction of primary stress and 1/32" otherwise.
- 3) Para 14.8.3,o: wording permits indications of entrapped slag or rollover to be accepted contrary to AWS D1.1-79, para's 3.3.6 and 3.7.2.3.
- 4) Para 14.8.4,e: provides no limits on convexity and reinforcement of welds contrary to AWS D9.1-80, Specification for Welding of Sheet Metal, para. 5.3 which limits convexity on fillet welds to 0.129", and para. 5.4 which limits reinforcement on Butt Welds to 0.129".
- 5) Para. 14.8.4,h: Permits porosity unlimited in quantity up to 1/32" in size contrary to AWS D9.1-80, para. 5.5, which limits the size and quantity to a maximum of three (3) indications per inch larger than 0.25T and one (1) indication larger than 0.5T (T being thickness).
- 6) Para. 14.8.4,i: undercut of 1/32", and less than 50%T allowed for 1/6 length are contrary to AWS D9.1-80, para. 5.6, which specifies 0.15T maximum for sheet metal and 0.25T maximum for support.

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-094
REV. NO. _____

DATES REPORTED TO: LTR 11/28/83 SRT _____ PROJECT TEAM/PROJECT MGR. 11/28/83
PRINCIPAL-IN-CHARGE 11/30/83 CPC/DESIGN ORG. _____

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

Duct Sections and Duct Hangers and Supports within the CR HVAC System

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

Physical Verification of Components & Commodities in the CR HVAC System: Topic IV.2-3c

DESCRIPTION OF CONCERN:

Based upon the results of the construction/installation documentation review, ICV reviewers statused selected components and commodities within the CR HVAC system sample boundaries as "complete" or "incomplete" depending upon information recorded on available quality verification documentation. Of forty-two (42) items initially selected for review, seven (7) items were statused as complete and therefore eligible for a physical verification review. Upon conducting a physical verification of the seven (7) items, the following inconsistencies were noted. (see attached page)

SIGNIFICANCE OF CONCERN:

An Inconsistency noted in the Description of Concern may be classified as either a defect or as an example of poor workmanship. The net effect is a situation wherein the structural integrity of the weldment or flange connection is placed into question.

RECOMMENDATION X OR RESOLUTION _____:

Correct and or reconcile the inconsistencies noted in the Description of Concern.

COMMENTS BY SRT (IF REQUIRED):

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

BPCo Dwg. 7220-M525, Sh. 3
Zack Dwg. V25 Sh's 3 & 3B

SIGNATURE(S):

FEP
OCR ITEM REPORT
ORIGINATOR
11/28/83
DATE

DBT
LTR
11/28/83
DATE

HAL
PROJECT MANAGER
FOR PROJECT TEAM
11/28/83
DATE

JWB
PRINCIPAL-
IN-CHARGE
12/12/83
DATE

SRT (IF REQUIRED)

DATE

- 1) Attachment weld of vertical members of Hangers 71 to 70 (see Section C, Dwg. C-884) has a crater crack and lack of fusion in weld on "west" face at the bottom of the weld. Also welds attaching top of "north" vertical leg of hanger #71 and top of "south" vertical leg of hanger #70 to existing building steel are partially overlapping each other in the crater areas of fillet weld stops on both "east" and "west" faces.
- 2) Stiffener in mid-section of duct #50, "east" side of bottom capturing member, has a continuous weld for the 40" width of the duct (opposite side is "stitch" welded). The 40" weld has distorted the bottom plane of the duct and there are indications of lack of fusion along the 40" weldment.
- 3) Bolted Flange Connection, Duct 123 to Damper OMO-6508B:
The "north" vertical flange, first and fifth bolts from the bottom do not have washers; second, third, and fourth bolts from the bottom have bent washers preventing full contact of the washer; bottom flange has two loose nuts.
- 4) Bolted Flange Connection, Duct 164A to Damper OFV-6505B:
"west" vertical flange has four loose nuts and the threaded end of bottom bolt is in contact with a vertical member of a support; top flange has one loose nut.

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-095
REV. NO. _____

DATES REPORTED TO: LTR 11/28/83 SRT _____ PROJECT TEAM/PROJECT MGR. 11/28/83
PRINCIPAL-IN-CHARGE 12/12/83 CPC/DESIGN ORG. _____

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:
Review of quality verification documentation associated with methods used to provide traceability to Zack welds and welder qualifications.

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

Construction/Installation Documentation Review, Topic IV.2-3c

DESCRIPTION OF CONCERN:

During the process of conducting a review of CR HVAC welding documentation to verify utilization of correct welding procedures as performed by qualified welders, the following was noted: there appears to be no means available for an inspector to verify that a welder was qualified at the time he welded on a specific fabricated duct or support in the CR HVAC system. This statement is made based upon a review of the applicable records, a cursory review of processes in place at the time welding was performed and discussions with cognizant personnel. The following understandings are noted: (see attached sheet)

SIGNIFICANCE OF CONCERN:

Since no in-process weld inspection is performed, there is no check on the contractor properly performing to his procedure and maintaining the welder qualification records. According to AWS D1.1-79, and AWS D1.3-78, the welder's qualification remains in effect indefinitely unless the welder is not engaged in a given process of welding for which he is qualified, for a period exceeding six months. Since no dates are recorded, and the general WPS is the only weld callout, the proof of qualification maintenance required by AWS D1.1-79 and AWS D1.3-78 does not exist and cannot be generated.

RECOMMENDATION X OR RESOLUTION _____:

- Through discussions with cognizant MPQAD, engineering, and Zack personnel, determine how the program implemented to recover from the Zack decertification addresses this noted inconsistency.
- Evaluate the results of these discussions and program review. Prepare a statement as to the adequacy of actions being undertaken to reconcile the noted inconsistency.

COMMENTS BY SRT (IF REQUIRED):

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

AWS D1.1-79
AWS D1.3-78

SIGNATURE(S):

FEP

OCR ITEM REPORT
ORIGINATOR
11/28/83
DATE

DBT

LTR
11/28/83
DATE

HAL

PROJECT MANAGER
FOR PROJECT TEAM
11/28/83
DATE

JWB

PRINCIPAL-
IN-CHARGE
12/12/83
DATE

SRT (IF REQUIRED)

DATE

Description of Concern (Continued)

1. The Zack Foreman does not document the date or the piecemarks of the hanger or duct assembly that a particular welder has fabricated. It is possible for the requirements of three codes and many welding procedures to be employed. It is the responsibility of the Zack Foreman to assure that the welder is qualified at the time of welding for the particular joint to be welded.
2. The MPQAD inspector logs the welder and procedure used from information given to him by the Zack Foreman.
3. The inspection by MPQAD occurs after all welding is completed. There may be a considerable lag time between completion of welding and final inspection.
4. Prior to the latest system of three digit welding procedure specification (WPS) numbers, the WPS was general in nature and did not designate a unique "code-process-base material-joint configuration" combination.
5. Quality verification records only indicate which WPS was applied to the weldment, which welder(s) performed welding on the item and the date(s) of inspection. The records do not indicate the date(s) of welding nor the PQR's used. Based upon available and recorded data it is difficult to discern how an inspector can verify a welder's qualification since neither the date of welding nor the specific PQR is recorded.

