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CC: JGilray, USNRC Office of Nucl  
Reactor Regulation (w/enc)

## INTRODUCTION AND EXECUTIVE SUMMARY

Management Analysis Company (MAC), under Contract No. CP10-0619 with Consumers Power Company (CPCo), provided consulting services relative to the Midland Project Quality Assurance Program. The consulting services involved the performance of the following three tasks:

- An assessment of the adequacy and timeliness of both part and process corrective actions taken on a sample of "big ticket" hardware problems. (Covered in Section A of the report.)
- Using sampling techniques, an assessment of the degree to which the physical characteristics of selected significant supplied components and parts meet their respective quality requirements. (Covered in Section B of the report.)
- Based on the subtasks enumerated as follows, an assessment of the overall adequacy of the Quality Assurance Program (covered in Section C of the report):
  - An assessment of the corrective actions in response to the 1980 Biennial Quality Assurance Audit. (Covered in Section C-1.)
  - An assessment of the results of Tasks A and B given immediately above. (Covered in Section C-2.)
  - An assessment of the effectiveness of the supplier documentation re-review efforts currently underway. (Covered in Section C-3.)
  - An assessment of the adequacy of the Checkout and Preoperational Testing activities. (Covered in Section C-4.)
  - An assessment of personnel qualifications. (Covered in Section C-5.)

The field activities at Midland, Ann Arbor and Jackson, Michigan were performed between February 23, 1981 and April 30, 1981, by the eight MAC associates listed in the table below, with Jack Norris as team leader. The MAC team had a total of 85 years of combined nuclear experience.

<u>Team Member</u>	<u>Task</u>									
	<u>A</u>	<u>B</u>	<u>C-1</u>	<u>C-2</u>	<u>C-3,I</u>	<u>C-3,II</u>	<u>C-3,III</u>	<u>C-3,IV</u>	<u>C-4</u>	<u>C-5</u>
J. Norris	x	x	x	x	x	x	x	x	x	x
J. Marcella		x			x	x	x			
J. Orlando		x			x		x	x		
C. Smirolodo	x				x					x
E. Dolim		x								
M. DuDeck		x								
T. Eddinger									x	
R. Herbst					x					

The results of the assessment are classified into three levels as follows:

Finding - A serious deficiency in that it is a technical deficiency or a possible technical deficiency.

Concern - An administrative deficiency.

Observation - An item which should be noted but is discretionary as to requiring further action at this time.

Following is a summary, by task, of the results of this evaluation.

#### Task-A

##### 1.0 Summary of Task

The adequacy and timeliness of both the action necessary to correct the part (part corrective action) and the action necessary to preclude recurrence of the problem was assessed by selecting a sample of ten of the twenty 50.55(e) reported items for which final reports were submitted to the NRC and for which there had not yet been an NRC response.

Of the ten items selected, the part and process corrective actions relative to the specific deficiency appeared to be appropriate. Four of the ten have further actions necessary to close out the part corrective action. In one instance concerning the Control Room Air Filter System, it appeared that the corrective action was directed to the specific problem and, as such, failed to assure that all specification requirements for that item were met. In another related to ITT Grinnell pipe supports, while the part corrective action was good, there was a failure to consider possible conflict with an FSAR commitment. In a third related to the Main Control Status Display Panel, there was evidence of failing to follow through on a corrective action commitment after it was found impossible to implement at the originally designated location. The fourth relative to the liner plate bulge, requires follow-up to assure that necessary committed actions are completed. These cases are covered in detail in Section A of the report.

## 2.0 Assessment

In all cases, the corrective actions relative to the specific deficiency appeared to be appropriate to the circumstances and, as such, would preclude a recurrence of that problem for that item; however, the implementation, completion and documentation of corrective actions appeared to be slow in several instances. Further, the corrective actions in some instances are too specifically focused on the problem at hand.

## Task B

### 1.0 Summary of Task

The degree to which significant physical characteristics of selected procured materials and components met their respective quality requirements was performed by selecting twenty-two items and conducting visual and dimensional inspection of approximately 270 individual characteristics, including an installed system walkdown covering ten components. With two exceptions, ITT spool pieces which measured shorter than required, dimensions conformed to specified requirements. In the laydown area, inspection of the crane trolley for the Ederer 125

ton crane for the Auxiliary Building disclosed undersized fillet welds, questionable weld profiles and undercut. This led to a reinspection using Ederer marked up drawings showing critical welds. The reinspection confirmed the finding and led to origination of a Bechtel NCR M-01-9-1-048. The deficiencies identified were evaluated as not reportable under 50.55(e), but technical disposition of the nonconformances had not been made at the completion of this assessment.

## 2.0 Assessment

Except for the auxiliary building crane trolley, physical inspection demonstrated a high level of conformance to requirements. Minor dimensional variations on two pipe spools located in the laydown area were detected. The welding deficiencies on the structure of the crane trolley are perceived as the most significant. The evaluators considered this finding to be an isolated case, both because there were no other weld deficiencies identified during this reinspection and because Bechtel/MPQAD have previously identified and taken action to evaluate and obtain technical disposition of similar welding deficiencies on other components. Other variances from Bechtel procedures were observed in the area of storage and segregation control. These were classified as observations because they were not within the scope of this task.

The "System Walkdown" review indicated no deficiencies in the area of documentation and identification of hardware and systems. Final evaluation confirms compliance with existing procedures.

### Task C-1

#### 1.0 Summary of Task

The adequacy and timeliness of corrective actions relative to the 1980 Biennial Quality Assurance Audit was assessed by reviewing the nineteen MAC findings and CPCo responses relating to the Midland Project.

In all but two cases the corrective actions recommended appeared to have correctly addressed the root cause of the problem. One of these two appeared to be an invalid finding. The other, a valid finding but on non-Q items, was not within the scope of the audit.

Of the nineteen findings, four were closed within ninety days of the transmittal of the findings to the identified action organization. Eight were not closed until after seven months.

## 2.0 Assessment

Except as noted above, the corrective action appeared to be correctly directed to resolve the root cause of the finding; however, the timeliness of corrective action did not appear to be adequate in a majority of the cases. Part of the delay appears to be due to lack of understanding, or unwillingness to challenge an audit finding prior to or during the exit interview. This would have disposed of, or accelerated disposition of four of the nineteen findings. Another delay occurred due to holding up procedural revisions for a general revision of the Quality Assurance manuals. This accounted for five of the eight findings not being closed for up to seven months.

In summary, the corrective actions were appropriate to the circumstances, but the timeliness of corrective action needs to be improved.

### Task C-2

The results of Task A relative to corrective action on 50.55(e) reported items and of Task B relative to conformance of supplied hardware have been individually assessed in their respective sections.

### Task C-3

#### 1.0 Summary of Task

The effectiveness of the re-reviews of Bechtel and NSSS quality verification documentation for procured items was performed by taking documentation samples, stratified both by dates of procurement and

diversity of hardware, and performing an assessment of the documentation using the same criteria previously used for the re-reviews. In all cases, a groundrule was that the document had to have been re-reviewed by others before the effectiveness of the re-review was assessed by MAC. One hundred and five document packages, covering forty different suppliers, were randomly selected and evaluated. Sixty-seven of these had been previously re-reviewed by Bechtel at Ann Arbor, twenty-five by Bechtel at Midland and thirteen NSSS packages previously re-reviewed by Babcock & Wilcox (B&W), Lynchburg.

The results of this assessment showed two findings, one concern and six observations involving eight of sixty seven packages re-reviewed by Bechtel at Ann Arbor and containing nearly seven thousand documents. The observed fraction defective, based upon total documents was slightly over one tenth of one percent. Similarly, the evaluation of twenty-five Bechtel packages re-reviewed at Midland showed two observations for an observed fraction defective of less than one tenth of one percent. The re-review of thirteen NSSS packages showed no deficiencies in twelve of the thirteen. One package had five incomplete documentation entries resulting in five concerns for an observed fraction defective of three tenths of one percent. On a percent defective by package basis, there were four packages showing either a finding or a concern for an observed fraction defective of less than four percent.

An assessment was made also of a sample of twenty-five procurement quality documentation packages to specifically verify that Bechtel was correctly reviewing the test results reported in CMTRs to assure their compliance with applicable requirements of the ASME Boiler and Pressure Vessel Code year and addenda. No deficiencies were noted.

## 2.0 Assessment

The observed effectiveness of the procurement quality documentation is in the range of ninety-five percent for packages to ninety-nine percent for individual documents. On this basis it is deemed to be adequate for documenting the quality of safety related hardware and is considered to be well above average.



An assessment was made also of radiographic documentation. While this assessment was outside the scope of Bechtel's re-review of documentation, the results confirmed advisability of the ongoing effort of evaluating and interpreting radiographs and their documentation which previously had been initiated by MPQAD.

#### Task C-4

An assessment was to be made of the adequacy of the checkout and preoperational testing program. However, based on the status of Q-system turnovers to CPCo for test and the availability of test procedures, it was determined that this task should be rescheduled into 1982.

#### Task C-5

##### 1.0 Summary of Task

An assessment of personnel qualifications was made for welding, NDE and inspection personnel. An assessment also was to have been made of test personnel; this assessment was postponed because of the postponement of Task C-4. An assessment also was made of the qualification of personnel performing quality audits.

A sample of thirteen of thirty welders qualified by Bechtel was assessed by reviewing their qualifications and certification records against the requirements of AWS D1.1.

All five of the Bechtel personnel certified under SNT-TC-1A were assessed by reviewing their qualification and certification records versus the current requirements of that standard.

Eighteen of eighty-eight Bechtel Quality Control Engineers were assessed by reviewing their qualification and certification records against the requirements of ANSI N45.2.6 and Bechtel Procedure SF/PSP-G-81, Rev. 3.

Four of the eight Bechtel certified audit personnel were assessed by reviewing their qualification and certification records versus the requirements of ANSI N45.2.23 and Bechtel Procedure Section B Number 8 Revision 2.

Similarly, five of the CPCo certified audit team leaders were assessed by reviewing their qualification and certification records against the requirements of CPCo Quality Assurance Department procedure B-5 Rev. 1 and ANSI N45.2.23.

## 2.0 Assessment

2.1 Based upon a review of records, personnel meet the qualifications of applicable standards and procedures with two exceptions:

1. A minor administrative problem was noted in two records that did not have an impact on the qualifications of these welders.
2. The Auditor/Auditor Team Leader Qualification Questionnaire was not in the file of an auditor certified before February 1978. Such a questionnaire was not required at the time of his certification.

The records were readily retrievable, complete and in good order.

### Overall Assessment

MAC's overall assessment of the effectiveness of the Midland Quality Assurance Program is that in general, it meets the NRC requirements and is adequate for the control of quality assurance of safety related hardware.

Generally speaking, the identification of the root cause of quality problems has been correctly assessed and with few exceptions has been addressed to both the specific manifestation of the problems and to the potential for similar occurrences in other areas.

The response time for implementing corrective action seems to be excessive. Recognizing that there are many problems establishing priorities, and that in most cases corrective action has been scheduled for implementation or completion, delaying such actions, particularly in the areas of hardware correction, can cause actions to pyramid beyond the capacity of the organization to resolve as the project gets closer to fuel loading and licensing. This can result in unwarranted schedule delays and may result in necessary corrective actions being seriously curtailed or omitted.

The conformance of supplied hardware to specified requirements was generally good and would be considered above average. The kinds of welding deficiencies identified on the crane trolley have been found to be quite common in structural members at other sites. This indicates a need for more rigid controls on the part of both producer and consumer. It is likely that it also indicates a need for realistic revision of the welding code to reflect acceptable industry practices. Further, it demonstrates the need for persons performing source surveillance or inspection to have either qualification in applicable special processes or the support of specialists who do. The dimensional deficiencies noted in some spool pieces are minor and are such as can be readily accommodated in field installations.

The overall completeness and adequacy of documentation packages which had been re-reviewed are above average. It was observed that packages relating to more recent deliveries were generally better than those received earlier. This reflects greater sophistication on the part of even the same supplier as he gained experience in meeting nuclear quality requirements. Such later packages include tables of contents and indices that will assist CPCo in future years in utilizing such documentation. It would be desirable to obtain such tables of contents and indices, where lacking, as a by-product of Bechtel's continuing review of procurement quality documents.

While the findings relative to the assessment of this document task were relatively few, some were of sufficient significance to warrant increased attention to these kinds of deficiencies during Bechtel's continuing review.

Bechtel's procedures for this task define what is to be reviewed, but there is need for greater specificity as to what is required. This is based on evidence of lack of uniformity on the part of different reviewers or to what is specifically required. This was reflected in different responses relative to certain types of documents such as CMTRs and certificates of compliance. Further, it is not clear from the G321-D form whether documents to support radiographic examination such as reader sheets, technique sheets and the film itself are required, and if required, whether they should be in the document package or with the radiographic film. The results of this radiographic review performed during this assessment supports the need for MPQAD's ongoing effort of evaluating and interpreting supplier furnished radiographs and associated documentation.

The review of personnel qualifications for both Bechtel and CPCo personnel showed that personnel were properly qualified for the tasks to which they are certified. The completeness, currentness and retrievability of this information was superior.

Based upon the above, the overall assessment of Midland's Quality Assurance Program is that it is somewhat above average for nuclear plants, particularly those for which construction permits had been issued in the same time frame.

## TASK A

### 1.0 Statement of Task

Select a sample of "big ticket" (50.55(e)) problems and assess them as follows:

- 1.1 Research the nature of each problem to determine whether or not the root cause of the problem was adequately identified.
- 1.2 Assess the process corrective action to determine whether or not it addresses each root cause and whether or not it is effective in precluding or minimizing the probability of recurrence of the root cause in some other areas of the project.
- 1.3 Assess whether or not the hardware or part corrective action was arrived at through a disciplined, reasonable process.

### 2.0 Method

2.1 Eleven of the twenty-one 10CFR50.55(e) items were randomly selected for assessment. The criteria for selection were that:

2.1.1 The item represented a broad spectrum of equipment, and CPCo had submitted a final report to the NRC.

2.1.2 The item was essentially complete with the exception of a NRC formal closeout.

2.2 The items selected for review are listed in Table 1.

2.3 The following approach was used in the assessment of the selected 50.55(e) items:

2.3.1 The background was researched to arrive at an understanding of the problem.

- 2.3.2 An assessment was made to determine if the root cause of the problem was correctly identified and if the process corrective action recommended and committed was appropriate.
- 2.3.3 An assessment was made to determine if the appropriate process corrective actions were taken as committed and if they were taken in a timely fashion.
- 2.3.4 An assessment was made to determine if the part corrective actions were taken as committed.

### 3.0 Results

Overall results and task assessment are included in the Introduction and Executive Summary. Detailed results of each item investigated are included in the following pages.

NRC-Assigned 50.55(e) No.: 77-01

CPCo File No.: 0.4.9.10

Subject: Liner Plate Bulge

A. BACKGROUND

In Containment Unit 2, between azimuths 250° and 270° and from approximately elevation 593' to 696', the 1/2" liner plate bulged inward about two feet from the theoretical location and separated from the exterior wall. Movement of this plate caused spalling of the concrete adjacent to the plate, generally about three inches in depth, except for some localized areas where spalling up to ten inches was noted. The half-inch thickened liner plate, about a set of four penetrations covering a surface area about 6'8" square, was bent. Initial observations indicated that this incident was caused by a leaking water line, previously used to provide a water supply during construction, embedded in the exterior concrete wall (at approximate azimuth 260°). Bechtel NCR 717 and Bechtel MCAR 16 were issued on 2/28/77.

B. RECOMMENDATIONS/COMMITMENTS

Recommended corrective actions were:

1.0 Determine the extent of the damage to the liner plate and containment wall.

1.1 An extensive investigation was conducted by Bechtel to determine the extent of the damage and the exact cause of the problem. Repair procedures were developed. The repair adequacy was reviewed with the NRC and the repairs were made. Midland Containment Unit 2 Bulged Liner Plate Replacement Report was issued by Bechtel in August 1977, documenting such items as the extent of damage, the cause of the problem, test program and results, details of repairs, fabrication of replacement plate, and various procedures. The replacement liner was checked and found adequate to meet the original design criteria as well as the ASME Code, Section III, Division 2.

- 1.2 This item is closed.
- 2.0 Develop methods of repair for affected areas.
  - 2.1 See 1.1, above.
  - 2.2 This item is closed.
- 3.0 Determine the cause of the problem.
  - 3.1 See 1.1 above. The liner plate bulge was determined to be due to failure of a temporary water pipe, attributed to denting of the pipe and notches in the seam weld. Water then leaked between the liner and the containment, froze, expanded, and buckled the liner plate.
  - 3.2 This item is closed.
- 4.0 Take necessary actions to preclude repetition for both containments if the cause indicates possible recurrence.
  - 4.1 Corrective actions to preclude repetition were: 1) Fill the temporary service water lines with grout, 2) Complete and issue SCN-7002 to Project Specification 7220-C-231 requiring all embedded temporary piping to be tested in accordance with ANSI B31.1, except the test pressure will be operating pressure, and 3) Revise PQCI C-1.20 to include QC surveillance to assure that temporary and non-Q piping embedded in Q concrete has been properly tested.
  - 4.2 This item is closed. A thorough review has concluded that the root cause of the liner plate bulge was correctly identified and that the corrective action was appropriate.
- 5.0 Chapter 13 of Bechtel's Bulged Liner Plate Replacement Report outlines a specific surveillance program. Measurements of any relative radial displacements in the replaced plate were to be taken using the proper surveying instruments or a straight template and deflectometers. These measurements were to be taken at three elevations and at the locations of the angle anchors in the circumferential direction. The first measurements were to be taken



after the repair work was completed to establish a datum. Thereafter, measurements are to be taken:

Before and after pre-stressing (Bechtel)  
After the structural integrity test (Bechtel)  
Before the unit goes into operation (Consumers)  
During the first refueling shutdown (Consumers)

- 5.1 After liner repair, Bechtel failed to obtain the "before" pre-stressing data until the pre-stressing process was well underway. This was documented in CPCo's NCR M-01-9-0-011. Additionally, Bechtel NCR 2755, which was originated to document noncompliance with Section 13.0 of the Bulged Liner Plate Replacement Report, indicated that the calibration of the thermometer used was in question and also that there was no evidence that the "before" data had been submitted to Bechtel Project Engineering for review and approval. Bechtel ultimately obtained "before" and "after" pre-stressing data, using approximately 40 horizontal tendons (of sixty horizontal tendons and a total count of approximately 120 tendons, including vertical and dome) to calculate the plate deflection.
- 5.2 The "before" data that could be taken during the tensioning was taken using accepted construction practices, but no approved procedures. The data on data sheets FSK-CC2-177 Rev. 0 with additional comments on Field Engineer's Report (FER) CC-105 was transmitted to Project Engineering by Bechtel letter REMC-2482 (12/7/79). Project Management Office (PMO) Construction advised PMO Testing that Bechtel "adequately obtained the necessary data without a formal procedure . . ."
- 5.3 In April 1980, an approved procedure was used to obtain the data "after" pre-stressing which was transmitted to Project Engineering review in Bechtel's letter BCBE-2924 (4/16/80) in FER CC-120.

- 5.4 The results of both series of data FER CC-105 and FER CC-120 and the procedures used to obtain these measurements have been reviewed by Project Engineering and incorporated into the draft of Specification C-114(Q) (Bechtel letter 12/23/80). There is no evidence that this data has been approved as acceptable baseline data. On the contrary, the letter points out that the specification has not been approved by Civil Engineering and indicates that additional measurements may be required. There is no documented evidence that this problem has been resolved.
- 5.5 Bechtel NCR 2755 was resolved in that the thermometer was in calibration and the data was transmitted to Project Engineering for review. CPCo's NCR M-01-9-0-011 is still open. The original anticipated response date from Bechtel was 12/1/80.
- 5.6 A check of Bechtel's Remaining Work Schedule shows item C-71300 which requires the structural integrity test specification to be prepared.
- 5.7 Evidence has been obtained that the construction pipes in Units 1 and 2 were filled with grout. Pour cards document this action, confirmed by visual inspection of the accessible pipe end.
- 5.8 This item is open because:
- 5.8.1 The request of Bechtel's Civil Engineering for additional measurements must be resolved by Project Engineering.
  - 5.8.2 All the data previously taken and incorporated into Specification C-114(Q) must be formally approved.
  - 5.8.3 Specification C-114(Q) must be completed and approved.

5.8.4 Attention should be addressed to other embedded construction pipes to assure they are properly closed off when there is no further need of them.

5.8.5 The CPCo NCR must be closed out.

NRC-Assigned 50.55(e) No.: 77-03  
CPCo File No.: 0.4.9.12  
Subject: ITT Grinnell Pipe Supports

A. BACKGROUND

ITT Grinnell pipe support design sketches showed fillet weld dimensions less than the dimensions required by ASME Boiler and Pressure Vessel Code, Section III, Division 1 in NF-3292 and in Table XVII 2452.1-1 of Code Appendix XVII NA-2452.1. MCAR 18 was originated October 17, 1977 to document this problem.

Subsequently, Bechtel MCARs 19 and 21 were written to document fabrication welds and field installation welds that were also found undersized to specified requirements.

B. RECOMMENDATIONS/COMMITMENTS

MCAR 18 recommended the following corrective actions:

1.0 Obtain a formal justification of the vendor (ITT) position on Code interpretation (relative to fillet weld dimensions).

1.1 This item is open because the file carries no objective evidence that the vendor's position on Code interpretation (relative to fillet weld dimensions) was formally justified. Reports do show that results of analyses and physical tests on "worst case" welds substantiate that undersized welds are well within Code stress levels.

2.0 Seek a Code clarification from the ASME Code Committee.

2.1 This item is open because there is no objective evidence of Bechtel or vendor action relative to seeking a Code clarification from the ASME Code Committee. To the contrary, the final report, dated 8/1/78, stated that "based upon an informal request November 1, 1977, to the ASME Code Committee chairperson and that person's response, no further Code clarification would be pursued". The chairperson's response

was that if a formal inquiry were made, he would support an interpretation that a minimum fillet weld size be at least the thickness of the thinnest member where the Code minimum weld size for Table XVII 2452.1-1 calls for a weld equal to or greater than the thickness of the thinner member. There appears in the CPCo file a formal response to an inquiry to the ASME Code Committee from W. R. Bird, MPQAD, which states that both the dimensions and the stress levels of the Code must be maintained. Further, there is a memorandum dated February 13, 1978, J. R. Barbee to Welding Engineering personnel, stating "no portion of the weld can be less than the size (and length) specified on the drawing".

- 2.2 Reports BLC5935 and BLC5936 recommended a disposition to use the affected hangers "as is" based upon the results of physical tests and stress analyses showing that the worst case undersized weld was conservative relative to allowable stress levels.

This item is classified as a finding because the recommended disposition is contrary to the inquiry response that both the dimensions of Table XVII 2452.1-1 and the allowable stress levels must be adhered to. Adherence to the Code for design of piping supports is a commitment of Midland 1 and 2 FSAR Volume 8, Section 3.9.3.4.1 which states "the designs of ASME Section III supports, hangers and restraints are in accordance with ASME Code Section III, Subsection NF and applicable Code Cases".