**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-096
REV. NO. _____

DATES REPORTED TO: LTR 11/28/83 SRT _____
PRINCIPAL-IN-CHARGE 12/12/83 PROJECT TEAM/PROJECT MGR. 11/28/83
CFC/DESIGN ORG. _____

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:
Review of quality verification documentation associated with CR HVAC Duct Sections #50 and 159.1B and Duct Support Hangers #71 and 209B

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

Construction/Installation Documentation Review, Topic IV.2-3c

DESCRIPTION OF CONCERN:

In reviewing quality verification documentation packages associated with selected components and commodities within the CR HVAC system the following inconsistencies were noted:

- * Duct Section #50: a) Documentation of rework to correct deficiencies noted in NCR's 44 and A442 do not include identification of welder or weld procedure.
- b) Documentation of rework to correct deficiencies noted in NCR 145 does not include identification of weld procedure. (see attached page)

SIGNIFICANCE OF CONCERN:

The gaps and inconsistencies in recorded data preclude the ability to easily and quickly verify the quality of the installation by reviewing the applicable verification documentation.

RECOMMENDATION X OR RESOLUTION _____:

Reconcile the noted inconsistencies by seeking to determine the missing information and correcting the referenced dwg. applicable to Hanger #71, as described in the Description of Concern.

COMMENTS BY SRT (IF REQUIRED):

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

3PCO Dwg. 7220-M-525, Sh. 3 NCR's 44, 145 & A442
Zack Dwgs. V25 Sh. 3 & 3B

SIGNATURE(S):

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SRT (IF REQUIRED)

OCR ITEM REPORT
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Description of Concern (Continued)

- Duct Section #159.1B: Inspection documentation indicates "seal welds" of flange to flange welding but does not indicate the weld procedure used.
- Hanger #71: Zack dwg. V25 Sh. 3B shows hanger 71 as Detail 14 on BPCo Dwg. C-874. Dwg. C-874 does not have a Detail 14. Actual installation matches Detail 14 of BPCo Dwg. C-878, as defined on BPCo Dwg. C-884.
- Hanger #209B: Inspection Report #188 indicates that Detail 1 on Drawing 7220-C-880 was used during the inspection. There is no Detail 1 on Dwg. C-880.

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-097
REV. NO. _____

DATES REPORTED TO: LTR 12/09/83 SRT _____
PRINCIPAL-IN-CHARGE 12/9/83

PROJECT TEAM/PROJECT MGR. 12/9/83
CPC/DESIGN ORG. _____

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

CR-HVAC OM0-6501A and B - Gr. I
 OM0-6502A and B - Gr. II

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

Single Failure Topic 1.3-3
System Alignment/Switchover - Topic 1.5-3

DESCRIPTION OF CONCERN: The CR-HVAC P&ID (M-465) shows that the control room makeup air dampers are arranged in series as OM0-6501A and -6502A in Train A and -6501B and -6502B in Train B. This arrangement results in the in-series dampers being powered from Group I and Group II power (plant single-line drawing E-1 and schematic diagram E-456). The group power can be lined up to either Unit 1 or Unit 2 and is controlled by Kirk-Key interlocks. The concern is that a single failure in Group I or II would prevent the availability of makeup air three hours after a hazardous chemical or high radiation event coincident with unavailability of Unit 1 standby power or an uninhabitable atmosphere outside the control room.

SIGNIFICANCE OF CONCERN:

Positive control room pressure may be lost three hours after initiation of the event which may result in the control room becoming uninhabitable. This would violate GDC 19.

RECOMMENDATION X OR RESOLUTION _____:

Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

Plant Single Line Drawing: E-1(Q) CR-HVAC P&ID: M-465
CR-HVAC Schematic Diagram: E-456(Q)

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

TYPE OF REPORT: OPEN _____ CONFIRMED <u>X</u> RESOLVED _____ ITEM _____		FILE NO. <u>3201-008</u> DOC NO. <u>3201-008-C-099</u> REV. NO. _____																											
DATES REPORTED TO: LTR <u>12/9/83</u> SRT _____ PRINCIPAL-IN-CHARGE <u>12/12/83</u>		PROJECT TEAM/PROJECT MGR. <u>12/9/83</u> CPC/DESIGN ORG. _____																											
STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED: Auxiliary Building, AFW System																													
IDCY PROGRAM AREA OR TASK (IF APPLICABLE): III.1-1 Seismic Design/Input to Equipment																													
DESCRIPTION OF CONCERN: Inconsistency in computing nodal displacements. See attached sheet																													
SIGNIFICANCE OF CONCERN: Analysis and Design may not be conservative																													
RECOMMENDATION <u>X</u> OR RESOLUTION _____: Review supporting documents Process per PQAP.																													
COMMENTS BY SRT (IF REQUIRED):																													
REFERENCES (INCL. RELATED OCR ITEM REPORT NO.): CALC. SQ 148G-(Q)																													
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:20%; text-align: center;">SIGNATURE(S):</td> <td style="width:20%;"></td> <td style="width:20%;"></td> <td style="width:20%;"></td> <td style="width:20%;"></td> </tr> <tr> <td style="text-align: center;">CPM</td> <td style="text-align: center;">JAM</td> <td style="text-align: center;">HAL</td> <td style="text-align: center;">JWB</td> <td style="text-align: center;">SRT (IF REQUIRED)</td> </tr> <tr> <td style="text-align: center;">OCR ITEM REPORT ORIGINATOR</td> <td style="text-align: center;">LTR</td> <td style="text-align: center;">PROJECT MANAGER FOR PROJECT TEAM</td> <td style="text-align: center;">PRINCIPAL- IN-CHARGE</td> <td></td> </tr> <tr> <td style="text-align: center;"><u>12/09/83</u></td> <td style="text-align: center;"><u>12/9/83</u></td> <td style="text-align: center;"><u>12/9/83</u></td> <td style="text-align: center;"><u>12/12/83</u></td> <td></td> </tr> <tr> <td style="text-align: center;">DATE</td> <td style="text-align: center;">DATE</td> <td style="text-align: center;">DATE</td> <td style="text-align: center;">DATE</td> <td style="text-align: center;">DATE</td> </tr> </table>					SIGNATURE(S):					CPM	JAM	HAL	JWB	SRT (IF REQUIRED)	OCR ITEM REPORT ORIGINATOR	LTR	PROJECT MANAGER FOR PROJECT TEAM	PRINCIPAL- IN-CHARGE		<u>12/09/83</u>	<u>12/9/83</u>	<u>12/9/83</u>	<u>12/12/83</u>		DATE	DATE	DATE	DATE	DATE
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1. SQ 148 G-(Q) Section 10 computes the nodal vertical displacements neglecting mass point (slab) rotation and including foundation rotation only. This is inconsistent with the way vertical response spectra are obtained in the building where the slab rotation is included.
2. SQ 148 G-(Q) Section 12. The relative displacements between nodes 1-4-40 does not include torsion or rotation of the slabs.

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

TYPE OF REPORT: OPEN _____ CONFIRMED _____
OBSERVATION X RESOLVED _____ ITEM _____

FILE NO. 3201-008
DOC NO. 3201-008-B .100
REV. NO. _____

DATES REPORTED TO: LTR 12/9/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/9/83
PRINCIPAL-IN-CHARGE 12/12/83 CPC/DESIGN ORG. _____

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

Auxiliary Building, AFW System

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

III.1-1 Seismic Design/Input to Equipment

DESCRIPTION OF CONCERN:

See attached sheet.

SIGNIFICANCE OF CONCERN:

Analysis and Design may not be adequately documented.

RECOMMENDATION _____ OR RESOLUTION X _____:

Resolve as observation and process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

CALC packages SQ 148G-(Q); SQ 148H-(Q); DWG C-20 5

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1. SQ 148G-(Q), page 3.11, refers to next page for comparison of the modes 16 to 73 between CE 207 and CE 800. The next page does not present the comparison.
2. In package SQ 148G-(Q), section 10, the reference to damping as 0.005 in the displacement calculations is meaningless.
3. SQ 148G-(Q), page 3.0, old analysis reference is left blank.
4. Labeling of plots in package SQ 148H-(Q), section 6.0, is misleading:
x due to z quake
SRSS of xyz direction
5. Program SPECTRA-SRSS (project developed)
 - o Displacement and velocity unit are labeled "G."
 - o Title label misleading (see 4).
6. SQ 148H-(Q), page 4.15, the frequency variation due to mass variation is inverted; it should read 4.79% decrease, 5.14 % increase.
7. SQ 148G-(Q), page 3.0, reference to Design Response Spectra calc SQ 141-(Q) (Rev.0) is incorrect. Should be SQ 144-(Q) (Rev. 1).
8. Reference I/C221 in DWG C-205 and C-206 is incorrect; it applies to DWG C-202.
9. Users Manual of BSAP-DYNAM (CE 207) Rev.0:
 - Pg. 4-4: Reference to Appendix A is incorrect.
 - Pg. B-2 and following: The values given in Table B-3 are not the ones used in the computer run Pg. B-31.

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

TYPE OF REPORT: OPEN _____ CONFIRMED X
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FILE NO. 3201-008
DOC NO. 3201-008-C -101
REV. NO. _____

DATES REPORTED TO: LTR 12/9/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/9/83
PRINCIPAL-IN-CHARGE 12/12/83 CPC/DESIGN ORG. _____

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

Auxiliary Building, AFW System

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

III.1-1 Seismic Design/Input to equipment

DESCRIPTION OF CONCERN:

No compatibility study between stick and finite element model could be found although it is mentioned in CALC. DQ-38(Q), page C-1

SIGNIFICANCE OF CONCERN:

The two models may not be compatible in terms of equilibrium and deflection.

RECOMMENDATION X OR RESOLUTION _____:

Determine whether comparison has been made. If so review study, if not assess impact on model behavior. Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

DQ-38(Q)

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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-102
REV. NO. _____

DATES REPORTED TO: LTR 12/9/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/9/83
PRINCIPAL-IN-CHARGE 12/12/83 CPC/DESIGN ORG. _____

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

Auxiliary Building, AFW System

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

III.1-1 Seismic Design/Input to Equipment

DESCRIPTION OF CONCERN:

Inconsistencies between values presented in calculation package SQ 148B-(Q) and values used in computer input. See attached sheet.

SIGNIFICANCE OF CONCERN:

Analysis and design may not be conservative

RECOMMENDATION X OR RESOLUTION _____:

Review significance and root cause of error. Process per POAP.

COMMENTS BY SRT (IF REQUIRED):

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

CALC. SQ-148 -(Q)

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Inconsistencies between calculation package and computer input:

1. Node 123 has y coordinate -53.5 in calculation and -49.0 in computer run.
2. Beam section 5 has shear area 1636 ft² in calculation and 1638 ft² in computer run.
3. Beam section 59 has $A = A_x = A_y = 64$ ft² in calculation and 40 ft² in computer run.
4. Beam 116, section 46 I_y is 0.1 ft⁴ in calculation and 694 ft⁴ in computer run.
5. Plate element 72 of EPA has 3.5 ft thickness in calculation and 21.0 in computer run.
6. Response spectrum curve 3 (damping = .01), the .330 Hz amplitude is entered as 10.304 ft/sec² instead of 1.0143 ft/sec² (velocity and displacements also incorrect) -- SQ 148G-C15, and C12. Error due to a zero entered as a letter O.

**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-103
REV. NO. _____

DATES REPORTED TO: LTR 12/9/83 SRT _____
PRINCIPAL-IN-CHARGE 12/13/83

PROJECT TEAM/PROJECT MGR. 12/9/83
CPC/DESIGN ORG. _____

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

Auxiliary Building, AFW System

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

III.1-1 Seismic Design/Input to Equipment

DESCRIPTION OF CONCERN:

Use of approximate equations beyond their range of application. See attached sheet.

SIGNIFICANCE OF CONCERN:

Analysis and design may not be conservative.

RECOMMENDATION X OR RESOLUTION _____:

Review significance of error. Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

CALC. SQ 148D-(Q))

SIGNATURE(S):

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1. The approximate equation:

$$J_{xx} = I_{xx} \gamma h$$

where J_{xx} = mass moment of inertia

I_{xx} = area moment of inertia

γ = density of walls

h = height of walls for given lumped mass point

used to compute local mass moment of inertia for floors is not applicable to single walls such as the underpinning and the electrical penetration area (EPA). (SQ 148D-(Q), page 1213)

2. The approximate equation:

$$J_{zz} = J_{xx} + J_{yy}$$

where J_{zz} = mass moment of inertia

xx, yy, zz = respective axis

is not applicable to single walls such as the underpinning or EPA (SQ 148D-(Q), page 1311)

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-104
REV. NO. _____

DATES REPORTED TO: LTR 12/9/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/9/83
PRINCIPAL-IN-CHARGE 12/12/83 CPC/DESIGN ORG. _____

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

Auxiliary Building, AFW System

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

III.1-1 Seismic Design/Input to Equipment

DESCRIPTION OF CONCERN:

Inconsistencies and errors in mass moment of inertia calculations. See attached sheets.

SIGNIFICANCE OF CONCERN:

Analysis and design may not be conservative or adequately documented.

RECOMMENDATION X OR RESOLUTION _____:

Review significance of error. Review CALC. SQ 148K-(Q) provided by Bechtel 12/1/83 after some of these concerns surfaced in 10/27/83 meeting with Bechtel. Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

See attached sheets.