- 2.3 A meeting to address this problem was held March 17, 1981 at Ann Arbor between CPCo and Bechtel personnel. It was agreed that the FSAR would be clarified relative to this Code commitment and that the hangers met Code allowable stress levels but did not comply with the physical dimensions of Table XVII 2452.1-1. If this is done, the recommended

corrective actions 1 and 2 in MCAR 18 will no longer pertain and all other actions will meet or exceed the recommendations of that document.

- 3.0 Prepare a detailed analysis of a one percent sample of hangers not meeting Table XVII 2452.1-1 of Code Appendix XVII NA2452.1.

- 3.1 In lieu of a one percent sample inspection of hangers, a complete survey of Grinnell detail drawings was performed. (This resulted in identifying 330 underspecified welds.)

A memorandum dated 11/10/75, Castleberry (Bechtel) to Paul Dillman (ITT), states that ITT is to make a 100 percent inspection of all welds made since July 1977.

A letter dated September 8, 1978, HOWE-163-78, S. Howell (CPCo) to J. Keppler (NRC), transmits to the NRC final reports for MCAR 18, BLC 5935 and MCAR 19, BLC 5936, both dated May 1978.

A memorandum dated September 11, 1978, Dreisbach (Bechtel) to Martinez (Bechtel), relative to MCAR's 18, 19 and 21 undersized hanger welds states that "corrective actions have been verified and the subject MCARs closed".

Reports BLC 5935 and BLC 5936 carried the results of stress analyses and physical tests supporting the position that the "worst case" undersized welds were conservative relative to Code allowable stress levels.

- 3.2 This item is closed.

- 4.0 Obtain a QA/QC reinspection of a sample of 25 installed hangers and 15 warehoused hangers. Tabulate the actual weld size versus the size specified on the drawings. (MCAR's 19 and 21 were originated as a result of this and subsequent reinspections.)

4.1 Inspection of hangers resulted in the origination of MCAR 17.

4.2 This item is closed.

5.0 Prepare an interim report within 15 days . . . and so forth.

5.1 This item is closed.

NRC-Assigned 50.55(e) No.: 78-01

CPCo File No.: 0.4.9.13

Subject: Reactor Coolant Pump Motor Flange

A. BACKGROUND

During a routine dimensional inspection of a reactor coolant pump (RCP) motor at the vendor's (GE) shop prior to shipment in February 1977, it was determined that the as-built rabbet height dimension on the motor mounting flange was less than that specified on the motor drawing. The rabbet is a cylindrical extension of the motor flange that fits into a counterbore in the motor support stand flange with a very close clearance; its purpose is to assure axial alignment of the motor with the pump and to bear the horizontal shear loads resulting from Loss of Coolant Accident (LOCA) and seismic forces. Upon further investigation it was determined that the rabbet had also been incorrectly designed and was not adequate to withstand the design loads; this inadequate design exists in all eight of the RCP motors for Midland 1 and 2.

B. RECOMMENDATIONS/COMMITMENTS

1.0 Augment the load carrying capability of the motor flange rabbet by increasing the friction load between the surfaces of the motor flange and the motor support flange of the RCP.

1.1 This augmentation would be accomplished by replacing the 16 cap screws with studs and nuts and by specifying the required stud preloading. The replacement of the screws with studs was necessary since the cap screws could not be tightened to the preload required to achieve the flange friction force due to the fact that the limited available access to the screws precluded the use of the necessary torque tools. The available access, however, was adequate to permit the use of stud tensioners and hence, the use of studs, which can be tightened with tensioners, was adopted.



This corrective action has been approved and is being implemented for all eight pump and motor units for Midland 1 and 2. The motor vendor stress reports have been revised accordingly and the report has been approved.

An inspection at the Midland site verified that the RCP motor flange problem was being properly addressed by B&W and CCo. B&W's Field Change Procedure 112 details the stud installation for RCP 2P51A for Unit 2. Similar procedures exist for pumps B-D and for Unit 1 pumps 1P51A-D.

This modification and assembly program is an ongoing concern that B&W and CCo are actively pursuing.

A visual examination was made of RCP 2P51D, mounting studs and rabbet. Repairs are in process according to the revised drawings and Field Change Procedures.

- 1.2 This item is open pending completion and acceptance of the ongoing modification.
- 2.0 The instruction manuals describing the method of attaching the motor to the motor support stand are to be revised to provide for the use of studs and stud tensioners and to specify the required preloading of the studs.
  - 2.1 A check of B&W's manuals and drawings showed that the necessary changes have been incorporated.
  - 2.2 This item is closed.

NRC-Assigned 50.55(e) No.: 78-04

CPCo File No.: 0.4.9.16

Subject: RPS Loss of Ground

A. BACKGROUND

B&W conducted an evaluation wherein it was postulated that a loss of ground could cause the NI/RPS to fail to perform its intended function. This was reported to the NRC under 10CFR Part 21.

"The concern was discovered while investigating the Davis Besse ground system. A review of the Reactor Protection System indicated that loss of ground will not cause a channel trip, as was previously assumed. Therefore, the potential exists for a loss of ground to occur without being detected. To our knowledge, current operating procedures do not call for periodic ground continuity checks. If a subsequent fault is imposed upon the system, then more than one channel might be adversely affected.

"A detailed analysis of the event is not possible by Babcock & Wilcox (B&W) because the individual ground systems vary from plant to plant and B&W does not know what ground continuity checks individual utilities may perform. However, a preliminary review indicates that without additional information to the contrary, this concern represents a substantial safety hazard as defined by 10CFR Part 21 since the concern has the potential for a loss of safety function to the extent that there could be a major reduction in the degree of protection for a licensed facility, if ground is lost and another fault occurs.

"It should be pointed out, however, that loss of ground on the NI/RPS is believed to be a very improbable occurrence because of the multiple ground circuits which exist; e.g. each channel connected to the ground bus, each cabinet interconnected through multiple bolted joints, etc. In addition, loss of ground by itself will not prevent the RPS from tripping."

B. RECOMMENDATIONS/COMMITMENTS

1.0 B&W recommended that CPCo implement a test procedure for a periodic test of the RPS to assure that the ground has not been lost.

1.1 CPCo notified the NRC that the B&W test specification was revised to require a continuity check to assure that no loss of grounding has occurred and to obtain baseline data.

Preoperational Test Procedure 2TP-RPS-02 has been written (though not yet approved) to ensure that baseline data is obtained. This will further be expanded to provide the basis for a periodic test of the RPS to assure ground continuity. This is item 02532-56160 of the Startup Tickler List.

1.2 This item is open pending approval of Preoperational Test Procedure 2TP-RPS-02 and its expansion to require periodic test of the RPS to assure ground continuity.

NRC-Assigned 50.55(e) No.: 78-06

CPCo File No.: 0.4.9.18

Subject: Small Break Analysis

A. BACKGROUND

CPCo was notified by B&W in May 1978 that a problem existed in the small break analysis for utilities with operating 177FA lowered loop plants, of which Midland is one. It was determined that the Emergency Core Cooling System (ECCS) analysis for B&W's 177FAs may be nonconservative for a small break in the Reactor Coolant Pump discharge. This problem required revisions to the Makeup and Purification System for Units 1 and 2. Over the course of several B&W transmittals to CPCo/Bechtel, seven possible fixes were presented for evaluation. Bechtel was requested to evaluate the proposed fixes for the following two categories:

- 1.0 Least expensive fix with no operator action to mitigate the consequences of an accident.
- 2.0 Least expensive fix with operator action within the control room to mitigate consequences of an accident.

B. RECOMMENDATIONS/COMMITMENTS

1.0 Based on several meetings between CPCo, Bechtel and B&W and a review of Bechtel's recommendation (see BLC-6225 dated July 10, 1978), CPCo authorized Bechtel to install High Pressure Injection (HPI) line crossovers downstream of the HPI line isolation valves and outside of the building as well as to five check valves per unit requiring no operator action.

- 1.1 A review of P&ID's M403, Sheet 2(Q) (Unit 1) and M404, Sheet 2(Q) (Unit 2), Makeup and Purification System, indicated that Revision 7, dated 12/8/78, had been incorporated to include the proposed changes. Specifically, the HPI line crossover and associated check valves 157, 158, 159, 160 and 161 were correctly shown as required in Rev. 7.

The question was asked of Bechtel whether or not all QA requirements were considered when Bechtel presented their design change recommendation to CPCo. Specifically, was a Design Review Verification Checklist (DRVC) filled out per EDPI 4.1.1 "Preparation of the Design Requirements Verification Checklist for the Midland Project?" An investigation revealed that Rev. 0 to EDPI 4.1.1 existed at the time of the recommendation. Rev. 0 allowed the supervisor to determine whether a design change was major or minor. A minor change did not require that a DRVC be considered. Rev. 0 also did not require the supervisor to document his justification that a change was minor. For this particular design change the supervisor concluded that the change was minor and therefore, by procedure, did not require a DRVC to be completed.

An on-site inspection was made to verify the installation of crossover lines and check valves. On Unit 1 and 2 it was physically verified that most of the HPI crossover piping had been installed and that check valves 157 and 158 were installed in the correct locations.

- 1.2 This item is open pending completion of the HPI crossover piping and valve installations.
- 2.0 In addition to design changes, B&W was required to revise Topical Report B&W 10103 to reflect the new system designs.
  - 2.1 It was verified by discussions with B&W that an accident analysis program for various configurations of small and large breaks, with and without pumps, etc., was underway and that CPCo's Topical Report 10103 would be revised or amended upon completion of that program.
  - 2.2 This item is open pending revision of or amendment to the CPCo Topical Report 10103 relative to this modification.

NRC-As-igned 50.55(e) No.: 78-13

CPCo File No.: 0.4.9.25

Subject: Control Room Air Filter System

A. BACKGROUND

MSA reported a problem that undersized wire had been installed of incorrect size for a 40A fuse.

B. RECOMMENDATIONS/COMMITMENTS

1.0 Bechtel MCAR 27 disposition required:

1.1 Defective wiring to be replaced; scheduled completion May 22, 1980.

1.1.1 Bechtel NCR 1733 was originated in the field to document this problem and to initiate and follow corrective measures. A copy of this NCR was not available in the Ann Arbor files; it was available at Midland and marked "closed 2/11/80 - #8 AWG wire installed."

MSA, under Bechtel cognizance, made the necessary replacement of undersized wiring on May 22, 1980; however, CPCo on a October 18, 1980 over-inspection discovered that while the proper gage wire was installed, Technical Specification Requirement 7220-M-150Q Rev. 4 para 6.12.5 required "all wiring to be TYPE TA or SIS single conductor Class B stranded, No. 14 AWG min. wires, capable of passing flame resistance test per IPCAE Pub. 5-61-40." Contrary to this, replacement wiring is coded TYPE USE-RHH-FR-1. CPCo NCR M-01-4-0-067, dated October 20, 1980, was originated and dispositioned "Accept As Is" on January 14, 1981, by R. C. Holler for L. H. Curtis, on the basis that the replacement wire meets

or exceeds requirements of the Technical Specification paragraph referenced.

Inspection of four units by CPCo personnel in the presence of MAC personnel during the week of March 1, 1981, disclosed that the undersized wire had been replaced as stated. Further, testing of terminal tightness by hand disclosed that some terminals were loose, possibly as a result of using an incorrect lug size. During this inspection, it was stated that a NCR would be originated to document this deficiency. Follow-up on April 3, 1981 disclosed that no NCR had been issued on the premise that the vendor, MSA, would be in on May 15, 1981 to rewire these units. The problem of loose links and incorrect lug size were stated to have been added to the punch list for this repair. It should be noted that previous rework under NCR 1733 had been signed off by Bechtel as having been satisfactorily completed.

There was not, on April 3, 1981, formal NCR documentation of the loose terminal deficiency, although it is recognized that the deficiency could be addressed by rewiring and proper inspection as a result of the vendor's latest rework of these units. Failure to document this nonconformance on a NCR does not appear to strictly satisfy the requirements of 10CFR50 Appendix B, criterion 16, that "measures shall . . . assure that . . . non-conformances are promptly identified and corrected."

1.1.2 This item is open pending:

1.1.2.1 Documentation of the loose terminal deficiency on an NCR.

1.1.2.2 Correction of the loose terminals by the vendor.

1.2 Steps to prevent recurrence.

1.2.1 This item is open because there have been no steps identified to prevent recurrence, only to repair the specific problem. When the undersized wire was replaced with the proper gauge, another error was introduced in that the wire was not to the proper specification. In addition, a third error was possibly introduced in that some terminations of the replaced wire are loose, possibly because of an incorrect lug size.

1.3 Investigation as to whether other components could be affected.

1.3.1 Disposition of MCAR 27, E. M . Hughes for L. H. Curtis, dated September 27, 1980, states that there are no other MSA supplied components involved per MSA telex to Bechtel dated January 17, 1979. Corrective action on MCAR 27 is signed as complete by A. E. Rice for L. A. Dreisbach, September 22, 1980.

1.3.2 This item is closed because the scope of the MCAR relates to a report by MSA of their use of undersized wire. While undersized wire could be used by any other supplier, it is to be expected that it would be identified by the supplier inspection or be detected by source surveillance or inspection.

2.0 Further investigation by Bechtel as to the correctness of wiring disclosed that another requirement of Technical Specification 7220-M-150Q, Rev. 4, para. 6.12.5 had been violated. This was



also covered by CPCo NCR M-01-4-0-067. The Technical Specification requirement is that "seller's wiring shall not have more than two wires connected to any terminal". The received condition showed three lugs per terminal. This deficiency was not a part of the original MSA notification and not a part of the MCAR. It was dispositioned as unacceptable on January 14, 1981 on the basis that the three lug installation might prevent good electrical contact and reduced holding capability of the terminal.

Inspection of four units by CPCo in the presence of MAC personnel during the week of March 1, 1981 disclosed that the problem of three lugs per terminal still remained.

A communication A.I.S-407, relative to CPCo NCR M-01-4-0-067, was transmitted to CPCo, MPQAD on March 19, 1981 stating that ". . . the vendor is scheduled to come on site May 15, 1981 to do the repair or rework necessary to bring parts into a conforming condition. Processes and procedures to assure that replacement parts and equipment used for repair or rework meets the original specifications and requirements will be accomplished by the vendor."

4.1 This item is open pending correction of three lugs per terminal per requirements of Technical Specification 7220-M-150Q, Rev. 4, para. 6.12.5.

NRC-Assigned 50.55(e) No.: 79-01

CPCo File No.: 0.4.9.26

Subject: Loose Terminations, Main Control Status Display Panel

- A. Bechtel NCR 2176 was written 5/11/79 identifying a problem with the Main Control Panel, Control Panel Section 1C14 furnished by Magnetics on P.O. 7220-J-201, Rev. 6. Five wire terminations on the Status Display Panel Module were found loose from their soldered connection to the individual switches as follows:

<u>Switch</u>	<u>Terminal</u>	<u>Problem</u>
1SV-0127	G	not soldered
1SV-0127A	G	loose solder joint
1SV-0127A	C	cold solder joint
1MO-1257	G	not soldered
1MO-5336A	A	not soldered
1MO-0912	G	wire touching movable member

B. RECOMMENDATIONS/COMMITMENTS

- 1.0 Bechtel MCAR 28 recommended the following corrective actions:
- 1.1 Determine effect of loose wires, if undetected, on plant safety.
- 1.1.1 Bechtel reported the effect of loose wires in the attachment to BLC 7644, as follows:
- a. Loss of safety display function
  - b. False indication
  - c. Overheating and possible burnout of voltage dropping resistors
  - d. No likelihood of control panel blowout.
- 1.1.2 This item is closed.

1.2 Examine other components by Magnetics

1.2.1 Other components supplied by Magnetics were identified to be:

- a. Light display units for panels 1C14, 2C14, and OC10
- b. Amphenol connectors for panels 1C14 and 2C14
- c. Resistor banks OC10, 1C14, and 2C14 light display units.

1.2.2 Oral Communications Record WRB 55:79 (prepared by M. J. Schaeffer 5/29/79) stated that inspection of all 36 modules taken from panels 1C14 and 2C14 showed the same kind of discrepancies as in the one module of panel 1C14.

1.2.3 Light display units for panels 1C14 and 2C14 were detached and returned to Magnetics for inspection and repair. (NCR 2176 dated 8/21/79 required removal of all modules and their return to Magnetics.)

1.2.4 Remaining components were to be checked in the field per a schedule to be established between Bechtel and Magnetics by June 1, 1979.

1.2.5 Further detailed actions relative to examining other Magnetics components were defined in interim reports to the NRC as follows:

1.2.5.1 Magnetics to perform one hundred percent inspection of status display light modules.

1.2.5.1.1 A letter, L. Dreisbach to R. Castleberry, dated June 1, 1979, required one hundred percent inspection of Magnetics modules for

soldered connection, excessive wire stripping and loose or damaged Amphenol connectors.

- 1.2.5.1.2 A memo P. L. Gray to L. Dreisbach, stated that the Bechtel SQR at Magnetics had completed inspection of the ESFS display light modules completing Supplier Quality Department Action 4895A.
- 1.2.5.1.3 A report, P. L. Gray to L. D. Sokol, dated 7/16/79, provided the status of special fabrication/inspection processes and stated that certain panels will require installation and soldering inspection in the field.
- 1.2.5.1.4 Final report MCAR 28, dated August 29, 1979, stated that Magnetics completed one hundred percent inspection on all soldered connections on the Main Control Boards at the jobsite. While the inspection was completed, rework was required and scheduled for completion by December 30, 1979. Rework of modules returned to Magnetics was scheduled for completion October 15, 1979.

1.2.5.1.5 This item is open because there is no objective evidence that required rework and reinspection has been completed by Magnetics.

1.2.5.2 Bechtel Field Quality Control to perform inspection at completion of Magnetics 100% inspection of all status display light assemblies and associated components and devices. Bechtel Supplier Quality Representative (SQR) to perform 100% inspection at the supplier's plant prior to shipment to jobsite.

1.2.5.2.1 This item is open because there is no objective evidence in file showing completion of necessary rework and reinspection by Magnetics or Bechtel inspection of Magnetics supplied components after repair either at the supplier's plant or at the site.

1.2.5.3 Bechtel to review the Magnetics fabrication program to determine if other processes are not adequately specified (or controlled).

1.2.5.3.1 Trip Report, P. L. Gray to L. D. Sokol referred to "other special fabrication/inspection processes." Nothing in

this report indicates that all processes have been identified. Processes mentioned or inferred are:

<u>Process</u>	<u>Remarks</u>
Stripping	In new procedure
Cupping	Unclear
Tool Calibration	Crimping only
Certification of crafts	In new procedure
Potting	N/A
Soldering	Submitted to Bechtel
Inspection	Submitted to Bechtel
Crimping	Submitted to Bechtel

1.2.5.3.2 This item can probably be closed, but documentation is not conclusive.

1.3 Determine why the Magnetics Quality Assurance Program and the Bechtel Procurement Supplier Quality Program did not detect this discrepant material.

1.3.1 Bechtel determined that the reason the Magnetics Quality Assurance Program and the Bechtel Procurement Supplier Quality Program did not detect the discrepant material was:

- a. A detailed inspection plan for all soldered connections was not a part of the Magnetics QA Program.

- b. The Bechtel program calls for random surveillance.
- 1.3.2 This item is closed; however, attention should be directed to actions taken to resolve the identified deficiencies.
- 1.4 Determine if a functional check would have revealed the above discrepant conditions.
- 1.4.1 Bechtel determined that a functional check would not detect, necessarily, loose soldered connections, since one had been performed and they were not detected.
  - 1.4.2 This item is closed.
- 1.5 Determine the reportability to 50.55(e) requirements by 5/25/79.
- 1.5.1 The item was determined to be potentially reportable 5/29/79, and was so reported.
  - 1.5.2 This item is closed.
- 1.6 Determine the root cause of the problem and take appropriate steps to prevent its recurrence.
- 1.6.1 The root cause of this specific problem was determined to be lack of identification and control of special processes requiring detailed procedures for the process and for inspection, inspection acceptance standards, and qualification of personnel.
  - 1.6.2 In MCAR 28, interim reports contained additional specific commitments, transmitted to the NRC, to prevent recurrence, as follows:

- 1.6.2.1 Magnetics to submit a detailed manufacturing and inspection plan for soldering practices.
  - 1.6.2.1.1 Detailed manufacturing and inspection procedure was supplied by Magnetics and approved by Bechtel.
  - 1.6.2.1.2 This item is closed.
- 1.6.2.2 Magnetics to submit a procedure for wire stripping and craft certification.
  - 1.6.2.2.1 The file does not disclose a specific procedure for stripping of wire and certification of crafts. A reference does state (Trip Report, P. L. Gray to L. D. Sokol on July 16, 1979) that such is included in a procedure submitted to Bechtel, but the procedure identified by number is not identified.
  - 1.6.2.2.2 This item is open pending confirmation that wire stripping and personnel qualifications are suitably covered in some written procedure.
- 1.6.2.3 Magnetics to submit a procedure for wire crimping and inspection of terminal lugs.



- 1.6.2.3.1 A procedure for crimping and inspection of terminal lugs was approved by Bechtel 7/21/80.
- 1.6.2.3.2 This item is closed.
- 1.6.2.4 Bechtel to furnish men, materials and tools to accomplish necessary rework under Magnetics Q.E. surveillance.
  - 1.6.2.4.1 Bechtel was to supply personnel, materials and tools to accomplish necessary repairs under Magnetics supervision and Q.E. surveillance. This work was scheduled for completion by December 30, 1979.
  - 1.6.2.4.2 This item is open because there is no objective evidence in the file of the completion and acceptance of this work.
- 1.6.2.5 Bechtel to review Q-listed procurements to determine the need for additional surveillance of special processes and to propose a sampling inspection of workmanship characteristics of other suppliers.

1.6.2.5.1 Bechtel evaluated outstanding procurements identifying 15 other procurements as potentially requiring special process controls.

SQRs were directed to review hardware associated with other purchase orders to assure that problems similar to Magnetics did not exist.

W. R. Bird, in a memorandum (WRB-64-79) dated July 28, 1979 to L. Dreisbach, requested that an evaluation be made of improvements needed for SQRs to assure that program deficiencies are identified. Quality Action Request, AI, dated March 30, 1980, stated that SQRs cannot request vendors to comply with special process control requirements not in the procurement documents. This response appeared to be a misinterpretation of Bird's request.

Based on identification of these 15 procurements, this item could be closed; however, a series of memoranda relating to these procurements indicated that the requirements could not be

imposed because (in most cases) the items had been shipped or were past the point in production where the special process controls could be implemented.

It appears that this item is answered in part by items VI and VII in the MCAR 28 final report and by "Specification-MR Package Review for Special Processes" transmitted by M. G. O'Mara August 7, 1979.

1.6.2.5.2 This item remains open because there is no objective evidence that the recommended sampling inspection for special process quality of components from other suppliers was accomplished by Bechtel, nor does it appear that W. R. Bird's July 28, 1979 request was satisfactorily answered.