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ATTACHMENT TO 3201-008-C-104

1. The mass of the MA* base slab (el.568) is considered twice: the first time as a 6.0' slab excluding the projection of the external shear wall, then a second time as a 5.0' slab. Both are added. (SQ-148D-(Q), page 958 and SQ 148D-(Q), page 1199).
2. 2.0' are missing (between elevation 562.0' and 564.0') from the CT underpinning wall mass calculation (SQ 148D-(Q), page 1199).
3. The calculations related to the EPA underpinning refer to the superseded configuration of the underpinning wall.
4. Mass moment of inertia of building about base is done in two steps:
(1) for the MA + RR + CT taken about the center of rocking ($x = 99.91'$, $y = 0.04'$),
(2) for the EPA with respect to point ($x = 211.23'$, $y = \pm 89.95'$) but no documented basis for that point could be found.

The mass moment of inertia is then taken with respect of the center of torsion of MA + RR + CT (no wings included) ($x = 107.75'$, $y = 2.35'$) by use of the formula $I' = I_o + mr^2$. This equation is approximate because the center of rocking does not coincide with the projection of the center of gravity of the building (never computed). More importantly, the x coordinate of all the above points is off by 28.25'. Ref.(SQ 148D-(Q)).

*MA = Main Auxiliary Building

CT = Control Tower

RR = Railroad Bay

EPA = Electrical Penetration Area (Wings)

- 2 -

5. The mass moment of inertia for the foundation node (239) is computed separately for MA, CT, and EPA (RR ignored) at the center of gravity of their respective slabs or underpinnings (el.565'),

$$\begin{array}{lll} x = 71.47' & x = 172.31' & x = 181.25' \\ y = 0.04' & y = 0.06' & y = \pm 91.25' \text{ respectively.} \end{array}$$

These are then combined at the center of torsion of MA and CT (EPA excluded), although the contribution of both EPA is included by simple addition (no mr^2 term?). The x coordinate of the center of torsion ($x = 107.75'$, $y = 2.35'$) is off by 28.25'. In the computer model, these quantities are applied to node 239 ($x = 81.64'$, $y = -2.31'$), described as the center of gravity of effective rocking area. (SQ 148 D-(Q)).

6. The 25% live load is not included for the EPA wings (SQ 148 D-(Q)).
7. In the EPA the slab weights are not consistent between mass moment calculation and stick packages, (SQ 148 D-(Q)) for example:

Elevation 628.5'

p 1030: $A = 1016.4 \text{ ft}^2$, $w = 418.0^k$ including 25% LL

p 1181: $A = 1786 \text{ ft}^2$, $w = 624^k$ excluding 25% LL

Elevation 659.0'

p 1086: $w = 593.3^k$ including 25% LL

p 1186: $w = 749.11^k$ excluding 25% LL

8. (SQ 148 D-Q)(p.1080) In the calculation for the center of gravity for the equipment at EL.659', 1243000 lb., the sign of the X-coordinate (which is the Y-coordinate of the Fig. on p.1057) appears to be in error. The center of gravity of equipment is incorrectly calculated as the mirror image, of the N-S centerline, instead of the actual center of gravity.

**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 -105
REV. NO. _____

DATES REPORTED TO: LTR 12/9/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/9/83
PRINCIPAL-IN-CHARGE 12/12/83 CPC/DESIGN ORG. _____

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

Auxiliary Building, AFW System

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

III.1-1 Seismic Design/Input to Equipment

DESCRIPTION OF CONCERN:

Use of Program CE 207 in situation where it may not be applicable. See attached sheet.

SIGNIFICANCE OF CONCERN:

Analysis and design may not be conservative.

RECOMMENDATION X OR RESOLUTION _____:

Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

SQ 148F-(Q)

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1. Program CE 207 uses a procedure developed by Tsai which is applicable for $w_x/w_i > 2$. (Soil-structure Interaction During Earthquakes, Bechtel Corporation May 1, 1972). For the auxiliary building $w_x/w_i < 2$ Justification has not been provided for using program when $w_x/w_i < 2$ (see equation 4.1, page 4-2) where

w_x = rigid structure translation frequency

w_i = fundamental frequency of the fixed base structure.

2. The Tsai procedure was developed and justified for simple structures. No justification was found for application to a complex structure such as aux. bldg. Justification for determining that the procedure provides reliable results when applied to a structure of such variable stiffness and geometry as the auxiliary building.

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

TYPE OF REPORT: OPEN _____ CONFIRMED X _____
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FILE NO. 3201-008
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DATES REPORTED TO: LTR 12/9/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/9/83
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STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:
Auxiliary Building, AFW System

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):
III.1-1 Seismic Design/Input to Equipment

DESCRIPTION OF CONCERN:
Input and assumptions in the soil-structure analysis. See attached sheets

SIGNIFICANCE OF CONCERN:
Soil structure analysis may not be conservative or may not implement committed criteria.

RECOMMENDATION X OR RESOLUTION _____:
Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

SQ 148F-(Q)

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Attachment to 3201-008-C-106

1. Justification for not checking the assumed soil strain of $4.5 \times 10^{-3}\%$ after the analysis to determine that the input is conservative.
2. Justification for neglecting the soil layering effect and depth to bedrock.
3. Justification for selecting case 3 analysis over 1 and 2, when case 3 gives lower wing constants under the wings.
4. Justification for using equivalent circular foundation when actual dimensions have large length to width ratio.
5. Justification for selecting the frequency of the soil-structure system used to calculate the dimensionless frequency ratio a_o ($a_o = wR/V_s$). (see calculation sheet 66 of SQ-148-F(Q)):

These frequencies weren't obtained according to the recommended expression (equation L-20) given in BC-TOP-4 Rev. 4, although Appendix P of this manual was used to evaluate the impedances of the embedded foundations. It is recognized that this particular item may be of minor importance given that a greater uncertainty exists in the shear wave velocity V_s than in the frequency w .

6. Although the coefficients used to analyze embedment effects were considered frequency dependent (see the previous item. 5), the technique used to calculate the spring and damping values were not considered frequency dependent. This is related to a lack of consistency in the computation. Revision 3 of BC-TOP-4 was used for the case without embedment (frequency independent parameters), while revision 4 was used for the case with embedment (frequency dependent parameters.)

**MIDLAND INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION
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DOC NO. 3201-008- C. 107
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PRINCIPAL-IN-CHARGE 12/12/83 CPC/DESIGN ORG. _____

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

Auxiliary Building, AFW System

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

III.1-1 Seismic Design/Input to Equipment

DESCRIPTION OF CONCERN:

Stick model assumptions.

1. Sticks are located at the center of shear areas rather than the shear center (SQ 148 C-(Q)).
2. Sticks modeling the electrical penetration area are located uniformly at the coordinates of the 614.0' elevation even though some are off from that position by $\pm 5.0'$ at other elevations.