1.6.2.6 Bechtel to revise MEDs 4.55 and 4.49 for future procurements.

1.6.2.6.1 This item is open because Revision 12 to MED 4.49 dated 11/30/79 and Revision 13 to MED 4.55 dated 8/28/79 do not incorporate the required

provisions for special process control of future procurements.

1.6.2.7 The Bechtel Procurement Supplier Quality Department to issue a Supplier Quality Action Request requesting information from suppliers regarding similar problems. Upon receipt and review of this information, procedures will be developed to provide a comprehensive supplier surveillance program.

1.6.2.7.1 Bechtel Procurement Supplier Quality Department issued a Supplier Quality Information Bulletin, SQUB 79-1, dated June 11, 1979, which alerted all SQRs to be aware of similar soldering deficiencies from other contractors. Further, a Supplier Quality Action Request (SQAR) requested information from suppliers relative to similar problems.

A statement was made in MCAR 28 Interim Report No. 1, dated June 3, 1979, that upon receipt and review of responses (from the SQAR), procedures will be developed to provide a comprehensive supplier surveillance program.

1.6.2.7.2 This item is open because there is no objective evidence of procedures developed to provide a more comprehensive supplier surveillance program.

1.6.2.8 Bechtel to evaluate improvements needed to assure that SQRs pick up program deficiencies such as lack of a procedure for soldering, workmanship, and inspection acceptance criteria.

1.6.2.8.1 This item is open because there is no documentary evidence of Bechtel's evaluation of improvements needed to assure that SQRs pick up program deficiencies such as lack of a soldering procedure for soldering, workmanship and inspection acceptance criteria.

1.6.2.9 Bechtel to address, per request of W. Bird 6/6/79, the safety implications of the modes of failure (identified by Bechtel) that could occur as a result of undetected loose connections. This request asked for clarification of two statements relative to failure modes.

1.6.2.9.1 MCAR 28 Interim Report No. 1, dated June 7, 1979, stated in paragraph 1 that none of the indicated problems are likely

to disable the control circuit. Interim Report No. 2 states that because of the indeterminate nature of the possible failure modes, and therefore the possibility that safety related circuits might be rendered inoperable, it is suggested that this item be considered reportable under 50.55(e).

It is considered that these responses close the request for the safety implications of the failure modes.

1.6.2.9.2 This item is open because there is nothing in the file to show clarification of failure modes (C and D) as requested by W.R. Bird. (See paragraph 1.1.1.)

1.7 Take corrective action to assure that Main Control Cabinets comply with specification requirements.

1.7.1 Corrective action to assure that Main Control Cabinets comply with specifications was taken by M. Schaeffer, MPQAD, who directed performance of over-inspection of installed units in the control room in addition to inspections performed by SQRs on Magnetics components at source. Reference memo, P. Gray to L. Dreisbach, stating that SOD Action 4895A is complete and reference 01PE7B, M. Schaeffer, dated 7/13/80. The latter required additional

over-inspection based on too high a fraction defective found in the first over-inspection.

1.7.2 This item is open because the additional over-inspection directed by M. Schaeffer, MPQAD, had not been completed at the time of this evaluation.

2.0 Additionally, as a result of Bechtel investigations, commitments made in Interim Report No. 1 and upon requests by Consumers, other corrective actions were required as follows:

2.1 Bechtel to revise the MCAR 28 interim report to require investigation of all soldered terminals purchased under the J-201 specification. Documentation covering reinspection after rework or repair is not in the MCAR 28 file.

2.1.1 The MCAR 28 Final Report, dated August 29, 1979, states that Status Display Modules for panels 1C14 and 2C14 were shipped to Magnetics for necessary inspection and repair and that all other components were inspected one hundred percent in the field.

2.1.2 On the basis that the requested revision of the report has been made, this item is closed; however, it must be recognized that documentation covering reinspection after rework or repair is not in the file.

This review was made in parallel with a review being made by Midland Project Quality Assurance Department. Therefore, it is not possible to evaluate the effectiveness of such review, since the MAC review was completed before the MPQAD review. The significant concern here is the length of time necessary to complete all of the corrective action commitments.

- C. Specific to this 50.55(e) item, it is recommended that all of the open corrective action commitments be reviewed and their present validity be established. Thereafter, they should be entered into the computerized tracking system for improved follow-up and closeout. The long span time for completing the rewiring of these units should be investigated or justified and the correction of the specific problems should be expedited. For other future items, it is recommended that commitments made in interim reports and final reports be entered into the computerized system in addition to those made in Bechtel's MCARs.



NRC-Assigned 50.55(e) No.: 79-04

CPCo File No.: 0.4.9.29

Subject: States Terminal Blocks, Cracked Disconnect Links

A. BACKGROUND

During the electrical checkout by CPCo of non-Class 1E startup transformer OX03A, 38 individual nickel plated brass disconnect links out of 156 were found to be cracked. The initial failure was identified when, in an attempt to reconnect a circuit after testing, the link failed to tighten and make a good connection. Subsequent investigation by Bechtel on four cubicles in class 1E 4.16kV switchgear 2A06 revealed seven individual States terminal blocks with cracked disconnect links.

The subject terminal blocks are used extensively in all major electrical equipment, both Class 1E and non-class 1E. The terminal blocks are supplied as appurtenances to the major equipment and, therefore, a large number of equipment suppliers are involved.

The narrow breaks, or flaws, were believed to be caused by stress corrosion cracking which propagated by both transgranular and intergranular cracking. The stress corrosion was believed to be the result of excessive cold working of the brass and the subsequent exposure of the brass to a corroding agent during the nickel plating process.

B. RECOMMENDATIONS/COMMITMENTS

Bechtel MCAR 32 recommended corrective actions were:

1.0 Determine what effect cracked links in States terminal blocks could have on plant safety if uncorrected.

1.1 Safety implications were noted in a report dated 2/20/80.

1.2 This item is closed.

2.0 Determine the cause of the cracked disconnect links.

2.1 This item is closed. See Background.

3.0 Determine the magnitude of the problem.

3.1 A review of operating history at other CPCo plants has indicated that no generic problems are known to exist with the States sliding disconnect link terminal block.

All of the links in Class IE circuits will be exercised during preoperational testing. Links that fail to provide an electrical connection or which are found to be broken will be replaced with links which are known to be good.

CPCo will continue investigative efforts, including taking advantage of any industry information which may become available to determine long term mortality statistics. If the links are determined to be unacceptable for long term operation, new links will be installed (see CPCo-NRC letter dated 3/5/80).

3.2 This item is open pending the exercising of the circuits and the completion of CPCo's investigative efforts.

4.0 Based on the above three items, determine reportability under 10 CFR50.55(e).

4.1 This item is closed. A 50.55(e) report was issued.

5.0 Take those corrective actions necessary to prevent recurrence and assure the integrity of terminations associated with States terminal blocks.

5.1 The terminal block manufacturer and the major equipment suppliers were informed of the deficiency.

- 5.2 The terminal block manufacturer was supplied with a list of all the other equipment suppliers involved and was requested to evaluate and determine the probable cause (refer to paragraph 4 below) and to stipulate what corrective actions need to be taken to identify and correct the nonconforming terminal blocks. The terminal block manufacturer replied that terminal blocks sold to equipment manufacturers were not traceable to any specific batch or period of manufacture and that only isolated instances of failures had been reported in the past. The terminal block manufacturer did, however, agree to provide known good links to replace all cracked links, as required.
- 5.3 An inspection plan was developed by MPQAD for determining the extent of cracked links in the major equipment using States terminal blocks. The inspection activity has been completed. The summary of inspection plan results noted that 15% of 501 links were cracked and 1.6% would not tighten.
- 5.4 The terminal block manufacturer and CPCo independently conducted metallurgical failure analyses to determine the probable cause of the sliding link cracks. These metallurgical analyses were reviewed and the cause was determined to be as stated in this report.
- 5.5 A search was initiated by CPCo of the operations records of CPCo facilities to identify any other link failures of States terminal blocks. No extensive failure problems with the sliding links were found, only isolated cases.
- 5.6 The status of delivery of Class 1E equipment containing States terminal blocks was reviewed by Bechtel and CPCo to determine which pieces of equipment have not yet been shipped to the jobsite. This review was intended to support considerations for potential in-process (i.e., prior to

shipment) corrective action that might reasonably be applied to equipment that has not yet been shipped.

5.7 The test and inspection program devised for Midland was performed satisfactorily. Terminal blocks whose connectors break when tightened have been located and replaced. Reasonable assurance has been obtained that connectors exhibiting cracks are not likely to fail after being tightened and placed in service. Consumer's Electrical Checkout Group (ECG) has committed to perform the States Terminal Link verification check on all Midland systems with the following constraints.

5.7.1 States links shown on the Bechtel "E" prints shall be exercised (link screw taken from a loose to a tight position at least once, applying a normal amount of force).

5.7.2 Spare links shall not be exercised unless they are later integrated as a current carrying function.

5.7.3 The States Terminal Link Verification Sheet shall be an attachment to the ECG checkout package and not a procedure in itself.

5.8 It was also noted that all stocks of pre-1967 States terminal blocks were purged. All new spares are ordered with a Certificate of Conformance stating that the links conform to ASTM B-184. Therefore, it had been determined to be unnecessary to exercise spare links that are routinely installed after testing.

5.9 It was also verified that Bechtel did a follow-up search to notify other Bechtel projects of the problem associated with States terminal links.

5.10 This item is closed.

NRC-Assigned 50.55(e) No.: 79-06

CPCo File No.: 0.4.9.31

Subject: Station Battery Qualification

A. BACKGROUND

During the qualification testing to IEEE 323-1974 of Exide's "GN" series of batteries, some of the test cells demonstrated low voltage conditions. An internal examination of the involved cells indicated that the failure was most likely caused by a material resistance path across the top of the plate separators, between the hanging lug of one plate to the conducting lug of the opposite polarity plate.

As a consequence, the qualification program was started and the NRC notified under 10CFR21. Exide was not able to provide five and twenty year qualifications by the scheduled date. The present Exide batteries already at the site were determined to have a qualified life of 3.9 years.

B. RECOMMENDATIONS/COMMITMENTS

1.0 Redesign "GN" series batteries.

1.1 Exide initiated a redesign program to their "GN" series batteries and, after several iterations, initiated aging tests on their new batteries the week of May 7, 1980. After all testing was completed, estimated to be about February 1, 1981, production of the redesigned batteries would begin and CPCo could expect to receive shipment of the new batteries on or about April 15, 1981.

1.2 This item is open pending verification of testing and receipt of replacement batteries.

2.0 CPCo to use installed batteries for preoperational testing.

2.1 Bechtel issued NCR 2906 and CPCo decided to use the old "GN" series class 1E batteries already installed at Midland for preoperational tests but committed to the NRC to install the

new batteries prior to fuel load. A check of the Bechtel Qualification Open Action Summary (QOAS) found NCR 2906 as an open item requiring further action (installation of the new batteries). NCR 2906 will remain open and be a punch list item until the new Exide batteries are installed. Hold tags are not placed on the existing batteries in order to allow periodic charging of the batteries as required and thus to avoid violation of the intent of a Bechtel hold tag.

- 2.2 This item is closed. Adequate follow-up will be achieved through NCR 2906.
- 3.0 Address questions to Exide concerning the need for new battery racks to accommodate the new battery design, the interpretation of when operating life of a battery begins and the differentiation between service life and shelf life.
  - 3.1 A search of correspondence indicated that all questions to date have been answered by Exide.
  - 3.2 This item is closed.

NRC-Assigned 50.55(e) No.: 79-09  
CPCo File No.: 0.4.9.34  
Subject: Gould Part 21 NEMA size 3 starters

A. BACKGROUND

Gould Inc. submitted a 10CFR Part 21 report to the NRC reporting a defect in the NEMA size 3 starters which could result in seizure or binding of the carrier assembly within the support plate of the stationary contact assembly.

An investigation at the Midland site revealed that none of the subject starters had been installed in Class 1E systems. There were six spare starters which fall within the dates for which faulty units were manufactured and/or distributed. Two of these were dedicated for non-Q systems whereas the other four were not dedicated and could have been used in Q applications.

An NCR had been written to cover these units, and they had hold tags applied to prevent their usage. These units were to be either modified by the manufacturer's retrofit kits or be returned to the manufacturer for replacement.

B. RECOMMENDATIONS/COMMITMENTS

1.0 Modify starters by use of manufacturer's retrofit kits or return to supplier for replacement.

1.1 Bechtel NCRs 2580 and 2697 identified eight NEMA size 3 starters, all located in the warehouse, which were manufactured or shipped during the period in question. The starters have all been modified to correct the deficiency identified by the supplier. After closure of the above NCRs, five starters were withdrawn and installed in Non-Class 1E Motor Control Centers (MCC) 0B41, 0B49, 1B35 and 1B51.

Three Class 1E NEMA size 3 starters, located in the warehouse, were disassembled and overinspected by CPG QA. The support plates (P/N 401178), using calipers, measured 1.400 inches; the requirement is 1.392 to 1.400 inches.

The carrier assembly (P/N 401179) was also manually actuated to check for seizure or binding. It was found to be satisfactory.

In addition, all Class 1E MCC's were examined for size 3 starters. The following MCC's had size 3 starters: 1B53, 1B54, 2B53, 2B54, 0B45 and 0B46. All size 3 starters were dimensionally checked and manually actuated; all were found to be satisfactory.

The results of this overinspection are documented in PIPR #01-E12A Rev 0, PIR #001.

1.2 This item is closed.



NRC-Assigned 50.55(e) No.: 80-03

CPCo File No.: 0.4.9.40

Subject: Power Supplies to Emergency Core Cooling Actuation System (ECCAS)

A. BACKGROUND

During the course of a review of B&W drawing 02-5264 ND-03 (V.P. 7220-M1.32-6-5) by Bechtel, it was noted that the power supply to the ECCAS digital subsystem 1 is shown from vital bus A and the supply to ECCAS digital subsystem 2 is shown from vital bus C. The drawing also shows a -15 volt control signal to ECCAS digital subsystem 2 from ECCAS analog subsystem 3. Subsequent review of Bechtel schematic 7220-E-374(Q) revealed the same situation. In accordance with the requirements of section 3.3.3 of B&W balance of plant criteria for plant electric system (B&W document 36-1004513-00, V.P. 7220-M1.J-1-1) and FSAR figure 7.3-1 (ECCAS block diagram), the ECCAS digital subsystem 1 should be powered from vital bus A and ECCAS digital subsystem 2 from vital bus B. The -15 volt control signal to ECCAS digital subsystem 2 should be from ECCAS analog subsystem 2.

ECCAS digital subsystems 1 and 2 are responsible for transmitting actuation signals to all components associated with the emergency core cooling system (ECCS). The identified discrepancy could result in a loss of power to both ECCAS digital subsystems. According to B&W system description for ECCAS (V.P.-M1.32-86-1), loss of a vital bus produces a cannot-trip condition in a digital subsystem. Therefore, the reported deficiency would prevent both manual and automatic actuation of both ECCAS digital subsystem channels thereby preventing the ECCS from functioning. The condition is in violation of the single failure criterion (reference Regulatory Guide 1.53).

Thus, based on the B&W drawing and the Bechtel schematic, a postulated event assuming a loss of power from the common load group coincident with a failure of the associated battery, would result in a loss of power to both ECCAS digital subsystems, since both A and C would be lost simultaneously.

The apparent cause of this discrepancy was due to a misinterpretation of the Midland plant 120 Vac preferred (vital) power system, specifically the electrical load grouping. The Midland 120 Vac preferred power system, which powers the ECCAS, is served by a two battery scheme, where each battery serves two protection channel buses.

B. RECOMMENDATIONS/COMMITMENTS

Bechtel MCAR 39 recommended corrective actions were:

1.0 Correct electrical drawings.

1.1 The ECCAS supplier, B&W, was contacted and informed of the discrepancy (reference: Bechtel letter B&W-1452, dated 6/25/80).

B&W concurred with the evaluation and agreed to correct B&W drawings to show ECCAS digital subsystem 2 powered from vital bus B and -15 volt control signal from ECCAS analog subsystem 2.

Drawing change notices correcting the discrepancy have been issued for the following electrical drawings:

7220-E-31(Q)	DCN #7 dated 6/19/80	Panel schedules
7220-E-32(Q)	DCN #10 dated 6/19/80	Panel schedules
7220-E-374(Q)	DCN #2 dated 6/20/80	ECCAS schematic
7220-E-37	DCN #411 dated 6/23/80	Circuit schedule
7220-E-900	(Connection list)	

An investigation of correspondence indicated that B&W will revise their drawings by October 31, 1981, to show ECCAS digital subsystem 2 powered from vital bus B and -15 volt control signal from ECCAS analog subsystem 2.

The Bechtel drawings and Connection List were found to be properly revised. Correspondence indicated that a request to B&W to review logic diagrams to determine the impact on other safety related systems was completed (B&W's letter dated 8/15/80). Procedural aspects associated with B&W and Bechtel electrical documents requiring revision have been corrected.

- 1.2 This item is open pending revision of the B&W drawings.
- 2.0 Determine impact on other systems listed in B&W Balance of Plant Criteria 36-1004513-00, section 3.3.3.
- 2.1 Other systems listed in B&W Balance of Plant Criteria 36-1004513-00, section 3.3.3, have been reviewed for similar discrepancies. The one system of concern was the Reactor Protection System. The RPS has four subsystems powered from vital buses A through D.

Drawings reviewed were:

	<u>Bechtel Drawing No.</u>	<u>B&amp;W Drawing No.</u>
Subsystem 1	E-370(Q), Sh 7	D8059136E
Subsystem 2	E-370(Q), Sh 8	D8059148E
Subsystem 3	E-370(Q), Sh 8	D8059160E
Subsystem 4	E-370(Q), Sh 8	D8059172E

No discrepancies were found.

- 3.0 Prepare a written list by 7/2/80 in accordance with NQAM Section V, No. 10, paragraph 4.1.2.
- 3.1 Report dated 7/7/80 includes description of deficiency, cause, safety implications and corrective actions.
- 3.2 This item is closed.



NRC ASSIGNED #	CPCO FILE #	TITLE	MCAR #
77-01	0.4.9.10	Liner Plate Bulge	16
77-03	0.4.9.12	ITT Grinnell Pipe Supports	18, 19, & 21
78-01	0.4.9.13	RCP Motor Flange	N/A
78-04	0.4.9.16	RPS Loss of Ground	N/A
78-06	0.4.9.18	Small Break Analysis	N/A
78-13	0.4.9.25	Control Room Air Filter System	27
79-01	0.4.9.26	Main Control Status Display Panels	28
79-04	0.4.9.29	States Sliding Links	32
79-06	0.4.9.31	Station Batteries	N/A
79-09	0.4.9.34	Gould, Part 21 NEMA Size 3 Starters	N/A
80-03	0.4.9.40	ECC Actuation System Crossover	39

## TASK B

### 1.0 Statement of Task

Using sampling techniques, MAC's task was to assess the degree to which the physical characteristics of selected significant supplied components and parts meet their respective quality requirements.

### 2.0 Method

Twenty-two components were selected to be subjected to physical inspection by MAC personnel. To the degree possible, they represented hardware that related to the same procurements for which quality verification documents were assessed per Task C-3. Where hardware inaccessibility for inspection made it necessary, alternative items from the same supplier were selected if possible. Where this was impossible, an item of the same type from a different supplier was inspected. One subsystem was walked down for inspection of installed hardware and related documentation. The following characteristics, as applicable, were selected for review:

- a. Material verification - CMTRs.
- b. Dimensional - Drawing requirements.
- c. Wall thickness, as applicable, utilizing UT method.
- d. Identification/ASME Code data.
- e. Direction of flow/rotation, as applicable.
- f. Visual inspection of weldments, as applicable.
- g. Coatings, as applicable.
- h. Packaging/storage conditions.

Inspections included accessible dimensions and inspection of wall thicknesses by UT methods, where appropriate.

In addition, a system was selected as "representative" containing various "Q" listed components such as valves, pumps and heat exchangers. Specific items were selected from the Piping and Instrument Diagram (P&ID) for review. The review consisted of:

- a. a preliminary walkdown of the system to verify that the equipment was installed (or in the warehouse)
- b. a document review of the individual procurement data packages for accuracy and completeness
- c. a final walkdown verifying such items as tag numbers, general nameplate data, traceability numbers, etc.

The system selected for review was the Fuel Pool Cooling System (FPCS), P&ID M-414-A(Q), Revision 2, with DCN #4.

The specific components chosen for review were:

<u>CPCo P/N</u>	<u>Component</u>	<u>Procurement Specification</u>	<u>Supplier</u>
OE-76A-D	Heat Exchangers	M-55AC	Yuba Heat
OP-76A, B	Pumps	M-56	Gould
OVFPC001	Butterfly Valve	M-132AC	Henry Platt
OVFPC002A, B	Gate Valves	M-125CC	Anchor-Darling
OVFPC004A, B	Gate Valves	M-125A	Westinghouse
OVFPC006A, B	Gate Valves	M-125A	Westinghouse
OVFPC009	Gate Valves	M-125A	Westinghouse
OCKFPC003A, B	Check Valves	M-125A	Westinghouse
OCKFPC008	Check Valves	M-125A	Westinghouse
OFE1436A, B	Orifice Plates	J-232	Vickery-Simms

A sketch of the system is shown on Attachment B.5.

### 3.0 Results

- 3.1 Upon completion of physical inspection of the 22 components inspected, eight components were identified as having one or more anomalies, as follows:

<u>Purchase Order</u>	<u>Component</u>	<u>Identified Problem</u>
E-26	600v Cable	storage
J-258AC	Butterfly Valve	documentation
M-093	125 Ton Crane	welding
M-104	Piping	dimensional; nonconformance control
M-104	Piping	carbon steel contamination
M-104	Piping	rust and scale
M-104	Piping	gouged metal
M-104	Piping	nonconformance control

See Attachment B.6 for complete inspection results. Details of the anomolous conditions are given in paragraph 4.0 of this section.

- 3.2 No discrepancies were found in the reviews of all the selected components. Also, the final system walkdown revealed no discrepancies between the documentation and the actual identifying characteristics of the components such as supplier, year built, purchase order, item number, tag number, drawing number, traceability number, location and direction of flow. The orifice plates were not yet installed and were inspected in the instrument crib.

In the primary loop of the FPCS, gate valves OVFPC 007 A and B were not selected for review because they are to be replaced with throttle valves per DCN 4 to M-414. The new throttling valves were not yet on site.

- 3.3 To further assist in clarification of certain conditions, the following attachments are included:

Attachment B.1 List of components subjected to physical inspections at Midland site.

- Attachment B.2 Reference item (K) Ederer Crane 125T, list of drawings utilized for physical inspection by Bechtel/CPCo to verify MAC findings.
- Attachment B.3.1 Weld profiles - extracted from AWS-D1.1.
- Attachment B.3.2 AWS acceptable and unacceptable weld profiles.
- Attachment B.3.3 AWS quality of welds.
- Attachment B.3.4 AWS permissible undercut values for buildings.
- Attachment B.4 Participants of meeting with Ederer Crane Company on 4/30/81.
- Attachment B.5 Schematic for "System-Walkdown" task.
- Attachment B.6 Detailed inspection reports.

#### 4.0 Results for Items Having One or More Anomalies

- 4.1 Purchase Order No.: E-26  
 Supplier: Rockbestos, New Haven, Connecticut  
 Component: 600 V Control Cable

Requirement:

ANSI N45.2.2, paragraph 3.2.4 :

"All openings into items shall be capped, plugged or sealed."

"Items subject to detrimental corrosion shall be suitably protected."

Bechtel Power Corporation BPCF.1-E4.100, paragraph 4.3.:

"cable end (protected) to prevent...contamination and damage."



Actual:

One reel of stored cable had an unprotected end. This was an isolated case, not evident in other reels stored in same area.

Assessment:

This has been assessed as an observation. Bechtel NCR 3322 was originated upon notification.

- 4.2 Purchase Order No.: J-258AC  
Supplier: Fisher Controls, Coraopolis, Pennsylvania  
Component: Butterfly Valve, Drawing F 43213, Revision D.

Requirement:

G321-D form, item 20, requires:

"Radiographic Examination Procedures and Verification Reports."

Actual:

Radiography S/N PSA7770, P/N G25808 has no documented evidence of acceptance; package contained acceptance for P/N G25802. During review of film it was observed that P/N G25808 had been referenced in lieu of P/N G25802.

Assessment:

This has been assessed as an observation. The casting serial number is correct in both places. The difference in numbers is the difference between the drawing number for the casting and the drawing number for a machine casting.

Requirement:

Specification J-605, Appendix G, paragraph 1.0 requires nameplates to be fastened by screws to unpressurized portion of valve body.

Actual:

The nameplate data is OK; however, nameplates are attached to valves by means of wire rather than by screws as required in Specification J-605, Appendix G, Paragraph 1.0. Part does conform to drawing, which appears to not be in direct conformance with specification.

Assessment:

This has been assessed as an observation.

- 4.3 Purchase Order No.: M-093  
Supplier: Ederer Crane Company, Seattle, Washington  
Component: 125 Ton Crane-Auxiliary Building  
(See Attachment B.2 for drawing numbers.)

Requirement:

Welding in accordance with AWS D1.1.

Actual:

Due to the lack of supplier's fabrication drawings, a visual inspection was performed of the weldments to determine compliance with AWS D1.1 requirements. (See Attachments B.3.1 through B.3.4.)

Results of the preliminary inspection, without applicable drawings which were unavailable at the site, were as follows:

- a. Undersize fillet welds.
- b. Fillet weld profiles questionable. (D1.1).
- c. Undercut (paint should be removed to verify acceptance). (D1.1).
- d. Paint preparation inadequate. Evidence of paint over slag areas. (D1.1).
- e. Fillet welds terminated short of stiffener plate ends. (D1.1).
- f. Fillet welds on stiffeners not wrapped on exposed end. (D1.1).

Assessment:

Without detailed drawings, it was not possible to ascertain the extent of nonconformance.

MAC reported the above conditions to Bechtel and CPCo. It was agreed by all parties to request the supplier to provide Bechtel with detail fabrication drawings. (See Attachment B.2.)

A meeting was held with Bechtel, CPCo, Ederer and MAC on 4/30/81. In reviewing the drawings it was observed that all critical welds were identified on drawings and non-critical welds were identified, only by general drawing notes. All visual requirements for the two categories of welds were to AWS D1.1 and Suppliers General Welding Requirement Document, G-3E. In addition, critical welds required magnetic examination. No NDE was required of non-critical welds.

The supplier highlighted critical welds on drawings, in addition to referencing topical report paragraph. This information was then transposed onto the crane to facilitate visual inspections. Inspection to drawing requirements was to be performed by MPQAD and Bechtel inspectors with deficiencies to be documented on nonconformance reports.

Based on the above visual inspection requirements, the Bechtel Quality Control Representative performed a 100% visual inspection task utilizing the fabrication drawings furnished by the supplier. CPCo originated NCR M-01-9-1-048 on 5/8/81 identifying the extent of the reinspection, acceptance criteria and discrepancies noted.

A categorical summary of the inspection results is as follows:

<u>Nature of Deficiency</u>	<u>Total Times Documented</u>
Undercut	11
Slag	10
Weld-splatter	9
Overlap/roll-over	7
Pinholes/porosity	5
Undersize welds	3
Hole-in-welds	2
Arc-strikes	<u>2</u>
	Total 49

The above deficiencies identified by Bechtel/CPCo after the original MAC assessment, confirmed that the supplier had violated AWS D1.1. This inspection showed further violations which could only be determined with detailed drawings.

Requirement:

Reference AWS, Part A (General Requirements) Paragraph 2.1.1:

"Full and complete information regarding location, type, size and extent of all welds, shall be clearly shown on the drawings. The drawings shall clearly distinguish between shop and field welds."

Actual:

Contrary to the requirements stated above, it was observed and documented (NCR) that five additional welds were identified and not referenced on Drawing A115.5.

The above deficiencies were evaluated by Bechtel CCo and determined to be not reportable under 50.55(e).

Assessment:

These have been assessed as findings; however, these deficiencies are considered to be isolated instances. Bechtel/CCo have previously identified similar welding deficiencies, notably on hangers and supports demonstrating their awareness of this kind of problem. Further, there were no other welding deficiencies identified in other items sampled.

This item does demonstrate the need to assure that source quality personnel and/or receiving inspection personnel should either be versed in special process requirements and controls such as for welding, or such activities should be periodically assessed by specialists in such fields.

- 4.4 Purchase Order No.: M-104  
Supplier: ITT Grinnell, Kernersville, North Carolina  
Component: 6" SS Pipe Spools, P/Ns 2 CCA-4-S-602-3-1 and  
2 CCA-4-S-602-3-2

Requirement:

Spool Piece 2CCA-4-602-3-1; length dimension should be 7' 7-9/16".

Actual:

Length dimension is 7' 7-1/8".

Requirement:

Spool Piece 2CCA-4-S-602-3-2; length dimension should be 4' 7-3/8".

Actual:

Length dimension is 4' 5".

Requirement:

Bechtel Procedure SF/PSPG3-2 Revision 6, paragraph 33.2 states:

"Nonconforming items shall be identified, and where possible, segregated."

Actual:

During inspection of welding, it was noted that spool piece 2CCA-4-S-602-3-2 had been cut and in process of welding in a new area, previously not identified on the drawing.

This nonconforming condition was not identified on a nonconformance report nor was the nonconforming condition identified on the pipe spool.

Requirement:

Bechtel Procedure SF/PSP G3-2, Revision 6, Paragraph 33.2 requires that:

"Nonconforming items be segregated from conforming items, when practical."

Actual:

The nonconforming pipe spools were being stored by Bechtel with other acceptable pipe.

Assessment:

The above conditions are treated as observations because:

- a. evidence of spool piece modification in the area makes it possible that spool pieces may have been altered from the original procured dimension,
- b. dimensional variations are such as can be readily accommodated during field installation, and
- c. storage conditions and control were outside the scope of this assessment. The items were identified to Bechtel/CPCo personnel for necessary correction.

4.5 Purchase Order No.: M-104

Supplier: ITT Grinnell, Kernersville, North Carolina

Component: Borated Water and Chemical Supply Pipe Spools  
P/N 2 HCB-2-S-613-7-1

Requirement:

ANSI N45.2.2, paragraph 3.2.4 requires that:

"Items require protection from physical and mechanical damage."

Actual:

Stainless steel pipe spools had evidence of carbon weld splatter.

During initial visit to laydown area, two pieces of stainless steel pipe were observed to be in contact with carbon steel pipe. Evaluator physically removed C/S pipe. It appeared that welding on C/S pipe was conducted in this area.

Assessment:

This deficiency is treated as an observation because storage was not in the scope of this task. The number of spool pieces stored

in the area is small, thus indicating that the problem is isolated; however, it appears that corrective action is needed to prevent possible damage by handling, rework and by contamination.

- 4.6 Purchase Order No.: M-104  
Supplier: ITT Grinnell, Kernersville, North Carolina  
Component: Service Water Pipe Spool  
P/N 2 MBC-J.1-S-618-3-1

Requirement:

ANSI N45.2.2, paragraph 3.2.4(3) requires that:

"Items subject to detrimental corrosion either internal or external shall be protected from corrosion and physical damage."

Actual:

Excessive rust and scale was visually observed internally and externally.

Assessment:

This item is treated as an observation because handling and storage was beyond the scope of this task.

- 4.7 Purchase Order No.: M-104  
Supplier: ITT Grinnell, Kernersville, North Carolina  
Component: Reactor Coolant Pipe Spool  
P/N 1 CCA-4-5-6001-3-2

Requirement:

ANSI N45.2.2, paragraph 3.2.4 requires that:



"Items require protection from physical and mechanical damage."

Actual:

Several areas of handling damage were observed. The most significant was a gouge area approximately 1/8" deep by 1/2" x 1/2". Other minor surface contamination was observed.

Assessment:

This has been assessed as a concern.

- 4.8 Purchase Order No.: M-104  
Supplier: ITT Grinnell, Kernersville, North Carolina  
Component: S-S Pipe Spools  
P/N 1 CCA-15-601-2-7 and 1 CCA-15-601-2-9

Requirement:

Bechtel Procedure SF/PSP G3-2 Rev. 6, paragraph 33.2 requires that:

"Nonconforming items shall be separated from other accepted items unless it is judged impractical because weight, size, configuration, etc. It can remain with other accepted items provided that the item is adequately tagged or marked indicating the material is nonconforming."

Actual:

During review of the area, the two pipe spool pieces noted above were found to be tagged with B&W Nonconformance Report 1671 (10/11/79). These nonconforming pipe spools were being stored in the accepted items storage area. This is in conflict with the requirements of Bechtel Procedure G3-2. The spool pieces were subsequently isolated from accepted material.

The Bechtel material person, Bernie Began, noted that when B&W returns material such as the subject pipe spool to stock, the responsibility for storage, etc. returns to Bechtel. He further noted that Bechtel does not take notice of B&W NCR reported items, and that they are normally stored in general accepted stock areas.

Assessment:

There appears to be a lack of control and interface between Bechtel and B&W on the matter of handling, storage and non-conformance control.

P.O. #	COMPONENT	VENDOR	A.E.O. #
E-20AC E-26	Cable Penetration Assembly 600v Control Cable	Amphenol Rockbestos	
F-3037 F-102030	Filler Material Weld Wire	Valley Oxygen Valley Oxygen	14293/14307 657 (alternate)
J-255A J-256 J-258AC	Nuclear Serv. Control Valve Solenoid Valves Butterfly Valve	Copes-Vulcan Target Rock Fisher Controls	1653 14546 9796
M-014 M-51AC M-52 M-56 M-093	Auxiliary Feedwater Pump Component Cooling Water Heat Ex. Component Cooling Water Pump Spent Fuel Pool, C.W. Pumps 125T Crane - Auxiliary Building	Bingham-Willamette Yuba Heat Babcock & Wilcox Goulds Pumps Ederer Crane	5661 1556 5762 8090
M-104 M-104 M-104 M-104 M-104	Class II Pipe Spools 6" Stainless Pipe Spools Borated Wtr. & Chem. Sup. Spools Service Wtr. Pipe Spool Reactor Coolant Pipe Spools	ITT Grinnell ITT Grinnell ITT Grinnell ITT Grinnell ITT Grinnell	
M-104 M-112AC M-117 M-118BC M-140 M-140AC	Stainless Steel Pipe Spools 30" Expansion Joint Assembly Valves, 2½" and larger Nuclear Valves Nozzle Type Relief Valve Main Control Room Air Filter	ITT Grinnell Associated Pipe Anchor Darling Rockwell Int'l. Crosby Valve Mine Safety	1022 10156 4453/4448

## ATTACHMENT B.2

## M-093 Ederer Crane Drawings for 125T Crane

<u>Drawing</u>	<u>Title</u>
B-14733	Drum Disc Brake Mounting Wedge
B-14642	Upper Block Frame
A-11516	Trolley Frame Details
A-11514	Trolley Frame
A-11515	Trolley Frame
A-11553	Lower Block Frame
A-11513	Trolley Frame Detail
A-11568	Upper Block Frame
A-11068	4-F-250 Hoist Case Fabrication Drawing
A-11073	Trolley Assy.

### 3.6 Weld Profiles

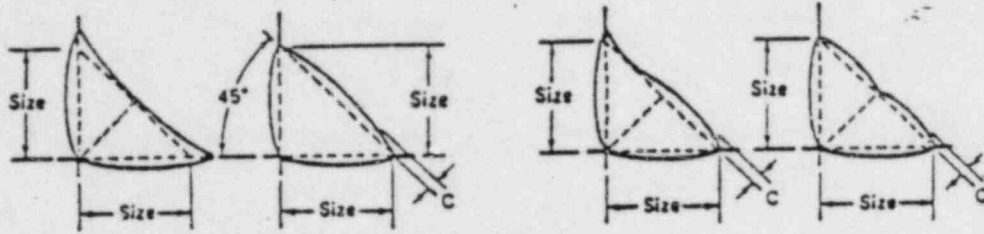
3.6.1 The faces of fillet welds may be slightly convex, flat, or slightly concave as shown in Fig. 3.6 (A), and (B), with none of the unacceptable profiles shown in Fig. 3.6(C). Except at outside corner joints, the convexity shall not exceed 0.1 times actual leg size, or the longer leg in the case of an unequal leg fillet weld, plus 0.06 in. (1.5 mm). See Fig. 3.6(B).

3.6.2 Groove welds shall preferably be made with slight or minimum reinforcement except as may be otherwise provided. In the case of butt and corner joints, the reinforcement shall not exceed 1/8 in. (3.2 mm) in height and shall have gradual transition to the plane of the base metal surface. See Fig. 3.6(D). They shall be free of the discontinuities shown for butt joints in Fig. 3.6(E).

3.6.3 Surfaces of butt joints required to be flush shall be finished so as not to reduce the thickness of the thinner base metal or weld metal by more than 1/32 in. (0.8 mm) or 5% of the thickness, whichever is smaller, nor leave reinforcement that exceeds 1/32 in. However, all reinforcement must be removed where the weld forms part of a faying or contact surface. Any reinforcement must blend smoothly into the plate surfaces with transition areas free from edge weld undercut. Chipping may be used provided it is followed by grinding. Where surface finishing is required, its roughness value<sup>1</sup> shall not exceed 250  $\mu$ in. (6.3  $\mu$ m). Surfaces finished to values of over 125  $\mu$ in. (3.2  $\mu$ m) through 250  $\mu$ in. shall be finished parallel to the direction of primary stress. Surfaces finished to values of 125  $\mu$ in. or less may be finished in any direction.

3.6.3.1 Ends of butt joints required to be flush shall be finished so as not to reduce the width beyond the detailed width or the actual width furnished, whichever is greater, by more than 1/8 in. (3.2 mm) or so as not to leave reinforcement at each end that exceeds 1/8 in. (3.2 mm). Ends of butt welds shall be faired to adjacent plate or shape edges at a slope not to exceed 1 in 10.

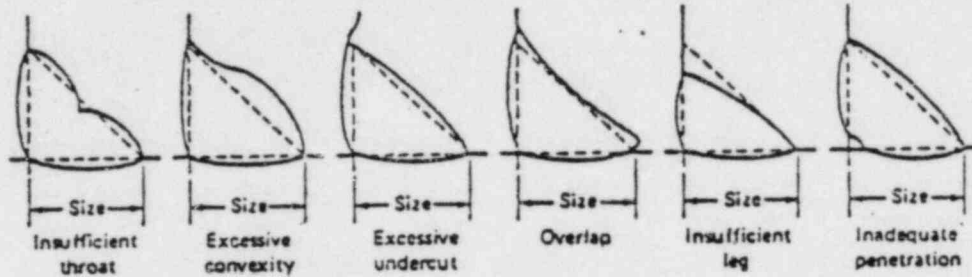
3.6.4 Welds shall be free from overlap.



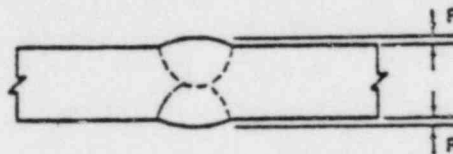
Note: Convexity C shall not exceed 0.1 times actual leg size, or the longer leg in the case of an unequal leg fillet weld, plus 0.06 in. (0.3 mm).

(A) Desirable fillet weld profiles

(B) Acceptable fillet weld profiles

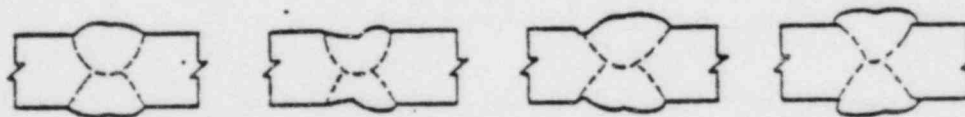


(C) Unacceptable fillet weld profiles



Note: Reinforcement R shall not exceed 1/8 in. (3.2 mm). See 3.6.2.

(D) Acceptable butt weld profile



Excessive convexity  
See 3.6.2

Insufficient throat  
See 3.6.3

Excessive undercut  
See 8.15.1.5, 9.25.1.5,  
or 10.17.1.5

Overlap  
See 3.6.4

(E) Unacceptable butt weld profiles

Fig. 3.6—Acceptable and unacceptable weld profiles

The requirements on this page have been taken from page 40 of AWS D1.1-80, "1980 Structural Welding Code - Steel", 1979, American Welding Society, Miami, Florida.

## 8.15 Quality of Welds

**8.15.1 Visual Inspection.** All welds shall be visually inspected. A weld shall be acceptable by visual inspection if it shows that

**8.15.1.1** The weld has no cracks.

**8.15.1.2** Thorough fusion exists between adjacent layers of weld metal and between weld metal and base metal.

**8.15.1.3** All craters are filled to the full cross section of the weld.

**8.15.1.4** Weld profiles are in accordance with 3.6.

**8.15.1.5** Irrespective of length, undercut shall not exceed the value shown in Fig. 8.15.1.5 for the primary stress direction category applicable to the area containing the undercut. Further, the undercut may be twice the value permitted by Fig. 8.15.1.5 (for the applicable stress category) for an accumulated length of 2 in. in any 12 in. (51 mm in 305 mm) length of weld, but in no case may undercut on one side be greater than 1/16 in. (1.6 mm). For weld lengths less than 12 in. (305 mm), the permitted length should be proportional to the actual length.

**8.15.1.6** The sum of diameters of piping porosity in fillet welds does not exceed 3/8 in. (9.5 mm) in any linear inch of weld and shall not exceed 3/4 in. (19.0 mm) in any 12 in. (305 mm) length of weld.

**8.15.1.7** A fillet weld in any single continuous weld shall be permitted to underrun the nominal fillet size required by 1/16 in. (1.6 mm) without correction, provided that the underrun portion of the weld does not exceed 10% of the length of the weld. On web-to-flange welds on girders, no underrun is permitted at the ends for a length equal to twice the width of the flange.

**8.15.1.8** Complete joint penetration groove welds in butt joints transverse to the direction of computed tensile stress shall have no piping porosity. For all other groove welds, piping porosity shall not exceed 3/8 in. (9.5 mm) in any linear inch of weld and shall not exceed 3/4 in. (19 mm) in any 12 in. (305 mm) length of weld.

**8.15.1.9** Visual inspection of welds in all steels may begin immediately after the completed welds have cooled to ambient temperature. Acceptance criteria for ASTM A514 and A517 steels shall be based on visual inspection performed not less than 48 hours after completion of the weld.

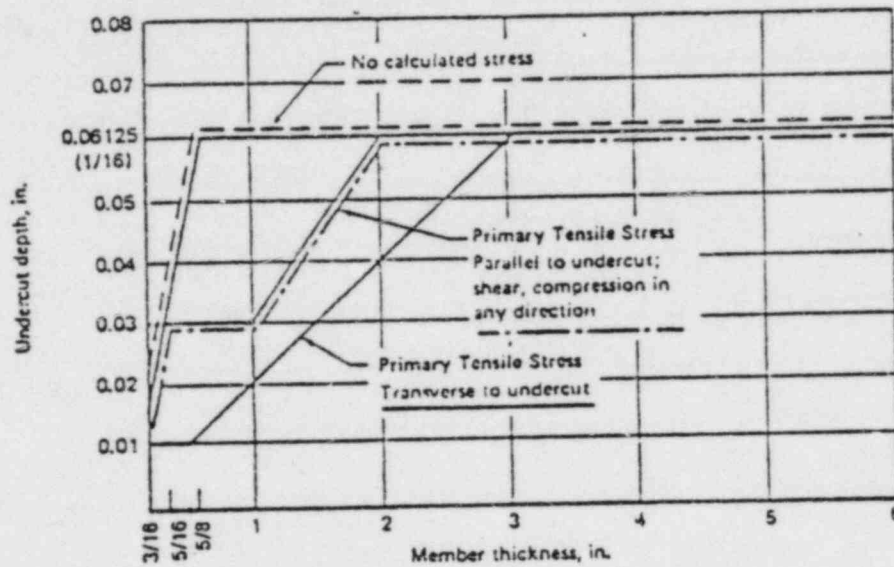


Fig. 8.15.1.5 — Permissible undercut values for buildings

The requirements on this page have been taken from page 134 of AWS D1.1-80, "1980 Structural Welding Code - Steel", 1979, American Welding Society, Miami, Florida.