SIGNIFICANCE OF CONCERN:

Analysis and design may not be conservative

RECOMMENDATION X OR RESOLUTION _____:

Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

SQ 148C-(Q)

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PRINCIPAL-
IN-CHARGE
12/12/83

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. 3201-008-C-108
REV. NO. _____

DATES REPORTED TO: LTR 12/9/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/9/83
PRINCIPAL-IN-CHARGE 12/12/83 CPC/DESIGN ORG. _____

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

Auxiliary Building, AFW System

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

III.1-1 Seismic Design/Input to Equipment

DESCRIPTION OF CONCERN:

Stick Model input
See attached sheets.

SIGNIFICANCE OF CONCERN:

Analysis and design may not be conservative

RECOMMENDATION X OR RESOLUTION _____:

Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

SQ 148 C-(Q)

SIGNATURE(S):

CPM
OCR ITEM REPORT
ORIGINATOR

12/9/83

DATE

JAM

LTR

12/9/83

DATE

HAL

PROJECT MANAGER
FOR PROJECT TEAM

12/9/83

DATE

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PRINCIPAL-
IN-CHARGE

12/12/83

DATE

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DATE

ATTACHMENT TO 3201-008-C-108

1. South wall of control tower is disregarded in shear between el. 634.5' and 685.0' because slabs are not connected to that wall. This appears unwarranted.
2. Walls 8, 9, and 10 from elevation 614.0' to 634.0' are considered to have a 50% shear area because walls do not touch ceiling. The basis for this reduction has not been provided. Bending and torsional properties of the stick are unmodified for the shorter walls. (Ref. SQ 148-C-7(Q)).
3. From elevation 634.0' to 659.0' the MA* is considered as 2 sticks, then their properties are averaged. This does not reflect the torsional independence of the two elements. (Ref. SQ 148-C-7(Q)).

Walls 38 and 39 at elevation 634.5' and walls 42 and 44 at elevation 646' (pool) do not appear as being shear resisting elements. (Ref. SQ-148-C-5(Q) p. 683 & 692.)

5. SQ 148 D-(Q) page 1081 elevation 659.0'
 - o There is opening in slab over RR bay. Slab 2 should be only partially included.
 - o To be consistent with rest of calculation, slab 14 should be divided between M.A. and C.T. Same comment for slab 9 at el. 646.0'.
6. When averaging stick properties from elevation 568.0'-574.0' and 574.0'-584.0', no height weighting is introduced.
7. Justification for using the expression
$$\frac{bt^3}{3}$$
where t = wall thickness
 b = wall length
to compute wings torsional stiffness rather than using bending and shear contribution as for the rest of the building. (Ref. SQ 148-C-9(Q)).

* MA = Main Auxiliary Building

8. Justification for assigning the 1/3 of torsional stiffness to each wing stick.
9. In the shear area special study, the wall counting is biased toward the fixed-fixed type, for example:

	<u>Reported</u>	<u>Correct</u>
page 930	13 walls	11 walls
	3 fixed-free	5 fixed-free
	10 fixed-fixed	5 fixed-fixed
	0 free-free	1 free-free
page 931	13 walls	11 walls
	2 fixed-free	2 fixed-free
	11 fixed-fixed	9 fixed-fixed

(Ref. SQ-148-C(Q))

10. Justification for not inputting in the computer model the mass movement of inertia for masses other than the foundation.

**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.109
REV. NO. _____

DATES REPORTED TO: LTR 12/8/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/14/83
PRINCIPAL-IN-CHARGE 12/14/83 CPC/DESIGN ORG. _____

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:
Standby electric power - Diesel generator (DG)

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):
Topic 1.19-2: DG Control Systems Task 190

DESCRIPTION OF CONCERN:
Contrary to IEEE 387-1977, Section 5.6.2.2, an ESFAS diesel generator start signal will not override the 60 second coastdown interlock.

SIGNIFICANCE OF CONCERN:
If a DG start signal initiated during the 60 second coastdown period, the air start system would initiate and roll the machine. However, the coastdown interlock would prevent fuel flow. During this period, if the air start accumulators deplete to 150 psig another interlock would defeat all auto starts.

RECOMMENDATION X OR RESOLUTION _____:

Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):
FSAR 8.1.4.3; J-879, SH-1 REV 0, SH-2 REV 0; NRC IE Notice 83-17

SIGNATURE(S):

GR
OCR ITEM REPORT
ORIGINATOR
12/06/83
DATE

JS
LTR
12/08/83
DATE

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PROJECT MANAGER
FOR PROJECT TEAM
12/14/83
DATE

JWB
PRINCIPAL-
IN-CHARGE
12/14/83
DATE

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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-110
REV. NO. _____

DATES REPORTED TO: LTR 12/06/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/14/83
PRINCIPAL-IN-CHARGE 12/14/83 CPC/DESIGN ORG. _____

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:
Standby electric power - Diesel Generator

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):
Topic 1.24-2: DG Load Capacity Task 186

DESCRIPTION OF CONCERN:

An independent calculation was made for the Unit 2, Load Group II, Diesel generator loads and compared with Bechtel calculations QPE-1, REV 1. Although the calculated loads agreed within 2 percent, the load constituents differed significantly (see attachment 1).

SIGNIFICANCE OF CONCERN:

- (1) QPE-1, REV 1, may be invalid as a basis for future load changes.
- (2) The initial load step is greater than that specified in the diesel generator material requisition, 7220-M-18(Q), REV. 9, Appendix B.

RECOMMENDATION X OR RESOLUTION _____:

Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

QPE-1, Rev 1

SIGNATURE(S):

GR
OCR ITEM REPORT
ORIGINATOR

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LTR

HAL

PROJECT MANAGER
FOR PROJECT TEAM

JB

PRINCIPAL-
IN-CHARGE

SRT (IF REQUIRED)

12/06/83
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12/06/83
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12/14/83
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12/14/83
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Attachment I to OCR-C-110
Sample Potential Load Discrepancies

1. QPE-I includes two RCS Makeup pumps (2P-58B&C), however only one can be running at a time (ref. J-232, Sht. 1, Rev. 5). This is a discrepancy of 900 hp.
2. QPE-I appears to have utilized kVA instead of kW for:

Bus 2B24	2VM-05B	Switchgear Room Unit Cooler
Bus 2B24	2VM-50B	DHRS Room Unit Cooler
Bus 2B24	2VM-52B	CCW Room Unit Cooler
Bus 2B24	2VM-55B	ESF Room Unit Cooler
3. Examples of items not included in QPE-I are:

Bus 2B24	2VE-54B	Hydrogen Recombiner
Bus 2B24	2VM-51C	Makeup Pump Room Unit Cooler
Bus 0B46	0VE-04B	Fuel Handling Electric Heating Coil
Bus 2B24	2P-129C	MVP Lube Oil Pump
Bus 2B56	2VM-121B	Aux. Building Unit Cooler
Bus 2B80	-	Pressurizer Heater
4. QPE-I assumes no load on transformer OX95 (rated at 25 kVA).
5. QPE-I assumes 15kW for Battery Charger 2D25, instead of 75 kVA.
6. Service water booster pump 2P-232B assumed at 50kW, yet full load amps are 96 (≈60kW).