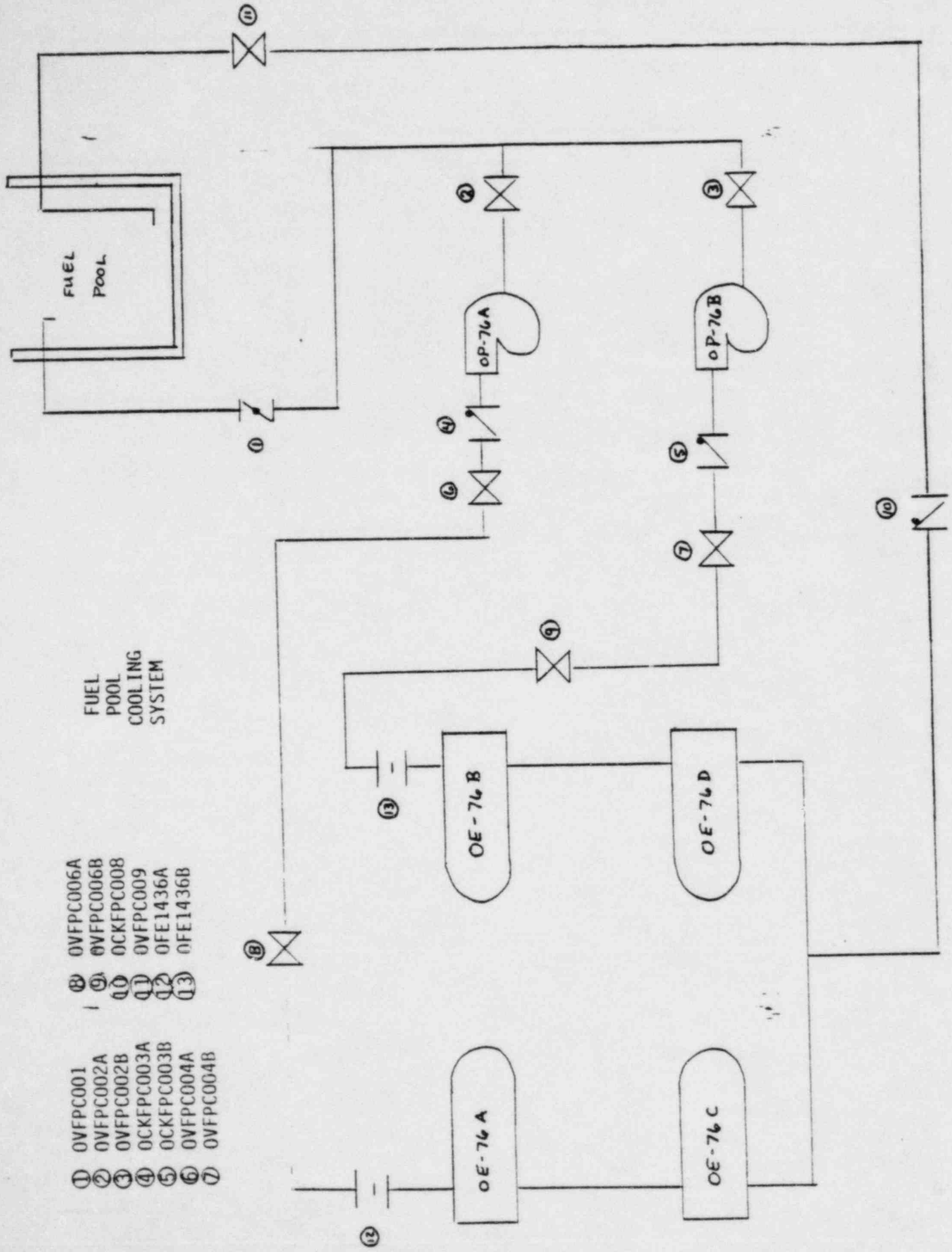


## ATTACHMENT B.4

## EDERER CRANE

Participants of Meeting Dated April 30, 1981

	<u>Name</u>	<u>Company</u>	<u>Title</u>
1.	J. L. Zimmerman	MPQAD	QAE IE & TV
2.	John Decker	MPQAD	NDE/Welding Supervisor
3.	Tony Charette	MPQAD	NDE/Welding
4.	L. R. Howell	MPQAD	Fluids/Msch. Spur
5.	P. L. Gray	Bechtel	Project SQ Supervisor
6.	J. Norris	MAC CPCo	QA Consultant
7.	W. Skelley	Bechtel	Nuclear Systems
8.	Ashley Thomas	Ederer Crane	Chief Engineer
9.	Steve Stevenson	Ederer Crane	QA Manager
10.	R. F. Steigerwald	Bechtel	Manager MEQS
11.	J. Marcello	MAC CPCo	QA Consultant
12.	J. Conen	Bechtel	Nuclear



- ① 0VFPC001
  - ② 0VFPC002A
  - ③ 0VFPC002B
  - ④ 0CKFPC003A
  - ⑤ 0CKFPC003B
  - ⑥ 0VFPC004A
  - ⑦ 0VFPC004B
- ⑧ 0VFPC006A
  - ⑨ 0VFPC006B
  - ⑩ 0CKFPC008
  - ⑪ 0VFPC009
  - ⑫ 0FE1436A
  - ⑬ 0FE1436B

# PHYSICAL INSPECTION

PURCHASE ORDER # E-20AC      SUPPLIER Amphenol      EVALUATOR J. R. Orlando  
 A.E.O. # \_\_\_\_\_      LOCATION Chatsworth, California      DATE 4/8/81  
 COMPONENT Cable Penetration Assembly      S/N AS 230-6, P/N 500-13093-31, EQ# 1Z105

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Verify dimension of penetration assembly as follows:		
1.1	Flange to baffle and baffle to baffle	OK	
1.2	Flange bolt hole size and locations	OK	
1.3	Dimensions and orientation of baffle and flange cable penetration holes	OK	
1.4	Flange diameter, thickness and machine details	OK	
1.5	Lifting eye and thermocouple extensions	OK	
2.0	Penetration flange nameplate and data to be verified	OK	Nameplate: 70 psi 300°F 50°F service temperature EQ# 1Z105
3.0	Storage/Warehouse	OK	Shipping crate was constructed in a manner which minimized possible damage during storage and handling. The component is subject to a constant purge.
4.0	Visually inspect for damage and general workmanship	OK	

# PHYSICAL INSPECTION

PURCHASE ORDER # E-026      SUPPLIER Rockbestos      EVALUATOR M. DuDeck  
 A.E.O. # N/A      LOCATION New Haven, Connecticut      DATE 3/31/81  
 COMPONENT 600v Control Cable - 3 reels, #10319, 9838 and 10683

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Quality: 1.1 CMTR's, C of C, etc.	Satisfactory	Material certifications reviewed indicated compliance with purchase order requirements.
2.0	Fabrication Data Results:	Satisfactory	Evaluation of the following source surveillance data resulted in compliance with P.O. requirements: PSQ 221A (source surveillance reports) G321-a (documentation requirements)  Further review of data submitted verified compliance with design and procurement requirements. NEMA and IEEE requirements maintained.
3.0	Storage/Warehouse (ANSI N45.2)	Unsatisfactory	Violation for level "D" storage and BPC F.1.E4.100 paragraph 4.3 "Unprotected cable end to prevent mechanical/item from contamination and damage". NOTE: Consumers Power representative notified - NCR #3322 issued.  Isolated case - not a generic problem.  <u>Comment</u> Reference Item 3.0; item was documented. However, storage and nackaging not a part of MAC's task.

# PHYSICAL INSPECTION

PURCHASE ORDER # F-3037

SUPPLIER Valley Oxygen

EVALUATOR M. DuDeck

A.E.O. # 14293/14307

LOCATION \_\_\_\_\_

DATE 3/31/81

COMPONENT Filler Material

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Welding Filler Material: 1.1 CMTR's  1.2 C of C	Satisfactory  Satisfactory	ASME Section III applications - CMTR's report actual test results identifying the specific test conditions used.  Applications other than ASME Section III - A C of C with the requirements of the welding filler material specification is provided.
2.0	Identification: 2.1 ASME  2.2 Low hydrogen type  2.3 bare filler rods	Satisfactory  Satisfactory  Satisfactory	Identification included heat and/or lot number and marking code that identifies the materials with the manufacturer's CMTR report, manufacturer's trade name, specification, grade and classification.  Furnished in hermetically sealed containers (E 7018, E 308-16, EN CR FE-3)  Identifying flag tags on one end of 18" lengths and both ends on 36" lengths.
3.0	Storage/Warehouse	Satisfactory	Storage of filler material is isolated and locked. Only authorized personnel are authorized to enter or obtain material.

## PHYSICAL INSPECTION

PURCHASE ORDER # F-10203Q      SUPPLIER Valley Oxygen      EVALUATOR M. DuDeck  
 A.E.O. # 657 (alternate)      LOCATION \_\_\_\_\_      DATE 3/31/81  
 COMPONENT Weld Wire

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Quality: 1.1 CMTR's	Satisfactory	Reviewed tag #E70, heat #7000AI, lot H2559 and verified that procurement requirements had been complied with.
2.0	Shop NDE Results	N/A	
3.0	Structural Details	N/A	
4.0	Weld Procedures and Qualification	N/A	
5.0	NDE Procedures and Qualifications	N/A	
6.0	Identification	Satisfactory	Material identified in accordance with purchase order requirements.
7.0	Material Requisition Requests	Observation	Field purchase orders initiated for weld filler material are not designated as "Q" item on purchase order. Re-review of procurement packages indicated that documentation received from suppliers meet or exceed "Q" item requirements for weld filler material.
8.0	Storage/Warehouse	Satisfactory	Storage of all filler material is segregated and maintained under lock. Only authorized personnel permitted to withdraw material.

# PHYSICAL INSPECTION

PURCHASE ORDER # J-255A      SUPPLIER Copes-Vulcan      EVALUATOR E. Dolim/T. J. Marcella  
 A.E.O. # 1653      LOCATION Lake City, Pennsylvania      DATE 4/16/81  
 COMPONENT Nuclear Service Control Valve      IFV-0349A-1

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Significant characteristics verified: 1.1 Overall package dimensions Top of diaphragm case to center of bore Valve body overall Diameter of diaphragm case 1.2 Valve body minimum wall thickness (random sample), minimum callout 7/32" (.218)	Acceptable per drwg.  Acceptable	Per drawing number B-170032, Rev. 5  27-3/4" 7-3/4" 11-1/2"  Minimum wall readings 0.263 and 0.268. In addition, readings of .452, .614, .628, .615, .612.
2.0	Nameplate Data	Acceptable per drwg.	Valve nameplate: Size 1" class 1500 Material F-316 Seats 1" Flow 15 GPM AP 200 psi Maximum allowable serv. temperature 1050°F Maximum allowable pressure @ 100°F 2085 psi Stem and seat SS
3.0	Code Nameplate	Acceptable per drwg.	Code nameplate: Copes - Vulcan, Inc. 3200 psi @ 200°F S/N 7410-95327-2-1 Year built 1976
4.0	Identification	Acceptable per drwg.	Valve body material identification was verified by etched markings on valve body (ASME SA-182, F-316)

# PHYSICAL INSPECTION

PURCHASE ORDER # J-256      SUPPLIER Target Rock      EVALUATOR E. Dolim  
 A.E.O. # 14546      LOCATION East Farmingdale, New York      DATE 3/16/81  
 COMPONENT Solenoid Valves      I.D.# 39, Tag # 1 PCV-2111

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Overall Package Dimensions	Satisfactory Per Dwg 76B401, Rev D	Random overall package dimensions were taken and found to be as shown on the dwg 76B401, Rev D. (A) Centerline of body to top of cover - 8.62" ± .5 (B) Overall length of body - 7.50" ± .06 (C) Diameter of body - 2.13" Ref.
2.0	Valve body minimum wall thickness	Satisfactory Per Dwg	Wall thickness measurements were taken using a Krautkraemer digital readout thickness gauge (ultrasonic) at accessible locations on the valve body. Measurements were 0.566, 0.572, 0.574, 0.572. The drawing does not call out minimum wall thickness, however for an outside diameter of 2.13" calculated minimum wall thickness is $\frac{1.13}{2}$ or 0.565" for a 1" valve.
3.0	Nameplate Data	Satisfactory Per Dwg	Actual nameplate data corresponds to drawing nameplate data.



# PHYSICAL INSPECTION

PURCHASE ORDER # J-258AC

SUPPLIER Fisher Controls

EVALUATOR E. Dolim

A.E.O. # 9796

LOCATION Coraopolis, Pennsylvania

DATE 4/10/81

COMPONENT Butterfly Valve 2B/13F 236583/2MO 1114A

ITEM	CHARACTERISTICS	RESULTS	REMARKS	
			<u>Actual</u>	<u>Drawing</u>
1.0	Dimensional Checks Actual dimensions vs drawing dimensions (F-43213, Rev 0).			
1.1	Orientation and location of gland leakoff connections.	Satisfactory		
1.2	Wall thickness valve port to outside (calculated).	Satisfactory	1-1/4" vs	1-1/4"
1.3	Overall dimension, switch bracket.	Satisfactory	17-1/2" vs	17-1/2"
1.4	Valve Port Diameter.	Satisfactory	6" vs	6"
1.5	Valve, Switch Bracket overall dimension.	Satisfactory	9-5/8" vs	9-5/8"
1.6	Valve port location to location of gland leakoff connections.	Satisfactory	8.875" vs	8.875"
1.7	Outside Diameter.	Satisfactory	8.850" vs	8.850"
2.0	Material Checks Materials identification on valve body compared with call-out on dwg Bill of Material SA 351 GR CF8.	Satisfactory		
3.0	Nameplate Data Actual nameplate data vs specification J-605, Appendix G, Para 1.0.	Observation	Nameplate data OK, however, nameplates are attached to valves by means of wire rather than by screws as required in spec J-605, App G, Para 1.0. Nameplate attachment conforms to drawing.	
4.0	X-Ray Review	Observation	S/N PSA7770, P/N G25808 has no acceptance, however, contains acceptance for P/N G25802. (See Part II of Task C-3 report for additional information.) P/N G25802 is the drawing number for the machined casting.	

# PHYSICAL INSPECTION

PURCHASE ORDER # M-014

SUPPLIER Bingham-Willamette

EVALUATOR E. Dolim

A.E.O. # 5661

LOCATION Portland, Oregon

DATE 4/10/81

COMPONENT Auxiliary Feedwater Pump, Tag #1P05A

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Overall Package Dimensions	Accept per dwg D-8647X rev 7	Overall Dimension 151-1/2" Height of pump 42-1/2" Width of Pump 34-1/2" Height of Base 9"
2.0	Pressure boundary minimum wall thickness.	Accept per dwg	Bearing housing wall thickness .749, .715, .814, .797, and .733 as verified by Krautkraemer Digital Readout Thickness Gauge.
3.0	Flange dimensions were compared against drawing requirements.	Accept per dwg	Suction flange 8" - 900#R.F. Discharge flange 4" - 900#R.F.
4.0	Nameplate Data	Accept per dwg	Mfg by Bingham-Willamette - S/N 15210276, size 4x8x10-1/2" 7 stage, 3560 RPM, 1600 GPM, 2700' Head.  Code Name ASME N CLASS 3 SEC # 15210276 YR BUILT - 1977 NO. 1P05A NB - 465  Nameplate data is consistent with drawing requirements. In addition, direction of rotation as indicated on drawing was confirmed with tag on pump casing.

# PHYSICAL INSPECTION

Page 1 of 2

PURCHASE ORDER # M-51AC

SUPPLIER Yuba Heat

EVALUATOR E. Dolim

A.E.O. # 1556

LOCATION Tulsa, Oklahoma

DATE 3/16/81

COMPONENT Component Cooling Water Heat Exchangers

1E73A/74N-011-1A

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Dimensions and orientation of nozzles.	Satisfactory	<p>Selected dimensions verified using a 12' steel tape were:</p> <p>Channel cover flange to centerline of channel vent connection - 2' 1-1/2".</p> <p>Channel vent to channel relief conn. - 6".</p> <p>Channel vent to shell relief conn. - 2' 6".</p> <p>Channel vent connection to centerline of shell inlet and outlet nozzles - 3' 9-1/2".</p> <p>Return channel vent to stiffener ring - 7' 8-1/2".</p> <p>Dimensions are in accordance with the drawings.</p>
2.0	Minimum wall thickness, shell and heads.	See Note #1	<p>Minimum wall thickness of shell and return channel head taken at various locations.</p> <p>Shell thickness of plate adjacent to return channel - 0.445 and 0.452.</p> <p>Thickness of return channel head - 0.500, 0.523, 0.545, 0.503, 0.491, 0.502, 0.509.</p> <p>Thickness measurements were made with Krautkraemer digital readout thickness gauge (ultrasonic).</p>
3.0	Visual Inspection of Weld Quality.	Satisfactory	<p>Visual inspection of butt welds on vessel shell seams was made. Weld contour good with uniform crowning and no evidence of undercutting.</p>
4.0	<p>Nameplate Data.</p> <p>Mfd by Yuba, Inc. (Yuba Heat Transfer Corp)</p> <p>ASME "N" Class 3</p> <p>Nat'l Board 3316</p> <p>Design Press - Shell 200, Tubes 125</p> <p>Design Temp - Shell 220°F, Tubes 220°F</p> <p>MFR S/N - 74-N-011-1A</p> <p>Year Built - 1976</p>	Satisfactory	<p>Nameplate data is in accordance with the Purchase Order and drawing requirements.</p>

# PHYSICAL INSPECTION continued

PURCHASE ORDER # M-51AC      SUPPLIER Yuba Heat      EVALUATOR E. DoLim  
 A.E.O. # 1556      LOCATION Tulsa, Oklahoma      DATE 3/16/61  
 COMPONENT Component Cooling Water Heat Exchangers      ID 1E73A/74N-011-1A

ITEM	CHARACTERISTICS	RESULTS	REMARKS
5.0	Review of Radiographic Film  NOTES: 1. Wall thicknesses are not called-out on the drawings. 2. While inspecting 1E73B it was noted that unsupported piping on the discharge side of the relief valve had bent the nozzle. Bechtel was notified and NCR 3340 was issued.	1. Sat. 2. Unsat.	See Radiographic Review sheet for M-051.

# PHYSICAL INSPECTION

PURCHASE ORDER # M-52

SUPPLIER Babcock & Wilcox

EVALUATOR E. Dolim

A.E.O. # 5762

LOCATION Norwood, Ohio

DATE 4/8/81

COMPONENT Component Cooling Water Pump #1P73A (Allis Chalmers Motor)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Verify pump dimensions in accordance with app'd drawing	Satisfactory Dwg G-500	Overall length from end bell to coupling face - 44". Diameter of motor - 28-1/4". Lifting eye to endbell - 19-1/4" to frame - 27".
2.0	Verify nameplate data in accordance with drawing/spec requirements.	Satisfactory per dwg	Nameplate: S/N B5112-90226-2-1 Type GS-Frame 507US Model # 145 NOB HP 350, Serv Factor 1.15 RPM 1780, Hertz 60, Volts 4000, Phase 3, Amps 45.3, KVA Code F, continuous ambient 50°F, Class Insul VPI, Permissible starts 2 motor cold, 1 motor hot.

# PHYSICAL INSPECTION

PURCHASE ORDER # M-56                      SUPPLIER Goulds Pumps                      EVALUATOR E. Dolim  
 A.E.O. # 8090                                      LOCATION Seneca Falls, New York                      DATE 4/10/81  
 COMPONENT Spent Fuel Pool, Chilled Water Pumps #OP76A

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Size and Orientation of nozzles and drain.	Acceptable	Checked inlet and outlet nozzles for size and type, also size of casing drain and location. Inlet nozzle is properly sized and drilled for 8" - 150# R.F. Outlet nozzle is 6" - 150# R.F. Casing drain is 1/2" welded. These sizes and dimensions are in accordance with drawings.
2.0	Identification	Acceptable	<p>Nameplate Data:</p> <p>MFD by Gould Pumps                      Serial No. N754B658.1                      Max WP 150, Des WP 15, Temp 212°F                      Test Pressure 225                      Equipment No. OP76A                      Spent fuel pool pump</p> <p>Code Nameplate:                      ASME "N" stamp, year built 1978                      Des Press 150# @ 212°F                      N 754 B 658.1                      Model 3196xL7                      6 x 8 x 13                      1320 GPM                      113' Head                      1730 RPM                      Material Code S-101</p>

# PHYSICAL INSPECTION

PURCHASE ORDER # M-093      SUPPLIER Ederer Crane Company      EVALUATOR T. J. Marcella  
 A.E.O. # \_\_\_\_\_      LOCATION Seattle, Washington      DATE 4/7/81  
 COMPONENT 125 Ton Crane, Auxiliary Building

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Verify overall dimensions 1.1 Length 1.2 Width	OK OK	Further dimensional checks not made because of lack of available drawings.
2.0	Visual Inspection of Weld Quality	Unsatisfactory          Concern	<p>Inspection made without applicable drawings.</p> <ul style="list-style-type: none"> <li>a. Undersized welds based on fillet being less than thickness of thinner member.</li> <li>b. Fillet weld profiles questionable based upon unequal leg dimensions.</li> <li>c. Evidence of undercut greater than AWS D1.1 allowables (paint should be removed for accurate check).</li> <li>d. Evidence of paint over weld slag.</li> </ul> <p>a. Fillet welds terminated short of stiffener plate ends.</p> <p>b. Fillet welds on stiffeners not wrapped on exposed end.</p> <p>Because of lack of detailed drawings showing specific dimensional and weld detail criteria, a reinspection was requested to be performed by Bechtel/CPCo with suppliers drawings. This inspection performed after MAC departure resulted in Bechtel NCR #M-01-9-1-048 dated 5/8/81.</p>

# PHYSICAL INSPECTION

 PURCHASE ORDER # M-104

 SUPPLIER ITT Grinnell

 EVALUATOR T. J. Marcella

A.E.O. # \_\_\_\_\_

 LOCATION Kernersville, North Carolina

 DATE 4/7/81

 COMPONENT Class II pipe spools
2 ELB-1-S-639-13-2A

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	A random sample of pipe spools in the laydown resulted in the following results:  Dimensional: Overall length 20'0" Diameter 24"	Acceptable	Length and diameter was physically measured and verified that drawing requirements were maintained.
2.0	Visual: 2.1 welding (X-ray quality) 2.2 surface condition	Acceptable Acceptable	Welding contour was acceptable. Carbon steel pipe appears to be satisfactory; however, some handling nicks and scratches were observed.
3.0	Paint	Satisfactory	Spool was painted with carbo-zinc II and appeared to be satisfactory, although storage conditions and weather does deteriorate paint.
4.0	Storage/Warehouse	Observation	Wooden covers were taped on the ends. Stencil stipulated that two (2) bags of silica-gel were located at each end of pipe. It would be more appropriate to identify size of bags in addition to quantity. Bag count is to assure removal of all dessicant.
5.0	Identification/Markings	Acceptable	Nameplate indicated ASME Class II pipe with N-stamp. Other identifications were heat treat number, pipe schedule, material and type.  <u>Comment</u> Reference Item 4.0; item was documented, however, storage and packaging are not within the scope of the MAC task.



# PHYSICAL INSPECTION

PURCHASE ORDER # M-104

SUPPLIER ITT Grinnell

EVALUATOR J. R. Orlando

A.F.O. # \_\_\_\_\_

LOCATION Kernersville, North Carolina

DATE 4/7/81

COMPONENT 6" Stainless pipe spools

2 CCA-4-S-602-3-1, 2 CCA-4-S-602-3-2

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Check spool dimensions as per drawing #M-602, sheet 3.	Concern	Spool piece 2 CCA-4-S-602-3-1: Drawing states pipe dimension of 7'7-9/16". Actual dimension is 7'7-1/8".  Spool piece 2 CCA-4-S-602-3-2: Drawing states pipe length of 4'7-3/8". Actual dimension is 4'6". Refer to Task C of report for additional information.
2.0	Check material type as per drawing requirements.	Satisfactory	It was verified by identification that pipe is Schedule #160 SA-312 TP-16 and fittings were Schedule #160 SA-403 WP-316.
3.0	Perform visual inspection of welding performed by vendor.	Observation	During inspection of welding, it was noted that spool piece 2 CCA-4-S-602-3-2 had been cut and in process of welding in a new area previously not identified on the drawing. (Refer to attached drawing for location of new weld.) The Bechtel materials person (Bernie Began) at the laydown area noted that the subject spools had been returned to Bechtel laydown area by B & W. Mr. R. Shopp of B & W site was contacted regarding the spool pieces. He noted that the subject spools had been received at site with one end out of plumb by approximately one inch (refer to attached sketch). This condition was identified on a B & W Request for Information RFI #346, dated 3/10/80 which approved repairs in accordance with B & W Field Construction Procedure 40 for the Reactor Coolant Pressure Control System. It was further found that another new weld identified on the attached sketch had already been accomplished by B & W.  This nonconforming condition was not identified on a non-conformance report nor was the spool identified as to its nonconforming condition by any means.  The nonconforming pipe spools are presently being stored by Bechtel with other acceptable pipe.
4.0	Perform visual inspection for surface	Satisfactory	The spool pieces were inspected and found satisfactory.

# ITT Grinnell Industrial Piping Inc.

96

KERNERSVILLE, N. C.

WT. NO. 7093

DRWN DT CHK'D Jan 2-0-76  
 REV. \_\_\_\_\_ CHK'D \_\_\_\_\_  
 REV. \_\_\_\_\_ CHK'D \_\_\_\_\_  
 REV. \_\_\_\_\_ CHK'D \_\_\_\_\_

CONSUMERS POWER COMPANY  
 MIDLAND, MICHIGAN

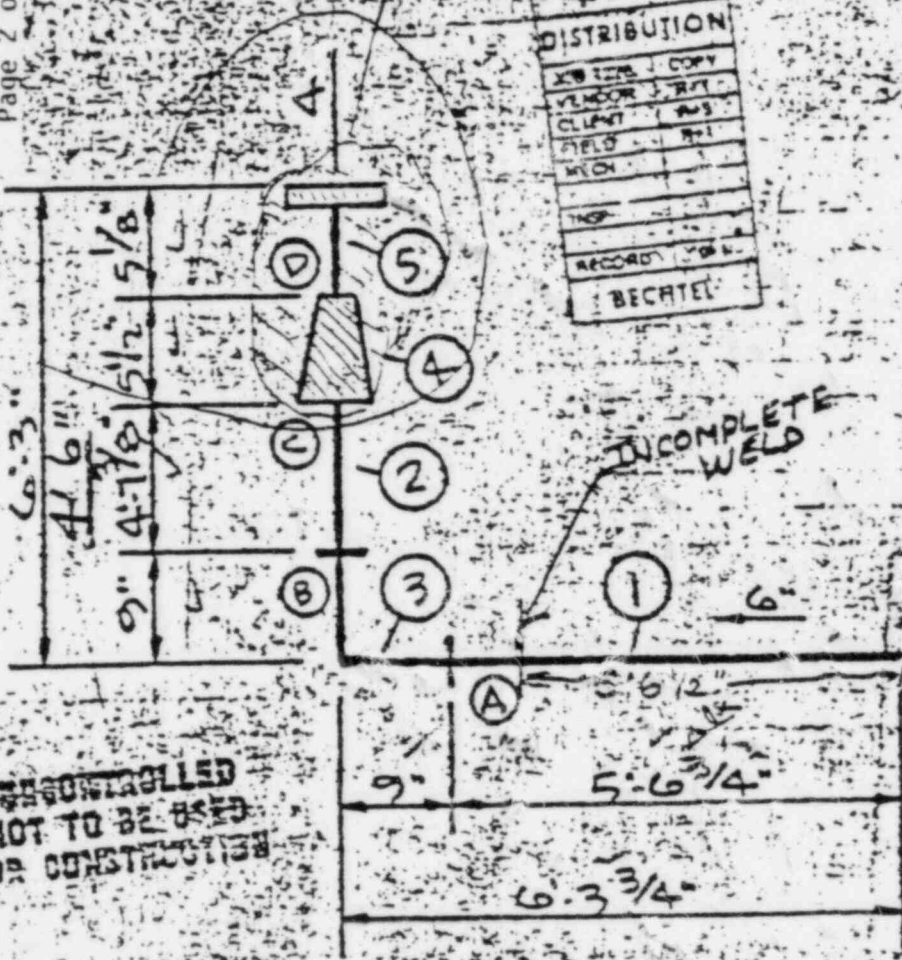
Page 2 of 3

PIPING CODE
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CLIENT BUY
FIELD BUY
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OCT 25 1977

BECHTEL POWER CORP  
 JOB 7220



**UNCONTROLLED**  
**NOT TO BE USED**  
**FOR CONSTRUCTION**

SEP 2 1977

ASME CODE APPROVAL	

PIPE - SCH. 160 - SA-312 OR 316 TP-316  
 FITT. - SCH. 160 - SA-403 WP-316  
 FLG. - 1500# - SM TONGUE - SA-182 F-316  
 CONS. INSERT - SCH. 160

ENDS MACH. PER SK#  
 MP-D-1

**SUB-2**

STAINLESS STEEL  
 ASS NUC. CC.1 LINE SPEC 2CCA APP. CODE ASME SEC II NO. REQ'D 1

radiography (RT)	✓	Special Marking	Preheat	Cert. of Compliance
Ultrasonic (UT)		Special Cleaning	Heat Treat	Mill Test Reports
Penetrant (PT)	✓	Painting	Code Stamp	Data Reports

SYSTEM REACTOR COOLANT FAB. SPECS FS-350N1 SSKW-19  
 T DRWG NO. M-602 SHT. 3 A PRESS. 2500 PSI. TEMP. 650 °F. WT. 702 LBS.  
 TRACE MARK 2CCA-4-S-602.3-2 REGISTER MR-30-5x

# ITT Grinnell Industrial Piping Inc.

97

KERNERSVILLE, N. C.

## RECEIVED

DEC 26 1978

BECHTEL POWER CORP.  
JOB 7220  
PER \_\_\_\_\_

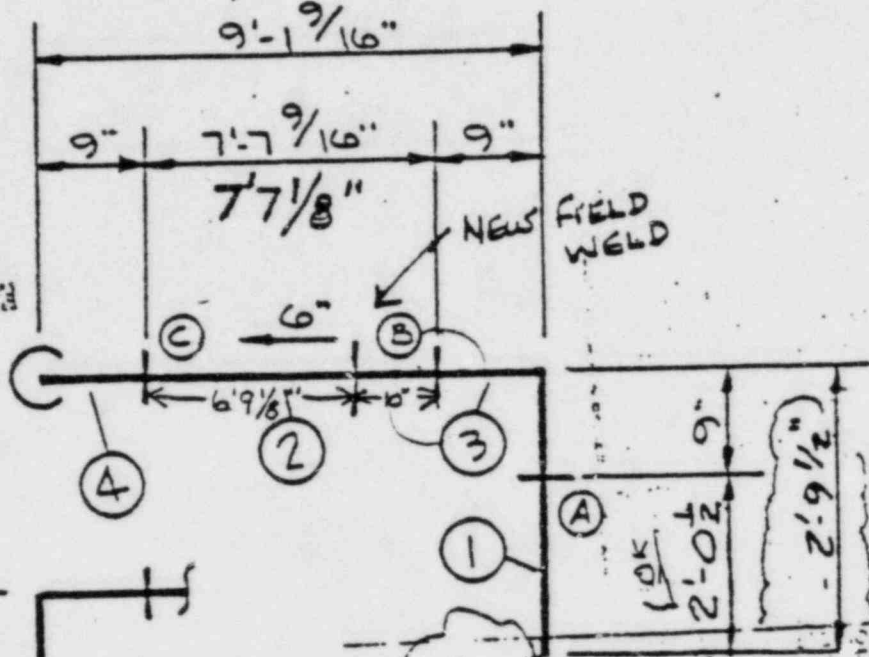
DRW'N [Signature] CHK'D Jan 8-4-76  
 ① REV. HUC 5/25/77 CHK'D KLP 12/21/77  
 ② REV. 9-7-77 CHK'D ADJ  
 ③ REV. PMM 12/28/77 CHK'D LJK  
 ④ PMM 10/20/79 LJK 10-20-79 IX

**\* ITEMS 5 & 6 TO BE SHIPPED TO FIELD ON FILMS-7395**

1944  
DRAWING NO. 7093  
CONSUMERS POWER COMPANY  
MIDLAND, MICHIGAN

Page 3 of 3  
**Q**

UNCONTROLLED  
NOT TO BE USED  
FOR CONSTRUCTION



PIPING  
SECTION  
DATE  
BY  
CHECKED

ASME CODE APPROVE

✓ PIPE - SCH. 160 - SA-312 OR 376 TP-316  
 ✓ FITT - SCH. 160 - SA-403 WP-316  
 MR PL-59-1  
 HT 9360

SUB 5

ENDS MACH. PER SK#  
6" MP-0-1

10-24-78

CLASS Nuc. Cl. 1 LINE SPEC. 2CCA APP. CODE ASME SEC. III NO. REQ'D 1

Radiography (RT)	✓	Special Marking		Preheat		Cert. of Compliance	
Mag. Particle (MT)		Special Cleaning	✓	Heat Treat		Mill Test Reports	✓
Netrants (PT)	✓	Painting		Code Stamp	✓	Data Reports	✓

SYSTEM REAC. COOLANT FAB. SPECS. ES-350N, SSKU-19  
 EF. DRW'G NO. M-602 SHT. 3 PRESS. 2500 PSI. TEMP. 650 °F. WT. 600 LBS  
 ILLU MARK 2CCA-4-5-602-3-1 REGISTER MR-30-4X

# PHYSICAL INSPECTION

Page 1 of 2

PURCHASE ORDER # M-104      SUPPLIER ITT Grinnell      EVALUATOR T. J. Marcella  
 A.E.O. # \_\_\_\_\_      LOCATION Kernersville, North Carolina      DATE 4/7/81  
 COMPONENT Borated Wtr. and Chemical Sup. Pipe Spools      2 HCB-2-S-613-7-1

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	General: Re-review of material located in the laydown area to evaluate Bechtel source surveillance activity.		
1.0	Material (stainless steel) 6" schedule #160:		
	1.1 CMTR's	Acceptable	CMTR's included physical and chemical tests on SA-312, type 304 and SA-403 WP 304-W.
2.0	Testing	Acceptable	Test data reflected pressure test of 150 psi temperature 350°F per specification.
3.0	Visual		
	3.1 Welding (X-ray quality)	Acceptable	Welding contour appeared acceptable to code requirements.
	3.2 Surface condition	Observation	No anomalies observed other than evidence of carbon weld splatter and storage adjacent to carbon pipe spools.
4.0	Dimensional	Acceptable	Spool met dimensions identified. Weld bevel on one end of pipe was verified to be 37½° bevel.
5.0	Identification/Markings	Acceptable	Pipe spool was identified with material and type, heat number, and schedule.

# PHYSICAL INSPECTION continued

PURCHASE ORDER # M-104      SUPPLIER ITT Grinnell      EVALUATOR T. J. Marcella  
 A.E.O. # \_\_\_\_\_      LOCATION Kernersville, North Carolina      DATE 4/7/81  
 COMPONENT Borated Wtr. and Chemical Sup. Pipe Spools      2 HCB-2-S-613-7-1

ITEM	CHARACTERISTICS	RESULTS	REMARKS
6.0	Storage/Warehouse	Observation  Acceptable	During initial visit to laydown area, two pieces of stainless steel pipe were observed to be in contact with carbon steel pipe. Evaluator physically removed C/S pipe. It appeared that welding on C/S pipe was conducted in this area.  Pipe spool was packaged with wooden flange cover on one end and taped on straight end.

# PHYSICAL INSPECTION

 PURCHASE ORDER # M-104

 SUPPLIER ITT Grinnell

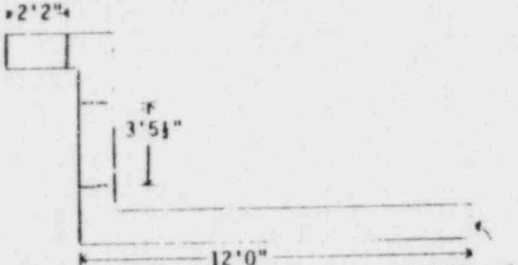
 EVALUATOR T. J. Marcella

A.E.O. # \_\_\_\_\_

 LOCATION Kernersville, North Carolina

 DATE 4/7/81

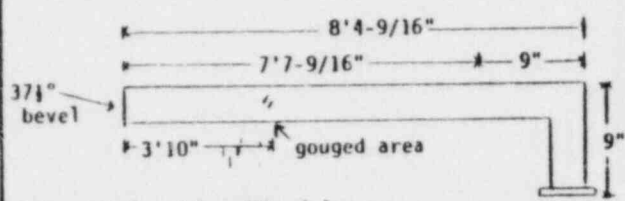
 COMPONENT Service Wtr. Pipe Spool
2 MHC-311-S-618-3-1

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material - Carbon Steel 24" diameter	Acceptable	CMTR's for physical and chemical tests of materials SA-234 WPB and SA-105.
2.0	Testing	Acceptable	Test data for pressure test of 105 psi at 105°F temperature available.
3.0	Visual 3.1 Welding (MT required) 3.2 Surface	Acceptable Observation	Weld contour acceptable to code requirements. Excessive rust scale observed internally and externally.
4.0	Dimensional 	Acceptable	Dimensions taken met drawing requirements.
5.0	Identification/Markings	Acceptable	Pipe spools identified with material type, heat number, and schedule. code plate identified as Class 3.
6.0	Storage/Warehouse	Acceptable	Except for item 3.2 above, spool was closed off with plywood covers taped to ends.  <u>Comment</u> Reference Item 3.2; this observation was documented. However, storage and packaging are not within the scope of MAC's task.

# PHYSICAL INSPECTION

PURCHASE ORDER # M-104 SUPPLIER ITT Grinnell EVALUATOR T. J. Marcella  
 A.E.O. # \_\_\_\_\_ LOCATION Kernersville, North Carolina DATE 4/8/81  
 COMPONENT Reactor Coolant Pipe Spools 1 CCA-4-5-6001-3-2

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material - Stainless Steel Schedule #160, 6" diameter:		
1.1	CMTR's	Acceptable	CMTR's on pipe schedule #160, SA-376 type 316 and fitting schedule #160 SA-403 WP 316.
2.0	Testing	Acceptable	Documentation indicated acceptable pressure testing of 2500 psi at 650°F.
3.0	Visual		
3.1	Welding (X-ray quality)	Acceptable	Weld contour within code requirements.
3.2	Surface condition	Concern	Several areas of handling damage were observed. The most critical was a gouge area approximately 1/8" deep by 1/2" x 1/2". Other minor surface contamination observed.
4.0	Dimensional	Acceptable Concern	Dimensions met drawings requirements. Gouge area was described in Item 3.2 above.
5.0	Identification/Markings	Acceptable	Pipe spool was identified with material and type, heat number and schedule. Code plate observed CL I.
6.0	Storage/Warehouse	Acceptable	Except for item 3.2 above, spool was closed off with tape and cardboard on straight end and plywood cover of flange end was taped.



# PHYSICAL INSPECTION

PURCHASE ORDER # M-104      SUPPLIER ITT Grinnell      EVALUATOR J. R. Orlando  
 A.E.O. # N/A      LOCATION Kernersville, North Carolina      DATE 4/8/81  
 COMPONENT Stainless Steel Pipe Spools      1 CCA-15-601-2-7, 1 CCA-15-601-2-9

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	<p>Perform visual inspection of Bechtel storage laydown area for safety related "Q" pipe to ensure that the nonconforming material segregation and marking requirements of Bechtel procedure SF/PSP G3-2, Rev. 6 have been met as follows:</p> <p>Reference Paragraph 33.2 - states that nonconforming items shall be separated from other accepted items unless it is judged impractical because weight, size, configuration, etc. It can remain with other accepted items provided that the item is adequately tagged or marked indicating the material is nonconforming.</p>	Concern	<p>During review of the area, the (2) spool pieces noted above were found to be tagged with B &amp; W nonconformance report 1671 (10/11/79). These nonconforming spools are being stored in the accepted items storage area. This is in conflict with the requirements of Bechtel Procedure G3-2.</p> <p>The Bechtel material person, Bernie Began, noted that when B &amp; W returns materials such as the subject spool to stock, the responsibility for storage, etc. returns to Bechtel. He further noted that Bechtel does not take notice of B &amp; W NCR reported items, and that they are normally stored in general accepted stock areas.</p> <p>There appears to be a lack of control and interface between Bechtel and B &amp; W on this matter.</p>



## PHYSICAL INSPECTION

 PURCHASE ORDER # M-112AC

 SUPPLIER Associated Pipe

 EVALUATOR M. DuDeck

A.E.O. # \_\_\_\_\_

 LOCATION Los Angeles, California

 DATE 4/1/81

 COMPONENT 30" Expansion Joint Assembly, Exp. Joint #1-XJ-1201
1-XJ-1201 (installed)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Quality CMTRs	Satisfactory	CMTRs reviewed for C/P requirements: A-36, SA-240, SA-312, SA-358, SA-155 Cl.1, SA-325, SA-515, SA-276, SA-340.
2.0	Weld Procedures	Satisfactory	Following weld procedures utilized - approved: WPS 819-6 R1, 809-6 R5, 110-65 R0.
3.0	NDE Application - Liquid Penetrant	Satisfactory	Approved procedure SPPQ-201 R0 utilized.
4.0	Dimensional (utilizing temp flex dwg D-24902)	Satisfactory  (non-critical)	18-1/8" - overall length Verified (7) convolutes 6-1/8" - convoluted area 6" - AFT convolute to EOP FWD convolute to EOP 2" - EOP to shipping bay (S/B 1-3/4") 8-1/8" - installed shroud <u>No dimensional discrepancies</u>
5.0	Welding	Satisfactory	Fillet weld contour and sizes were to B/P requirements. Welding on the bellows could not be checked thoroughly due to installation of shroud.
6.0	Identification  COMMENT: Review of documentation package and dimensional verification indicated no deficiencies.	Satisfactory	ASME Stamp - NPT-2 (ASME Code Form N-2)

# PHYSICAL INSPECTION

Page 1 of 2

PURCHASE ORDER # M-117

SUPPLIER Anchor Darling

EVALUATOR E. Dolim

A.E.O. # 1022

LOCATION Hayward, California

DATE 3/16/81

COMPONENT Valves, 2 1/2" and larger

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Overall Package Dimensions	Satisfactory	Overall envelope and interface dimensions verified as shown on drawing 7220-M117-18-4. 10.1 a) Outer edge of valve wheel to center of base measures 41". b) Face to face overall - 22-1/16". 10.2 a) Outer edge of valve wheel to center of base measures 41". b) Face to face overall - 22".
2.0	Valve Body Minimum Wall Thickness (Random Samples)	Satisfactory	Valve body was inspected with Krautkraemer digital read-out thickness gauge (ultrasonic) at various locations to verify a minimum wall callout of 1/2" (.50) per ANSI B16.5. 10.1 a) Min. wall measurements - 0.870, 0.826, 0.858, 0.856, 0.889, 0.944, 1.800, 2.355. 10.2 a) Min. wall measurements - 0.896, 0.881, 0.996, 0.862, 0.928, 0.798, 0.789, 1.240, 1.036.
3.0	Weld Prep. Dimensions	Satisfactory	Checked as shown: 10.1 a) Overall from root to edge of bevel - 0.492. b) Land at root - 3/32". 10.2 a) Overall from root to edge of bevel - 0.490. b) Land at root - 3/32".
4.0	Nameplate Data	Satisfactory	Checked against drawing: a) Size - 6" Body - WCB Rating 940 Temp 700° F S/N 4632-09, Hydro 2175 psig Valve ID 6EBC6B Unit 1 (for 10.1), Unit 2 (for 10.2)

# PHYSICAL INSPECTION continued

PURCHASE ORDER # M-117

SUPPLIER Anchor Darling

EVALUATOR E. Dolim

A.E.O. # 1022

LOCATION Hayward, California

DATE 3/16/81

COMPONENT Valves, 2½" and larger

ITEM	CHARACTERISTICS	RESULTS	REMARKS
5.0	Radiographic Inspection	Satisfactory	<p>Stem 11-13CR, Disc CO-CR, Seat CO-CR Drawing 2824-3</p> <p>b) Code Nameplate: Anchor Darling N Class 3 940 psi @ 700°F 1440 psi @ 100°F 3N-454 (for 10.1) 3N-459 (for 10.2) BLT 1975</p> <p>The following data was reviewed and found to be acceptable:</p> <p>a) Reader sheets complete, legibile, traceable to film.</p> <p>b) Technique sheets accompanied reader sheets.</p> <p>c) Shooting sketch contained in package identifying each shot and location.</p> <p>d) Density checks within code requirements.</p> <p>Package meets the requirements of ASME and ASNT.</p>

# PHYSICAL INSPECTION

PURCHASE ORDER # M-118BC      SUPPLIER Rockwell International      EVALUATOR E. Dolim  
 A.E.O. # 10156      LOCATION Raleigh, North Carolina      DATE 3/17/81  
 COMPONENT Nuclear Valves      1.4/18" - ELB-YGB

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Verify minimum wall thickness measurements for the valve body.	Satisfactory	Minimum wall thickness was checked at various points on the valve body casting. Readings obtained were as follows: 2.094, 2.054, 2.040, 1.904, 1.872, 1.821, 1.820, and 1.737. Minimum wall thickness as stated on the drawings is 1.190". Readings were made with Krautkramer Digital Readout Thickness Gauge (UT).
2.0	Verify that nameplate data is correct.	Satisfactory	Nameplate Data: ROCKWELL INT "N" CLASS 2 NAT'L BO, #385 1350 PSI AT 436° F 1500 PSI AT 100° F MFG S/N NG68
3.0	Verify that the proper material type and grade is stamped on the valve body.	Concern*	It was noted that the foundry material marks cast on the valve body indicated that the casting was WCC grade (SA-216 Grade WCC). Drawing in the vendor file indicates valve body material to be WCB (SA-216 Grade WCB).  *This concern as been deleted, as reinspection verified that valve bodies are correctly marked to applicable drawing and specification.

# PHYSICAL INSPECTION

PURCHASE ORDER # M-140

SUPPLIER Crosby Valve & Gage

EVALUATOR T. J. Marcella

A.E.O. #

LOCATION Wrentham, Massachusetts

DATE 4/18/81

COMPONENT Nozzle Type Relief Valve, Tag #1P5V-1016, Drawing #DS-C-61151, Rev.5, Assembly #N61151

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material (ASME SA-351 GR LF3M) ASME SA-182 GR F316L CMTRs.	Satisfactory	CMTRs reviewed are compatible with drawing requirements.
2.0	Visual Surface condition	Satisfactory	Surface condition was satisfactory, no adverse conditions observed.
3.0	Dimensional	Satisfactory per WT-36000 Rev 5, sheet 6 of 16  per DS-C-6115 Rev F	Wall thickness (Ref drawing WT-36000) (A) .38 was .585 (B) .28 was .640 (E) .33 was .484  Overall length 42-1/4" was 42-3/4" Inlet End to C/L Outlet 8-7/8" ± 1/8" was 9" Boss on inlet 2-1/8" +1/4" -1/16" was 2-1/4"
4.0	Identification	Satisfactory	Data Plate indicated: Nat'l Board - Serial No. Mfg Serial No. N61151 Year Built 1978 ASME Sec III, Class 2
5.0	Storage	Satisfactory	Unit was located at elevation #599 and was scheduled to be installed in the near future. Inlet and outlet areas equipped with bolted covers.