**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 .111
REV. NO. _____

DATES REPORTED TO: LTR 12/06/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/14/83
PRINCIPAL-IN-CHARGE 12/14/83 CPC/DESIGN ORG. _____

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

SEP System - Class IE battery charger

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

Topic 1.24-2, Electrical Load Capacity - DC

DESCRIPTION OF CONCERN:

The following apparently inconsistent statements are made in the FSAR relative to battery charger capability:

- (1) Can recharge battery while carrying largest combined demand of the various steady-state and transient loads irrespective of the status of the plant.
 - (2) Capable of carrying the respective normal steady-state and post-accident 125VDC loads.
 - (3) Can recharge battery while supplying the maximum demand of the steady-state loads.
- Therefore the criteria and commitments for the battery chargers are unclear and conflicting

SIGNIFICANCE OF CONCERN:

The suitability of chargers depends on defined load requirements. If the criteria which the battery chargers have to meet are unclear or conflicting, then the equipment may not satisfy its intended function.

RECOMMENDATION X OR RESOLUTION _____:

Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

FSAR Appendix 3A, 8.1.4.3, 8.3.2.1.2, 8.3.2.2.1 (R.G. 1.6), 8.3.2.2.1 (IEEE 308), R.G. 1.3 2; IEEE 308.

SIGNATURE(S):

GES
OCR ITEM REPORT
ORIGINATOR

12/06/83
DATE

GES
LTR

12/06/83
DATE

HAL
PROJECT MANAGER
FOR PROJECT TEAM

12/14/83
DATE

JB
PRINCIPAL-
IN-CHARGE

12/14/83
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. 3201-008-C - 112
REV. NO. _____

DATES REPORTED TO: LTR 12/9/83 SRT _____
PRINCIPAL-IN-CHARGE 12/14/83

PROJECT TEAM/PROJECT MGR. 12/14/83
CPC/DESIGN ORG. _____

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

Emergency Diesel Generator Exhaust Lines.

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

Topic: 1.30.2 - Emergency Diesel Generator Exhaust Back Pressure.

DESCRIPTION OF CONCERN: Bechtel Calculation⁽¹⁾ for sizing emergency diesel generator exhaust lines is based on inputs/assumptions that are of concern.

1. Calc. assumes a 15' length between expansion joint and exhaust silencer. Ref. [2] shows a 24.55' length.

Ref[1], Sheet 5, shows a friction factor of 0.015 for $Re = 3.65 \times 10^5$ & relative roughness of .0008. Actual friction factor for these inputs is 0.0197^[3].

Calc uses an exhaust gas flow rate 20,100 SCFM per ref. [4] Ref. [5] shows a flow rate of 22,900 SCFM.

Calc assumes exhaust gas is treated like air which does not consider the density of the combustion by product gases.

SIGNIFICANCE OF CONCERN:

the selected exhaust line sizes based on Bechtel calc[1], the exhaust back pressure may exceed the maximum allowable pressure recommended by the manufacturer of 10" W.G. [5].

RECOMMENDATION X **OR RESOLUTION** _____:

Perform alternate calculation.
Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

1. Bechtel Calc. No. FM-6320-1 3. Moody Diagram 5. 7220-M18-25-5
2. Drawing 7220M-652 Rev. 11 4. DeLaval Corres. #17 File M-18

SIGNATURE(S):

NB	GES	HAL	JB	
OCR ITEM REPORT ORIGINATOR	LTR	PROJECT MANAGER FOR PROJECT TEAM	PRINCIPAL- IN-CHARGE	SRT (IF REQUIRED)
12/14/83	12/14/83	12/14/83	12/14/83	
DATE	DATE	DATE	DATE	DATE

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

TYPE OF REPORT: OPEN _____ CONFIRMED <u>X</u> RESOLVED _____ ITEM _____	FILE NO. <u>3201-008</u> DOC NO. <u>3201-008-C-113</u> REV. NO. _____
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DATES REPORTED TO: LTR <u>12/6/83</u> SRT _____ PRINCIPAL-IN-CHARGE <u>12/14/83</u>	PROJECT TEAM/PROJECT MGR. <u>12/14/83</u> CPC/DESIGN ORG. _____
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STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:
 Auxiliary Building Slab at El. 659'-0".

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):
 III.7-1

DESCRIPTION OF CONCERN:
 Load inputs provided or referenced are not consistent with those used in design calculations. Examples are provided on attached sheet.

SIGNIFICANCE OF CONCERN:
 The structural design may not be conservative or adequately documented.

RECOMMENDATION X OR RESOLUTION _____:
 Process per PQAP

COMMENTS BY SRT (IF REQUIRED):

REFERENCES (INCL. RELATED OCR ITEM REPORT NO.):
 Calc. Pkg. 66-9(Q), Rev.0

SIGNATURE(S):				
A.V.M.	J.M.	H.A.L.	J.W.B.	SRT (IF REQUIRED)
OCR ITEM REPORT ORIGINATOR	LTR	PROJECT MANAGER FOR PROJECT TEAM	PRINCIPAL- IN-CHARGE	
<u>12/6/83</u>	<u>12/6/83</u>	<u>12/14/83</u>	<u>12/14/83</u>	_____
DATE	DATE	DATE	DATE	DATE

ATTACHMENT TO 3201-008-C-113

Calc. Pkg. 66-9(Q), Rev.0
OCR Items

1. Page 12: In calculation of M_{yy} for load case 2, a span of 7'-0" was used. However, on page 3, the span is given as 7'-9".

2. Pages 16 & 17: When transferring forces from the schedule given on page 16 to page 17, the following errors were made:

Element 114; $S_{xx} = 0$, transferred as - 5.4K/Ft.

Element 116; $S_{xx} = 0.2$ transferred as - 1.4K/Ft.

Element 125; $S_{xy} = 8.8$ transferred as - 5.3K/Ft.

The total shear in element 125 should be 302.1K instead of the calculated 267.1K. The capability of the slab to withstand a shear of 302.1K should be evaluated, consistent with design and acceptance criteria.

3. Pages 23 & 24: Element 173; $S_{xx} = 2.2$ transferred as 1.4K/Ft.

4. Pages 33, 34, 35 & 36:

Element 189; $S_{xx} = 20.0$ transferred as 19.4K/Ft

Element 189; $S_{xy} = 21.1$ transferred as -5.0K/Ft.

Element 206; $S_{xx} = 4.6$ transferred as -13.1K/Ft.

Element 219; $S_{xx} = 44.8$ transferred as 15.0K/Ft.

**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 J14
REV. NO. _____

DATES REPORTED TO: LTR 12/06/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/14/83
PRINCIPAL-IN-CHARGE 12/14/83 CPC/DESIGN ORG. _____

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

Auxiliary Building Slabs at El. 614'-0"

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

III.7-1

DESCRIPTION OF CONCERN:

Thickness of the slab is used instead of effective depth(d) when calculating moment capacity of slab.

SIGNIFICANCE OF CONCERN:

Slab design may not be as conservative as expected.

RECOMMENDATION X OR RESOLUTION _____:

Process per PQAP

COMMENTS BY SRT (IF REQUIRED):

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

Calc. Pkg. 66-6(Q), Rev. 0 OCR-3201-008-0-113

SIGNATURE(S):

A.V.M.
OCR ITEM REPORT
ORIGINATOR

12/06/83
DATE

J.M.
LTR

12/06/83
DATE

HAL
PROJECT MANAGER
FOR PROJECT TEAM

12/14/83
DATE

JWB
PRINCIPAL-
IN-CHARGE

12/14/83
DATE

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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-115
REV. NO. _____

DATES REPORTED TO: LTR 12/06/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/14/83
PRINCIPAL-IN-CHARGE 12/14/83 CPC/DESIGN ORG. _____

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

Aux. Bldg. AFW-System, CR-HVAC System

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

III.7-1 Concrete/Steel Design

DESCRIPTION OF CONCERN:

In evaluations of slabs north of G column line, weights of heavy equipment were not included in the calculations in the way outlined in calc. 66-0(Q), Rev. 0. The following equipment were not included: on slab @E1.614', calc. 66-6(Q) Rev.1, Equipments #1; 80000 lb; #6, 80000 lb.; #7; 34300 lb. (equipment numbers and weights as in calc. SQ-1480(Q)). On slab @ el. 659', calc. 66-9(Q), Rev. 1, Equip. #1; 300000 lb; #2; 300,000 lb. were not included.

SIGNIFICANCE OF CONCERN:

Analysis may not be conservative.
Also, implementation of design criteria cannot be verified.

RECOMMENDATION X OR RESOLUTION _____:

Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

Calc. No. 66-6(Q), Rev. 1
Calc. No. 66-9(Q), Rev. 1

SIGNATURE(S):

J.A.
OCR ITEM REPORT
ORIGINATOR

12/06/83
DATE

J.M.
LTR

12/06/83
DATE

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FOR PROJECT TEAM

12/14/83
DATE

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PRINCIPAL-
IN-CHARGE

12/14/83
DATE

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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-116
REV. NO. _____

DATES REPORTED: LTR 12/06/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/14/83
PRINCIPAL-IN-CHARGE 12/14/83 CPC/DESIGN ORG. _____

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

Aux. Bldg. AFW System, CR-HVAC-System

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

III.7-i Concrete/Steel Design, III.6-1 Foundations

DESCRIPTION OF CONCERN:

- (1) None of the load combination of document C-501(Q) Sections 9.5.1(a) and (b) and Sections 9.5.1(a) and (b) include P_L (effects of jacking preload on structure) whereas the corresponding load combinations of the FSAR include P_L .
- (2) FSAR load combinations 4, 5, 6 include T (effects of differential settlement) whereas the corresponding C-501(Q) load combinations include T_o (thermal effects during normal operation).
- (3) None of the C-501(Q) load combinations include T (effect of differential settlement)

SIGNIFICANCE OF CONCERN:

Design of the aux. bldg. based on analysis of the load combinations as defined in C-501(Q) may be less conservative than design based on FSAR load combinations.

RECOMMENDATION X OR RESOLUTION _____:

Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

- (1) Document 7220-C-501(Q), Rev. 12
(2) FSAR (3) BSAP-Post Computer Program

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JA
OCR ITEM REPORT
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12/14/83
DATE

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12/14/83
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SRT (IF REQUIRED)

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DESCRIPTION OF CONCERN:

- (4) BSAP-Post Program load combination $U=1.0 (D+L+E)+1.0P_L+1.0T$ is not consistent or conservative w/respect to FSAR load combination $1.4 (D+L+E)+1.0P_L+1.0T$.

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-117
REV. NO. _____

DATES REPORTED TO: LTR 12/6/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/14/83
PRINCIPAL-IN-CHARGE 12/14/83 CPC/DESIGN ORG. _____

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

Auxiliary Building, AFW & CR-HVAC Systems & Components

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

Topic III.7-1 Concrete/Steel Design, Finite Element Analysis

DESCRIPTION OF CONCERN:

In the evaluation of stresses at slabs and walls based on the results from the finite element analysis, the procedures to calculate stresses and to qualify the calculated stresses as being acceptable may not be in conformance to the FSAR, C-501(Q), or the codes referenced in the FSAR table 3.8-37. The following procedures are noted:

- (1) a) For slabs South of G-column line no calculations could be identified addressing evaluation of stresses due to out of plane bending.
- b) For slabs North of G-line the flexibility effect of the steel framing under the

SIGNIFICANCE OF CONCERN:

Inappropriate procedures may have been used to show conformance of stresses in slabs and walls to the requirements of design criteria. Some slabs and walls may not meet the requirements of design criteria.

RECOMMENDATION X OR RESOLUTION _____:

Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

SIGNATURE(S):

J.A.
OCR ITEM REPORT
ORIGINATOR
10/13/83
DATE

J.M.
LTR
10/13/83
DATE

HAI
PROJECT MANAGER
FOR PROJECT TEAM
12/14/83
DATE

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DATE

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DATE

DESCRIPTION OF CONCERN: (continued)

slabs has not been considered when evaluating the slabs for the combined action of in-plane and out-of-plane forces. In other words, bending stresses in the slab due to curvature in the (beam & slab) is ignored. (ref. 66.6(Q))

(2) Technical justification for stress distribution procedure for overstressed elements has not been provided (ref. DQ-59.1(Q), DQ-59.2(Q)).

(3) Technical justification for reduction of stiffness in overstressed elements has not been provided (ref. Midland Plant Units 1 and 2, Response to NRC staff review concerns for underpinning of the Auxiliary building, June 3, 1982)

(4) Technical justification for averaging, over thickness, stresses resulting from thermal gradients in slabs and walls has not been provided (ref. DQ-59.2)

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

TYPE OF REPORT: OPEN _____ CONFIRMED _____ Observation <u> X </u> RESOLVED _____ ITEM _____	FILE NO. <u>3201-008</u> DOC NO. <u>3201-008-B. 118</u> REV. NO. _____
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DATES REPORTED TO: LTR <u>10/31/83</u> SRT _____ PRINCIPAL-IN-CHARGE <u>12/14/83</u>	OBJECT TEAM/PROJECT A. JR. <u>12/14/83</u> CPC/DESIGN ORG. _____
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STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:

Auxiliary building, AFW system

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

III.6-1 Foundations

DESCRIPTION OF CONCERN: REF: CALC. 66/1(Q)

The ref. calc. assumed that maximum pressure acting on the foundation mat occurs when the groundwater level (GWL) is at its lowest (595).