# PHYSICAL INSPECTION

PURCHASE ORDER # M-150AC      SUPPLIER Mine Safety Appliances      EVALUATOR T. J. Marcella  
 A.E.O. # 4453/4448      LOCATION Evans City, Pennsylvania      DATE 3/13/81  
 COMPONENT Main Control Room Air Filter System      SPECIFICATION: 7220-M-150(\*)Rev.7

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Drawings & Revisions: F-SK-1743-2555-01/-41 S/N's 78B, 94A, 94B  Evaluate source surveillance and receipt inspection activity.	OK	Source surveillance activity well documented. Receipt inspection consists of visual, count and damage. Purchase order closed, 1/29/80
2.0	Determine if component has been released or conditionally released.	OK	Bechtel inspection task at supplier has been completed.
2.1	Identify reason(s) for conditional release.	N/A	
3.0	Select characteristics from drawings/specification/checklists for re-inspection. Identify:  3.1 General Arrangement OVM 78B (item 2) P.O. Rev. 0 Drawing F-SK-1743-2555-01 (7220-M150-145-1) O.A. length 33' 2-3/4" O.A. width 41-1/2" O.A. height 80-3/16" total ± 1/8" Stainless steel - no paint Carbon stl. - paint  3.2 Drawing F-SK-1743-2555-41 OVM 94A/94B (item 3) O.A. length 31' 2-3/4" ± 1/2" O.A. width 15' 3-7/8" ± 1/4" O.A. height 8' 1/2" ± 1/4" P.O. Rev. 0	Acceptable 	Per Drawing F-SK-1743-2555-01

# PHYSICAL INSPECTION continued

PURCHASE ORDER # M-150AC

SUPPLIER Mine Safety Appliances

EVALUATOR T. J. Marcella

A.E.O. # 4453/4448

LOCATION Evans City, Pennsylvania

DATE 3/13/81

COMPONENT Main Control Room Air Filter System

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Identify significant characteristics that cannot be verified due to configuration/installation of component.	N/A	
5.0	Identify alternative items of characteristics as substitute inspections for significant characteristics not inspectable.	N/A	
6.0	Identify maintenance and storage level of component location.	Acceptable	Unit installed.

## TASK C-1

### 1.0 Statement of Task

MAC's task was to assess the Corrective Actions in response to the 1980 Biennial Quality Assurance Audit.

### 2.0 Method

A review was made of the 1980 Biennial Audit findings which related to the Midland Project to determine the adequacy of the corrective action and the timeliness of corrective action commitments. In most cases, the effectiveness of the implemented corrective action could not yet be evaluated. Of the 32 findings reported in the audit, 19 findings were determined to relate directly or indirectly to the Midland Project. The balance relate to other activities.

The status of corrective action commitments or implementation was determined by review of Corporate QA and MPQAD records, by interview with Corporate QA and by participation in meetings called by Corporate QA.

CPCo Corporate QA evaluated the 1980 Biennial Audit findings made by the auditors and passed on to the various responsible organizations specific recommendations. For the purposes of this assessment, implementation of the recommendations passed on by CPCo Corporate QA were followed. It was noted, however, that in some instances, responsible organizations responded to the recommendations of the auditors rather than the more comprehensive recommendations of CPCo Corporate QA. An assessment was made relative to the completion of each CPCo recommendation and its timely implementation, and an assessment was made as to whether the recommendation adequately addressed the root cause of the problem.

### 3.0 Results

The current status is that all 19 findings have been corrected and are closed as summarized in Attachment C-1.1.



Generally the recommended corrective action was appropriate to the finding identified by the auditors. There were some exceptions as follows:

MA 3/3 This appeared to be an invalid finding.

MA 3/4 The recommended corrective action appeared to be appropriate to the finding; however, the finding was against non-Q items, and therefore, beyond the scope of the audit or this evaluation.

All other corrective action recommendations appeared to be appropriate to the finding in identifying the root cause of the problem and the actions necessary to bring about its correction.

Corrective action response time is as follows:

Of 19 findings, eight were closed within eight months after transmittal of the findings to the identified action organizations, six within seven months, one within six months, one within four months, and three within one month of the transmittal of findings.

A summary of actions taken relative to each audit finding is found in Attachment C-1.2.

#### 4.0 Assessment

Several observations can be made relative to this audit. First, the audited organization generally should understand and challenge, or agree to, the validity of audit findings prior to, or at, the exit meeting. This would eliminate the condition of agreeing six months later that a deficiency in fact had not existed. Examples of such conditions are evidenced in MA 3/3, MA 3/14 and MA 3/15, but agreement on the validity of the finding could have hastened the resolution of other findings such as MA 3/4.

While the recommended corrective action was generally appropriate to the circumstances, in a number of instances the corrective action was not timely because of holding up procedural revisions for a major revision of

the QA Manual. There needs to be a faster way to incorporate needed revisions. There were no findings of such a nature as should have taken six months to resolve.

This leads to a third observation. Management generally needs to recognize that valid audit findings are the result of a very superficial sample. The existence of valid findings is merely a symptom of a problem, not the problem itself. Thus, corrective action must promptly address the identified findings, and dispose of them in such a manner as will cause correction of the underlying problem which generally distills down to either the failure to follow procedure (an attitude problem or a training problem) or inadequacy of procedures.

It was not possible to assess the effectiveness of corrective action taken because 14 of the findings were closed during the course of this evaluation leaving inadequate time for experience in implementing the action to be assessed.

## STATUS OF CORRECTIVE ACTIONS OF 1980 BIENNIAL AUDIT - ATTACHMENT C-1

FINDING #	RESPONSIBLE ORGANIZATION	STATUS
MA 3/1	Corporate QA	Closed 5/15/81
MA 3/2	Site Testing	Closed 3/30/81
MA 3/3	Bechtel/MPQAD	Closed 5/1/81
MA 3/4	Site Testing	Closed 3/30/81
MA 3/8	Bechtel/MPQAD	Closed 5/1/81
MA 3/10	Corporate QA	Closed 5/15/81
MA 3/14	Bechtel	Closed 4/21/81
MA 3/15	Bechtel	Closed 4/21/81
MA 3/16	Bechtel	Closed 5/1/81
MA 3/17	Corporate QA	Closed 5/15/81
MA 3/18	Corporate QA	Closed 9/25/80
MA 3/20	MPQAD	Closed 1/9/81
MA 3/21	MPQAD	Closed 10/7/80
MA 3/23	Site Testing	Closed 3/30/81
MA 3/24	MPQAD	Closed 3/16/81
MA 3/25	Corporate QA	Closed 5/15/81
MA 3/30	Corporate QA	Closed 5/15/81
MA 3/31	Corporate QA	Closed 10/9/80
MA 3/32	Corporate QA	Closed 10/17/80

MA 3/1 Finding: The auditors found that certain procedures could be revised by means of "Temporary Change Requests" or "Deviations" without review and approval by the Director, QA PE&C, if the department manager considered the action to not change the requirements of the QA Program Manual.

The auditor's recommendations were to review QAPP 5-1 to allow Deviations or Temporary Changes to department procedures to be subject to specified controls and to review affected department procedures to be compatible to such controls.

A review of QAPP 5-1 dated 10/1/80 paragraph 4, disclosed that it states "department procedures are implemented only after they are signed by the Director, Environmental Services, Quality Assurance and Testing." No provision for Temporary Changes or Deviations has been provided.

This item is open pending revision of QAPP 5-6 Revision 6 now in management review.

MA 3/2 Finding: The audit finding stated that "Testing Instructions for the Midland Testing Group had neither been reviewed nor signed off by Quality Assurance" contrary to requirements that department procedures not be implemented until they are signed by the Director, Quality Assurance - PE&C.

CPCo's recommendations were that Q-related instructions be incorporated into the TPM and that control and distribution of such Q-related instructions be evaluated for compliance with the Quality Assurance Manual.

Audit Finding/Unresolved Item Response Evaluation form states that response dated 10/24/80 D. B. Miller to W. R. Bird is satisfactory and shows verification that Test Instructions are controlled, but need to be evaluated to assure that all appropriate areas are covered and states that the specific finding may be closed at the option of MPQAD. The response stated that Test Instructions should continue to be controlled by existing procedures.

This item was closed 3/30/81 based upon comparison of Testing Instructions TI-8, TI-9 and T-9.

MA 3/3 Finding: FDP 2.000 does not address what occurs on an approved FCN or on a Resident Engineer interim approved Field Change Request if work is completed and Ann Arbor Project Engineering subsequently disapproves the FCN or FCR . . . FDP 1.000 states that it is to be treated the same as a design change to completed work.

Consumers' recommendations were to:

- a. Revise the procedure to indicate that the PFE's "interim approval" constitutes authority to proceed with construction.
- b. Revise the procedures to provide specific step by step actions to be taken if an interim approval FCR were rejected.
- c. Consider direct distribution to QC of approved FCN's/FCR's.

Bechtel's draft response transmitted by memo M. A. Deitrich to H. P. Leonard and dated November 17, 1980, stated that "disapproved FCR's or FCN's are project communications and as such are in the scope of FDP 1.000, not FDP 2.000. The present procedures adequately address the control of disapproved FCN's and FCR's. Therefore, no procedures will be revised at this time." An earlier transmittal #20779 dated 10/27/79 L. E. Davis to L. A. Dreisbach carried the same response.

L. E. Davis memorandum dated 11/5/80 relative to MA 3/14 rejects direct distribution to site QC of FCN/FCR's. Memo Response Rejection Notice M. A. Deitrich to L. E. Davis dated December 11, 1980, transmitted CPCo's concerns per memo H. P. Leonard to M. A. Deitrich. This memo rejected Bechtel's response relative to MA 3/3 transmitted by Form Serial #20779. The reason for the rejection was stated to be lack of detail supporting Bechtel's position that it was operating in accordance with procedure and that procedures were adequate.

This item is open pending issuance of a memorandum by W. R. Bird.

MA 3/4 Finding: This finding stated that turnover packages were found to have two engineered document lists, one prepared by CPCo and the other by Bechtel. In three of five packages, the list of drawings differed. The auditors' recommendation was to revise MP-TPF-6 and/or QAPP 10-1 to define the consistent means of accurately defining the scope of the package and to analyze all accepted turnovers to determine the actual scopes accepted to date.

CPCo's recommendation was that there did not appear to be a need for procedural revision except that a means needed to be developed for one list agreed to by Bechtel and CPCo.

The file for MA 3/4 contains Audit Findings/Unresolved Item Response Evaluation form dated 1/27/81 stating that response D. B. Miller to W. R. Bird dated 10/24/80 is satisfactory and item will be closed based on future issuance of Midland Project procedures on turnover in late February or early March.

The response appears to state that the existence of two lists is not a valid finding, that there is but one engineered document list. The second list sets forth the drawings used to define the system and is not the engineered documents list. Proposed revisions to turnover procedures will eliminate the second list.

This item was closed 3/30/81 based upon a review of TI-15, Revision 1 dated 2/19/81 and MPPM-16, Revision 1 dated 10/29/80 which established how turnover boundaries are defined.

MA 3/8 Finding: This finding was that "EDP 2.14.1 Rev. 6 (permits) minor dimension and material changes which do not adversely affect performance, safety, durability, interface between contractors or alignments . . . (to not) require FCR's or DCN's. This is contrary to the NQAM."

Project Engineering agreed per response dated 10/26/80, to revise EDP 2.14.1 Rev. 6 in accordance with CPCo's recommendations on AFR MA 3/8 made as a result of the finding. The scheduled date for the revision was to be November 14, 1980.

On January 15, 1981, a memo L. H. Curtis to M. A. Deitrich transmitted Revision 7 to EDP 2.14.1. The memorandum addressed the three recommendations and the action taken to resolve them.

- a. The procedure was revised to state "The Resident Engineers Memorandum . . . shall not be used to modify design documents i.e., FCR's, FCN's, DCN's, IDCN's, SCN's, drawings and specifications." The "exception" clause relative to minor dimensional and material changes was eliminated from paragraph 4.1.2b of EDP 2.14.1.
- b. Project Engineering disagreed with the recommendation that the procedure be revised to make it clear that "interpretations" and "clarifications" are not to be accomplished by memorandum. The revised procedure (Rev. 7) clearly states that a Resident Engineers' Memorandum shall be used to document decisions, agreements, commitments, problems and resolutions and may be used to clarify and request design documents, but not to modify them.
- c. The procedure was revised to eliminate "minor design changes" from paragraph 4.1.2b and thus Project Engineering considered that the recommendations that "a bona fide design change" must be on a pre-established form, etc. had been met because design changes are now totally covered by other procedures.

No later correspondence is in the MA 3/8 file.

This item is open pending issuance of a letter by MPQAD.

MA 3/10, MA 3/25 Findings: These findings both relate to QAPP 2-2 and both have the same CPCo corrective action, which is to revise QAPP 2-2 at the next major revision. MA 3/10 reported that draft procedures MPQAD A-

1M, E-4M, F-2M and F-7M describe quality related responsibilities not identified in Volume 2 QAPP's. MA 3/25 reported that Midland Project Procedures Manual discusses a corrective action report used to request design changes, remedial work and maintenance, and to identify deficiencies. The auditor stated that such responsibility or activity is not identified in Volume 2 QAPP's.

The auditor's recommended corrective action was to make suitable revisions to Volume 2 QAPP's. CPCo's commitment on the AFR is to revise Volume 2 QAPP 2-2 at the next major revision.

Memo dated 12/10/80, D. A. Taggart to B. W. Marguglio, states that these findings will be closed upon approval and issuance of the revised Volumes 2 and 2A with a target date of March 31, 1981. Memo dated 3/11/81 D. A. Taggart to D. Jones et.al., states that this target date will be reassessed at a meeting scheduled for March 16, 1981.

The files for these audit findings contain marked up drafts of Revision 6 of Volume 2 QAPP Procedure 2-2 and Revision 2 of Volume 2A QAPP Procedure 2-2 that appear to provide solutions for the auditor's findings.

No later communications are in these files.

This item is still open and is currently scheduled for closure April 30, 1981.

MA 3/14 Finding: The audit finding was that the Document Control Center Log was found incomplete in four instances. The recommended action was that a method be established to assure that the log is complete and to ascertain the status of FCN's or FCR's not received from Ann Arbor Engineering in a 30 day period.

CPCo recommended (a) inspection of hardware against the three FCN's and one FCR, (b) revise the procedures to provide stepwise instructions and (c) consider requiring direct distribution of approved FCN's/FCR's from Ann Arbor to Bechtel Q.C.



- a. L. E. Davis response of 11/5/80 did not address the recommendation that hardware be reinspected. It stated that two of the three FCN's (M-2273 and M-2119) had been rejected, rewritten and approved as FCN M-2276 and FCN 2123 respectively.

It further stated that the third FCN (M-2231) was disapproved June 24, 1980, and that no correction was necessary. Also, it stated that since the FCR number had not been furnished by the audit team no specific corrective action could be taken and that since the FCR is a request, no inspection would be necessary.

- b. The response indicated that FDP 1.000 paragraphs 4.2, 4.3 and 5.1b and FDP 2.000 paragraph 8 provided adequate detail.
- c. The response indicated that present procedures provided distribution of all FCN's, FCR's and DCN's to Quality Control and that a second distribution is unnecessary and not controllable.

The response noted all FCN's referenced were non-Q and that no procedures would be revised at this time.

This item was closed 4/21/81 based upon the fact that the FCN's cited were non-Q.

Comment: There is considerable evidence of sluggishness in pursuing corrective action of which response to this finding is typical as follows:

- a. Date of MAC audit finding 8/9/80
- b. Date of MAC report to CPCo 9/23/80
- c. Date of CPCo transmittal to L. A. Dreisbach 9/29/80
- d. Date of Dreisbach transmittal to L. Davis 10/3/80
- e. Date of Transmittal #20790 covering Davis response 11/5/80
- f. Date of M. A. Deitrich Response Rejection Notice to L. Davis 12/11/80
- Note: The CPCo letter 10786 is not attached to the file copy of this notice and is not in the MA 3/14 file
- g. Finding closed 4/21/81 on the basis that the FCN's cited were non-Q.

MA 3/15 Finding: The finding stated that the Electrical Engineer's copy of Drawing E-27 did not have attached approved copies of FCR's 2099 and 2117.

CPCo had recommended (a) that Project Engineering perform a complete review of site distribution to ascertain that the omission of the approved FCR's was a one-time occurrence and (b) a review of a larger sample of drawings to provide a statistical estimate of the frequency of this kind of error. Per memo M. A. Deitrich to D. Turnbull dated 12/1/80 (MAD 1771) Resident Engineering performed a "complete review of subject control copy. Results of this review disclosed only two FCR's identified were missing."

It does not appear that the recommendation of a complete review of site distribution was followed, but only a confirmation of the audit finding and verification that no other FCR's were missing relative to the specific E-27 drawing.

A memorandum 023559 dated March 5, 1981, L. H. Curtis to M. A. Deitrich states that Bechtel Q.E. staff agrees with Project Engineering that AFR #3/15 should not have been a finding because Resident Engineer operates to EDP 4.62 and there is no requirement in that document that FCR's/FCN's be attached to the drawings. This being true would negate the recommendation for a complete review of site distribution.

Timeliness of response is poor, since it took six months from the date of the AFR to establish the position that there had been no requirement violated.

Based on an agreement that AFR #3/15 should not have been a finding, CPCo QA in a meeting held in Jackson, Michigan on March 24, 1981, agreed to accept the Bechtel response and close this item.

MA 3/16 Finding: The finding stated that "EDP 4.62.1 Rev. 1 Section 5.1 (requires) FCN's shall be reviewed within 10 working days of receipt" and that seventeen percent of FCN's received during a four month period exceeded ten days to review and disposition.

CPCo's recommendations per letter Serial 9759 W. R. Bird to L. A. Dreisbach were that Bechtel:

- a. Evaluate FCN's for which approval has been delayed relative to whether they should have been FCR's and whether they have a propensity for being rejected by Engineering.
- b. Reevaluate the fifteen day period for Engineering approval or rejection of an FCN.
- c. Evaluate the need to eliminate the allowance of field preparation of an FCN when there is a need for external involvement such as with a supplier.
- d. Revise procedure to add a note that the time period is not safety related.

Bechtel's response L. H. Curtis to L. A. Dreisbach dated 10/30/80 was rejected per Response Rejection Notice M. A. Deitrich to L. H. Curtis dated 12/11/80.

Bechtel response 023559 dated March 5, 1981, L. H. Curtis to M. A. Deitrich defends the ten day review period, does not address a, c, and d above. It commits reviewing on a case by case basis those that exceed ten days but does not address any action on the seventeen percent that did exceed ten days for review and approval.

In a meeting in Jackson, Michigan on March 24, 1981, it was agreed that the Bechtel response should be accepted and this item closed on the basis that Bechtel reviews on a case by case basis FCN's exceeding the ten day limit. This will satisfy a and c above.

Copy of the Bechtel response 023559 is not in the MA 3/16 file; a copy is in the MA 3/3 file.

This finding is not yet documented as being closed as of April 27, 1981.

MA 3/17 Finding: This finding states that QAPP's do not identify all interfaces between CPCo and principal suppliers as required by QAPP 2-2. The auditor's recommendation was to clarify QAPP 2-2. CPCo's recommendation was to revise Volume 2A QAPP Procedure 2-2 to indicate that interfaces between CPCo and principal suppliers are described in the Project QA Plan and in procurement documents, as well.

This item is still open.

A revision of QAPP 2-2 is undergoing management review with a currently scheduled release of April 30, 1981.

MA 3/18 Finding:

This finding stated that the clear authority to stop work was not defined in QAPP 15-4 nor in QAPP 14-1.

The auditor's recommendations were to revise Volume 1 to give Quality Assurance the authority to stop work and to revise QAPP 15-4 to require acknowledgement of receipt of a stop work order. The CPCo corrective action commitment per D. A. Taggart memo dated 10/7/80 to B. W. Marguglio stated that QAPP 15-4 Volumes 2 and 2A had been reviewed together with Quality Assurance Policy 1 of Volume 1, and were deemed sufficiently clear as to Quality Assurance authority to stop work. No other action was deemed necessary.

The AFR form references the October 7, 1980, memorandum and is signed off 9/25/80 as corrective action verified. The AFR is not marked closed.

This item is closed.

MA 3/20 Finding: This finding stated "approved TIP's are not filed as quality records."

CPCo's recommendation was that QAPP E-6M be revised to state "completed TIP's and sampling plans."

Revision 1 of QAPP E-6M paragraph 5.7.1.2 was issued 8/15/80 and states "approved TIP's and sampling plans when referenced on the Quality Assurance document inspection status form."

This item was closed 1/9/81.

MA 3/21 Finding: This finding stated that TIP 6-1 Rev. 1 was in the file as well as Rev. 0 with latter identified "VOID 5/2/80 RGW".

The recommendation was that Volume 2 QAPP 6-1 be revised to state what controls are to be exercised for superseded documents.

CPCo's response is that no revision of QAPP 6-1 is deemed necessary.

This item was closed 10/7/80.

MA 3/23 Finding: This finding states that blue line P&ID's which identified turnover boundaries and which are marked "uncontrolled" were found to have DCN's attached that were not marked "uncontrolled".

CPCo's recommendation was to determine whether there was a need for procedural clarification. Response dated October 24, 1980, stated that Procedure T1-15, Scoping Instruction, has been modified to specifically require stamping "uncontrolled" on DCN's, FCN's, and so forth. Upon receipt, their personnel have been instructed in the procedural requirements.

Audit finding/recommendation item response evaluation dated 1/27/81 states that closure is to be based upon receipt (and procedural review) of T1-15. Request for this documentation was stated to have been made 1/27/81.

This item was closed 3/30/81 based upon receipt and review of T1-15, Revision 1.

MA 3/24 Finding: This finding states MPQAD draft procedure E-6M does not provide for the required involvement of the administrative section in turnover.

The recommended action was to revise the procedure or administrative section activities to make them consistent.

MPQAD AIM was revised 8/15/80 per paragraph 5.1.3; this section no longer required to coordinate MPQAD activities as related to turnover.

This item was closed 3/16/81.

MA 3/30 Finding: This finding states that QAPP 14-1 Volumes 2 and 2A, paragraph 4.2 does not provide a description of the process, as required by criterion 5, 10CFR50 Appendix B, for determining dispositions of nonconforming items.

CPCo recommended corrective action was to revise QAPP 14-1 of Volumes 2 and 2A to delineate responsibilities and considerations for determining corrective action such as "use as is", "return to vendor", and so forth.

Memorandum D. A. Taggart to B. W. Marguglio dated 12/10/80 established a new completion date of March 31, 1981, rather than the December 31, 1980 date. A memorandum dated March 11, 1981, announces a meeting to be held March 16, 1981, with one of the agenda items being a reassessment of March 31, 1981, forecast date for completion of Volume 2 and 2A procedural revisions.

This item is open. QAPP 14-1 has been revised and is scheduled to be released for external comment by May 11, 1981.