SIGNIFICANCE OF CONCERN:

It is noted that the effect of groundwater level changes to the pressure on a buried plate is opposite to what is assumed in the calc., i.e. maximum pressure occurs when GWL is at its maximum. For a structure, the average pressure, regardless of GWL, is Weight/Area of mat. The increase in pressure as used in the calc. (although incorrectly justified) introduces conservatism to this calc. and therefore does not necessitate further consideration for this calc.

RECOMMENDATION _____ OR RESOLUTION X :

Process as an observation in accordance with PI-3201-005.

COMMENTS BY SRT (IF REQUIRED):

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

Calc. 66.1(Q)

SIGNATURE(S):

J.A.
OCR ITEM REPORT
ORIGINATOR
10/31/83
DATE

J.M.
LTR
10/31/83
DATE

HAL
PROJECT MANAGER
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12/14/83
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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 - 119
REV. NO. _____

DATES REPORTED TO: LTR 10/5/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/14/83
PRINCIPAL-IN-CHARGE 12/14/83 CPC/DESIGN ORG. _____

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

6" Carbon Steel Gate Valve & operator 2 mo - 3277AV 2 mo - 3277A

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

DESCRIPTION OF CONCERN:

1. Several different actuator types were required, tested, analyzed or mounted on the valves, depending on the specified report (see references) reviewed.
2. Buckling of the yoke was mentioned, but was not evaluated. The stress may be higher than the critical stress for the calculated slenderness.
3. In evaluating the yoke as a bent type structure, the thrust component resulting from the moment was not accounted for.

(see attached sheet)

SIGNIFICANCE OF CONCERN:

Existing actuators may not be qualified, if inconsistent with those described in the various reports. The analysis may not be conservative, especially taking into account the thrust load resulting from the moment.

RECOMMENDATION X OR RESOLUTION _____:

Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

REFERENCES (INCL. RELATED OCR ITEM REPORT NO.): 7220-M117-80-2-Test Report-Actuator
7220-M117-101-3-Seismic Analysis - Valves 7220-M221-Technical Specification-Valves
7220-M117-101-3-Review by Bechtel 7220-M117-AC-Bechtel comments

SIGNATURE(S):

D. Segal
OCR ITEM REPORT
ORIGINATOR

12/6/83
DATE

JAM
LTR

12/6/83
DATE

HAL
PROJECT MANAGER
FOR PROJECT TEAM

12/14/83
DATE

JWB
PRINCIPAL-
IN-CHARGE

12/14/83
DATE

SRT (IF REQUIRED)

DATE

Description of Concern (continued):

4. The valve was assumed supported free at the welds. However, the actual support conditions could lead to different loads and moment distribution in the valve.
5. Justification for applying seismic loading in two directions (vert & horiz) and not in three.
6. Documentation was not provided showing combination of operating and seismic loads and comparison to acceptance criteria.

**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-120
REV. NO. _____

DATES REPORTED TO: LTR 12/6/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/14/83
PRINCIPAL-IN-CHARGE 12/14/83 CPC/DESIGN ORG. _____

STRUCTURE(S), SYSTEM(S), OR COMPONENT(S) INVOLVED:
10 LP Horizontal Climate Changers - 2VM-54A

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):
Seismic equipment qualification II.4-1

DESCRIPTION OF CONCERN:

- 1) Not all the loads and load combinations were considered in the analysis; operating loads such as motor torque, belt pull, nozzle loads were not combined with seismic load. Also, bending in the coil anchor bolts was neglected.
- 2) No criteria or specs were evident addressing allowable deflections for operability.

SIGNIFICANCE OF CONCERN:

- Overstressing may occur, possibly in the nozzles. Also, the dynamic response of the equipment may be different.
- 2) Operability is not demonstrated.

RECOMMENDATION X OR RESOLUTION _____:

Process per PQAP

COMMENTS BY SRT (IF REQUIRED):

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

7220-M-149-74-4

SIGNATURE(S):

D.S.
OCR ITEM REPORT
ORIGINATOR
12/6/83
DATE

J.M.
LTR
12/6/83
DATE

H.A.L.
PROJECT MANAGER
FOR PROJECT TEAM
12/14/83
DATE

J.W.B.
PRINCIPAL-
IN-CHARGE
12/14/83
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. 3201-008-C-121
REV. NO. _____

DATES REPORTED TO: LTR 12/06/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/14/83
PRINCIPAL-IN-CHARGE 12/14/83 CPC/DESIGN ORG. _____

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

10 LP Horizontal Climate Changers - 2VM-54A

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

Seismic Equipment Qualification 11.4-1

DESCRIPTION OF CONCERN:

(1) Specs allow analysis without calculations of natural frequencies using max. acceleration value of spectra. Standard review plan 3.7.2 requires 1.5 times max. acceleration.

(2) Differences exist between accelerations given for the rigid category and the ZPA's appearing in the respective spectra.

SIGNIFICANCE OF CONCERN:

Analysis may not be conservative.

Certain accelerations used in the analyses may not be conservative.

RECOMMENDATION X OR RESOLUTION _____:

Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

7220-G-7-Specs for earthquake design

IEEE - 344-1975 - Recommended practices for seismic qualifications

SIGNATURE(S):

D.S.
OCR ITEM REPORT
ORIGINATOR

12/06/83
DATE

J.M.
LTR

12/06/83
DATE

HAL
PROJECT MANAGER
FOR PROJECT TEAM

12/14/83
DATE

JWB
PRINCIPAL-
IN-CHARGE

12/14/83
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. 3201-008-C-122
REV. NO. _____

DATES REPORTED TO: LTR 12/06/83 SRT _____ PROJECT TEAM/PROJECT MGR. 12/14/83
PRINCIPAL-IN-CHARGE 12/14/83 CPC/DESIGN ORG. _____

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

10 LP Horizontal Climate Changers - 2VM-54A

IDCV PROGRAM AREA OR TASK (IF APPLICABLE):

Seismic Equipment Qualification 11.4-1

DESCRIPTION OF CONCERN:

The lower natural frequencies were neglected in the calc of nozzle deflections, due to stiffer isolators. The deflection of the isolator is 1/32" and cannot be considered rigid compared with nozzle deflections resulting from the analysis: 0.001"-0.004". Also, the modeling and analysis of various components appears to inadequately consider expected behavior.

SIGNIFICANCE OF CONCERN:

Analysis may not be conservative.

RECOMMENDATION X OR RESOLUTION _____:

Process per PQAP.

COMMENTS BY SRT (IF REQUIRED):

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

7220-M-149-74-4-Original analysis and addendum. Seismic analysis.

SIGNATURE(S):

D.S.
OCR ITEM REPORT
ORIGINATOR

12/06/83
DATE

J.M.
LTR

12/06/83
DATE

HAL
PROJECT MANAGER
FOR PROJECT TEAM

12/14/83
DATE

JWR
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IN-CHARGE

12/14/83
DATE

SRT (IF REQUIRED)

DATE