MA 3/31 Finding: This finding states that the current Quality Assurance Program Procedures discuss source inspection and receiving inspection planning, but not source surveillance as required by Volume 2 QAPP 7-2, paragraph 5.4. The auditor's recommendation was to make appropriate

revisions in Volume 2 QAPP 7-2 to either delete "or surveillance" or address surveillance in QA department procedures. There was no CPCo recommended corrective action. On the contrary, QA administrative section took the view that source surveillance is met through the source inspection program.

This finding was closed on 10/7/80.

MA 3/32 Finding: This finding states that there is no evidence of approval by the Quality Assurance Director of an interdepartmental programmatic Quality Assurance Training Plan prior to its issuance as required by QAPP 2-4 (Volumes 2 and 2A). The auditor's recommendation was to either obtain the director's approval or delete the requirement. There was no CPCo recommendation other than this.

This item is closed based upon revisions made to Volumes II and IIA, 10/6/80.

TASK C-2

Task C-2 was to perform an assessment of the results of Tasks A and B.

These assessments are included in appropriate Sections A and B.



TASK C-3PART I - SUPPLIER QUALITY VERIFICATION DOCUMENTATION RE-REVIEW1.0 Statement of Task

- The MAC task was to select a stratified sample of the supplier quality verification documents which impact directly upon the hardware quality and to inspect the sample to assess the effectiveness of the re-review of these documents being performed by Bechtel at Ann Arbor per Bechtel Power Corporation Detailed Procedure, "Review of Supplier Quality Verification Documentation, Midland Project 7220", and by Bechtel at the Midland site per Bechtel Field Procedure FP-IJI-1, Job 7220, 3/5/81, Rev. 7, "Review of Incoming Supplier Quality Verification Documentation". An assessment was made also of the effectiveness of the re-review by B&W of their supplier quality verification documents impacting directly upon the quality of the NSSS.

2.0 Method

- 2.1 Sample Selection The task required taking a sample stratified by hardware categories and by procurement and fabrication dates. The sample size had to be large enough to yield a reasonable level of confidence projecting the results of the sample to the population. As nearly as feasible, procurements selected were such as would correlate with the significant components or parts selected for inspection per Task B.

It was determined that Bechtel, Ann Arbor, at the time of this evaluation, had re-reviewed 3,659 procurement quality verification data packages from a total of 5,711. The sample taken was 67 packages re-reviewed by Bechtel, Ann Arbor; 25 re-reviewed by Bechtel, Midland; and 13 re-reviewed by B&W, for a total sample of 105 packages, containing over 10,000 documents.

2.2 List of P.O. Items Checked

- 3.2.1 Bechtel, Ann Arbor Re-Review - Attachment C-3.1
- 3.2.2 Bechtel, Midland Re-Review - Attachment C-3.2
- 3.2.3 B&W, NSSS Re-Review - Attachment C-3.3

2.3 Assessment Ground Rules Basic ground rules for this assessment, established at the outset or derived during the assessment were as follows:

2.3.1 Supplier quality verification packages had to have been re-reviewed by Bechtel either at Midland or at Ann Arbor or by B&W.

2.3.2 Deficiencies in the packages identified during the Bechtel or B&W re-reviews would not be identified during the MAC review.

2.3.3 The G321-D form would be used as the listing of required documentation in conjunction with referenced code, standard or specification requirements providing specific details relative to such requirements.

2.3.4 A separate ongoing Bechtel program for requiring reference to ASME BPV Code, Section III, NA-3700 or NCA-3800 quality programs on CMTRs would be the basis for not identifying any such deficiencies found during MAC's review.

2.3.5 Bechtel's stated practice of re-reviewing CMTRs to the requirements of the applicable code year and addenda would be the basis for not identifying failure of the supplier to so note these references on the CMTR. Packages were specifically examined to assess the adequacy of such Bechtel re-review to the proper code year and addenda. (Part III of this task.)

2.4 Assessment Criteria The base line criteria for the assessment of the documents consisted of supplier's compliance to the applicable specifications, purchase orders and national codes and standards.

2.4.1 The assessment of required CMTRs and/or Certificates of Compliance (C of C) was made as follows:

- 2.4.1.1 Verify that applicable reports were in the package.
  - 2.4.1.2 Randomly sample CMTRs to ensure that all technical and administrative requirements of the specifications and codes were met.
  - 2.4.1.3 Ensure that all materials were traceable to applicable C of Cs and CMTRs.
- 2.4.2 The assessment of special process reports such as heat treating, coating etc. was made to verify compliance with the specifications/codes and to verify traceability.
- 2.4.3 The assessment of welding records was made for the following areas (dependent upon availability of records in packages):
- 2.4.3.1 Welding procedure approval.
  - 2.4.3.2 Verification that proper materials were used.
  - 2.4.3.3 Verification that welder qualifications covered weld processes used (position, thickness, etc.).
  - 2.4.3.4 Verification that weld data reports are traceable to components.
- 2.4.4 The assessment of nondestructive testing reports was made for the following:
- 2.4.4.1 Verification that NDT requirements of the specifications and codes were met.
  - 2.4.4.2 Assessment of the NDT reports as to acceptance criteria, quantities tested, etc.

2.4.4.3 Verification of the traceability of the reports

2.4.4.4 Verification that all open items noted on the NDT reports had been closed out prior to shipment of the item

2.4.5 The assessment of operational test reports such as for hydrostatic, pneumatic, functional testing, etc. was made for the following:

2.4.5.1 Assurance of compliance with specification and codes.

2.4.5.2 Verification that test data was traceable to the components. Specification requirements for testing were also reviewed to ensure that testing requirements had been met and documented.

2.4.6 The assessment was made to determine whether or not all Bechtel Quality Assurance Records required by the applicable purchase orders had been submitted in the document package.

### 3.0 Results

The results of the MAC assessment of supplier quality verification documents are given in three separate sections as noted below:

- a. Section 3.1 - Supplier Quality Verification Re-Review, Bechtel, Ann Arbor
- b. Section 3.2 - Supplier Quality Verification Re-Review, Bechtel, Midland site
- c. Section 3.3 - Supplier Quality Verification Re-Review, B&W NSSS

3.1 Supplier Quality Verification Document Re-Review, Bechtel, Ann Arbor

3.1.1 Purchase Order No.: E-20-3-13

A.E.O. No.: 5799

Supplier: Bunker Ramo Corporation, Chatsworth, California

Component: (6) Cable Penetrations

Requirement:

Header plate material to be ASME SA-516 Grade 70.

Actual:

Manufacturing and Inspection Records for header plates indicate use of incorrect material. Reports for all penetrations indicate use of ASME SA-515 GR70. (CMTRs for material are correct.)

All deficient manufacturing and inspection reports had been corrected by Bechtel and verified by MAC on 4/1/81.

Assessment:

This item has been assessed to be an observation.

Requirement:

Code referenced section to be NA-3767.4.

Actual:

CMTR for ASME SA-479 & 304 materials refers to incorrect section of Code. NA-37674.4 should be NA-3767.4.

Assessment:

This item has been assessed as an observation.

Bechtel has noted that this is only a minor clerical error which requires no further action.

3.1.2 Purchase Order No.: J-275AC/J-275

A.E.O. No.: 6821/7137

Supplier: Consolidated Controls, Bethel, Connecticut

Component: Engineered Safety Isolation System, Analog Isolation Cabinet (Unit 2) P/N 9N46

Requirement:

Bechtel specification section 10.3.1 and G321-D form (item 26) require evidence of a 100 percent continuity test.

Actual:

No evidence is available (re: items 5.1 and 6.0) in the data packages that 100% wiring continuity testing was performed.

Investigation by Bechtel confirmed that the required test had not been performed.

Assessment:

This item has been assessed as a finding.

The Bechtel response to this finding is as follows:

"SQD concurs with this finding and has formally submitted a telex to vendor requesting corrective action. To date, a formal response to this request has not been received."

3.1.3 Purchase Order No: M-18

A.E.O. No.: 11960

Supplier: Delaval

Component: ASME Section III, Class 3 Component Supports

Requirement:

Bechtel . . . Detailed Procedure "Review of Supplier Quality Verification Documentation Midland Project 7220", paragraph 1.5.2.3 states:

"All deficiencies shall be recorded on a Documentation Review Record Form (DRRs)."

Paragraph 1.5.2.4.1 states:

"The Special Material Review Board . . . review(s) information presented on DRRs."

Paragraph 1.6.1 states:

"DRRs will be maintained by the SQD until completion of the document review effort."

Actual:

During review of several deficient items on this P.O., it was found that although Bechtel had previously found the deficiencies which still remained open, they in fact had closed out the applicable Documentation Review Record (DRR). It was noted that status was being maintained in a separate log by the Supplier Quality Department (SQD). The above policy appears to be a departure from the rules set forth in the Bechtel re-review procedure.

On 4/16/81 MAC verified that new DRR's had been opened for all outstanding items by Bechtel, Ann Arbor.

Assessment:

This item has been assessed as an observation.

3.1.4 Purchase Order No.: M-104-3

A.E.O. No.: 8957

Supplier: ITT Grinnell, Kernersville, North Carolina

Component: Nuclear Piping

Requirements:

Chemical properties should be:

Chromium 16.0 - 18.0

Nickle 10.0 - 14.0

Actual

CMTR 78601D shows:

Heat HH611 Chrome 13.37 versus 16 minimum

Heat HH611 Nickle 17.40 versus 14 maximum

Heat HH129 Chrome 12.52 versus 16 minimum

Heat HH129 Nickle 17.58 versus 14 maximum

Bechtel has completed their investigation and it appears that a typographical error was made transposing the data when the certification was typed. They are in the process of receiving a corrected certification.

Assessment:

This item has been assessed as a finding.

3.1.5 Purchase Order No.: M-118A

A.E.O. No.: 8743/6183

Supplier: Energy Products Group, Fluid Systems Division,  
Warwick, Rhode Island

Component: 28" 900# Main Steam Isolation Valves



Requirement:

EDP 4.58; MED 4.58; Instructions for Preparing G321-D form, item 12 states:

"When a deviation has occurred, reference the deviation(s) . . . and include the authorization documents in the Verification Document Package."

Actual:

A copy of Bechtel SDDR 643, approving the use of ASME Code Case 1787, was not located in the data package for A.E.O. No. 8743.

Assessment:

A copy of the applicable SDDR has been placed in all of the applicable data packages for this P.O.

This item has been assessed as an observation.

3.1.6 Purchase Order No.: M-118BC  
A.E.O. No.: 3390  
Supplier: Rockwell International, Raleigh, North Carolina  
Component: 18" Valves, S/N's MM-12 and MO-38

Requirement:

Proper dating of heat treat furnace charts.

Actual:

Furnace charts for valve body refers to incorrect date of 11/11/75; should be 11/11/76. Correct date was determined by review of supporting data and furnace logs.

Bechtel's response to this observation is as follows:

"The new concern appears to be a clerical error that fails to reflect against the validity of the applicable heat chart. This fact is based on the actual heat chart having a furnace operator stamp with the correct 11/76 date and operator signature that is traceable to the furnace logs and support data. The 11/75 date has no impact on the technical adequacy and compliance of the subject heat treatment charts".

Assessment:

This item has been assessed as an observation.

3.1.7 Purchase Order No.: M-127A

A.E.O. No.: 5580/11644

Supplier: Kerotest Manufacturing Company, Pittsburgh,  
Pennsylvania

Component: Check and Globe Valves for Nuclear Service

Requirement:

The governing Bechtel Procedure EDP4.58 for use of the G321-D form (Engineering and Quality Verification Document Requirements) entitled "Specifying and Reviewing Supplier Engineering and Quality Verification Documents" defines Quality Verification Documents as follows:

"This term includes material test reports, heat treatment charts, welding records, non-destructive examination (NDE) results, performance test reports, and similar documents which demonstrate or certify conformance to the technical or inspection requirements of the procurement documents."

Actual:

A.E.O. No. 5580/11644; welding/hardfacing, cleaning, hydrostatic test and liquid penetrant verification reports are not present in the package.

Assessment:

Bechtel's position is that a general C of C is acceptable in lieu of the actual verification report provided that the applicable procedure and acceptance is stated. Bechtel has also stated, "as an added confidence factor, SQD has back-tracked through the vendor's shop QA records to verify that all support records identified by their QA program and shop procedures are available to support the vendor's certification of test results in accordance with specification and G321-D requirements. The reviews by the Bechtel shop SQD have determined that all support records were complete and correct as required by vendors."

During the exit critique of 4/22/81, CPCo, MPQAD accepted the Bechtel position regarding the use of the C of C.

This item has been assessed as an observation.

3.1.8 Purchase Order No.: M-131AC

A.E.O. No.: 14013

Supplier: ITT Grinnell Valve Company, Lancaster, Pennsylvania

Component: 3/4" Diaphragm Valves, S/N's 52745-2-1 through 8  
1" Diaphragm Valves, S/N's 52745-1 through 14,  
and S/N's 52745-3-1 & 2

Requirement:

Bechtel Specification M-131(Q), Section 9.A.4, requires that verification documentation be submitted for the results of the required examinations. Bechtel Form G321-D

also requires verification reports for the PT examinations performed. The reports must include SNT level of the inspector to meet code.

Actual:

No NDE reports were furnished, only a certification and shop traveler.

Assessment:

This item has been assessed as a concern.

3.2 Supplier Quality Verification Document Re-Review, Bechtel, Midland Site

3.2.1 Purchase Order No.: M-127A

A.E.O. No.: 13496

Supplier: Kerotest, Pittsburgh, Pennsylvania

Component: 1" x 1" Globe Valves

Requirement:

Bechtel specification requires that verification reports be submitted for the results of required examination.

Actual:

- o PT Reports are not in package. Reference is made to the acceptance of PT examination, procedure number K292, Rev. F and the responsible NDT technician on the component C of C.
- o Hydrostatic test reports are not in the documentation package. There is only a reference to procedure T-2009 Rev. E in the vendor's component C of C.

Assessment:

These items have been assessed as observations.

3.3 Supplier Quality Verification Document Re-Review, B&W, -NSSS

3.3.1 Purchase Order No.: 020049LJ

Document I.D. No.: 23-1943-01

Supplier: Rosemount, Inc., Minneapolis, Minnesota

Component: Level Transmitters

Requirement:

10 CFR 50, Appendix B, Criterion XVII states:

"Records shall be maintained to furnish evidence of activities affecting quality. They . . . include qualification of . . . equipment.

Actual:

The C of Cs for Rosemount Differential Transmitters are incomplete, as follows:

- o In one C of C quality data sheet, a Tag No. is missing notation 2LT-0509C.
- o In one C of C quality data sheet, Tag No. 620-0012/2CA-LT-9-2LT-0507 should read 620-0012/2CA-LT-9/2LT-0507.
- o In one C of C quality data sheet, a Tag No. is missing a notation (620-0012/2BS-LT8A/\_\_\_\_\_).
- o In one C of C quality data sheet, a Tag No. is missing a notation (620-0012/2BS-LT11A/\_\_\_\_\_).

- o In one C of C quality data sheet, a Tag No. is missing a notation (620-0012/2BS-LT11B/\_\_\_\_).
- o Other than a notation that the accuracy data was determined per Rosemount Procedure 117510, there is no statement regarding calibration traceability to the National Bureau of Standards. It is recognized, however, that the C of C (and traceability to NBS) is only good until the guage is recalibrated on site. Reference: ANSI N45.2 and ASME III NA-3700.

Assessment:

This item has been assessed as a concern.

## PART II - RADIOGRAPHIC RECORDS AND FILM REVIEW

### 1.0 Statement of Task

The MAC task was to select and review a sample of the procurement radiographic records and film relating to those document packages previously reviewed by Bechtel and which impact directly upon applicable hardware quality, and to assess the results of the review. It was recognized that re-review of radiographics was beyond the scope of the Bechtel re-review of procurement quality documents and further, it was recognized that MPQAD had programmed an overall assessment of supplier radiographic film quality and integration.

The purpose of this evaluation was to assess suppliers' responsibilities in complying with specification and purchase order requirements as they related to specific packages reviewed for documentation quality.

### 2.0 Method

2.1 Sample Selection: An analysis of all MAC's documentation re-review program at Ann Arbor and Midland facilities, to determine procurement packages which required radiographic examination on applicable hardware and components.

#### 2.2 List of Purchase Order Selected:

<u>Specification</u>	<u>Supplier</u>	<u>Component</u>
A) C-50A	Delta Southern	Reactor Liner Plate
B) J-258	Fisher Controls	Butterfly Valves
C) M-051	Yuba Heat	Cooling Heat Exchanger
D) M-104a	ITT Grinnell	Pipe Spools
E) M-115	M. W. Kellogg	Pipe Spools
F) M-117	Anchor Darling	Nuclear Service Valves 2-1/2" and larger
G) M-118A	EPG	Nuclear Valves (Misc.)
H) M-118 BC	Rockwell International	Flow Control Valves
I) M-125C	Anchor Darling	4"-#150 Gage Valve Discs

### 2.3 Document Review Ground Rules

- A) Supplier quality verification packages (listed in Paragraph 3.2) had been previously reviewed by Bechtel at Midland or at Ann Arbor.
- B) MAC review of subject packages identified a purchase order and specification requirement for radiographic examination.
- C) Although Bechtel's re-review program did not include radiographic examination evaluation, MAC considered this item to be of sufficient significance to warrant its review.

2.4 Record Review Criteria Criteria for review of radiographic examination records consisted of suppliers' compliance to applicable specifications, purchase orders and national codes and standards.

Checklists utilized contained the following essential elements:

- A) Bechtel Procurement Specification
- B) Supplier - Location
- C) Component Description
- D) Serial Number/Tag Number
- E) Part Number Identified on Film
- F) Date of Film Evaluated
- G) Number of Views Evaluated
- H) Status of Reader/Technical Sheets
- I) Reader/Technical Film

### 3.0 Results

All radiographic film and film documentation was reviewed relative to the following requirements of MED 4.58-0, Exhibit B, Item 20.



"RT - Radiographic Examination Procedures (E) and Verification Reports (V) - Method of Detection and Examination Results of Presence and certain characteristics of discontinuities and inclusions in materials by x-ray or gamma-ray exposure of photographic film."

Actual anomalies in radiographic film documentation are listed below by purchase order number and Bechtel A.E.O. number, followed by an assessment of the severity of the noted condition.

3.1 Purchase Order No.: C-50A Procurement Specification  
Supplier: Delta Southern, Baton Rouge, Louisiana  
Component: Reactor Liner Plate

Actual:

Reader sheets do not list essential items. i.e.:  
reference acceptance standard  
density  
screens  
viewing; single, duplicate, composite

Assessment:

This has been assessed as a concern.

Actual:

Technique sheets not available or referenced.

Reader sheets are not traceable to item number, vessel number, etc. Note: Film package has an excellent form on cover; however, it is not utilized.

Assessment:

These items have been assessed as observations.

3.2 Purchase Order No.: J-258 Procurement Specification  
Supplier: Fisher Controls, Corapolis, Pennsylvania  
Component: Butterfly Valves

Actual:

1. Certificate of Inspection sheet for S/N PSA 7770 provided with film is for P/N G-25802; should be P/N G-25808. Film is identified properly. Research of records at Ann Arbor by Bechtel shows inspection of Serial No. 7770 G25808 casting and G25802, final machined casting.
2. Technique sheets not available.

Assessment:

Items 1 and 2 have been assessed as observations.

3.3 Purchase Order No.: M-051 Procurement Specification  
Supplier: Yuba Heat, Tulsa, Oklahoma  
Component: Cooling Heat Exchanger

Actual:

1. Reader sheet does not identify acceptable film as R-2.
2. Reader sheet dated 12/23/75 S/N 11-1A indicates above film rejected - film package indicates acceptable.
3. Film dated 12/23/75 identifies Locator 2 - Locator 1 not visible on film.
4. Numerous entries are in pencil - not a permanent entry.
5. Technique sheets not available.

6. Traceability of film hardware appears questionable because of method identifying film.

Assessment:

These items have been assessed as observations.

- 3.4 Purchase Order No.: M-104A Procurement Specification  
Supplier: ITT - Grinnell, Kernersville, North Carolina  
Component: Pipe Spools

Actual:

Seam "D" - P/N MR 80-33 x supplier accepted film was observed to have a linear indication. Subject film was presented to CPCo NDE personnel for confirmation.

Assessment:

This item has been assessed as an observation because of the ongoing MPQAD program for radiographic film review.

- 3.5 Purchase Order No.: M-118A Procurement Specification  
Supplier: EPG, Warwick, Rhode Island

Actual:

1. Technique sheets/reader sheets were not available. Radiographic report submitted in lieu of reader sheets.
2. View 12.1 of WC 10747 has water marks and was stuck to the film cover package.
3. Serial Number WC 10747 has no documentation as to acceptance/rejection data, other than notation on film packages.

Assessment:

These items have been assessed as observations.

- 3.6 Purchase Order No.: M-125C Procurement Specification  
Supplier: Anchor Darling, Hayworth, California  
Component: 4" #150 Gage Valve Discs

Actual:

Serial RT #K1387 acceptance was predicated on R -2 film; R-2 film was 12/4/78, R-2 date should be 1/4/79.

Remainder of the review indicated compliance to ASME Code and P. O. requirements.

Assessment:

This item has been assessed as an observation.

## PART III - CMTR REVIEW

### 1.0 Statement of Task

To evaluate the effectiveness of Bechtel's review of CMTR's to assure that the material supplied meets the appropriate Code year and addenda regardless of whether the CMTR makes a proper reference to such year and addenda.

### 2.0 Purpose

The purpose of this evaluation was to verify the Bechtel SQD re-reviews of all CMTR's and other support data to the effective code editions as delineated in the applicable technical specifications and ASME code data reports.

### 3.0 Method

3.1 CMTR Review Guidelines The following method guidelines were established for the review of CMTR's:

- A) Check for linkage between designation in code data report and design in body of code referenced in code data report.
- B) Check for linkage between design in body of code and designation in CMTR where there is equality - no other action required.
- C) Make visual comparison of chemical and physical requirements specified in code to actual chemical and physical properties given in CMTR. If no difference, no further action required.
- D) If difference, request Bechtel to prepare NCR.

### 3.2 Sample Selection

The task required taking a random sample of CMTR's which lacked the appropriate material information. The sample was taken from fifteen separate purchase orders which was comprised of twenty-five

documentation packages. The P.O. and A.E.O numbers referenced are listed in Appendix C3-4 on the report. The sample included a review of 37 different types of materials.

#### 4.0 Results

Results of recheck of Ann Arbor packages for linkage of CMTR's to proper code year and addenda verified that material supplied meets requirements of the appropriate code year and addenda. There were no deficiencies in the sample selected.

## PART IV - REVIEW OF BECHTEL "FLAGS" REVIEW PROGRAM

### 1.0 Statement of Task

The MAC task was to review a random sample of Bechtel purchase order files in accordance with Bechtel Procedure 7220-001-081, Rev 1 entitled "Procurement Quality Assurance Review Program for Identification of Conditions "Flags" Affecting Product Function".

### 2.0 Purpose

The purpose of this review was to verify the effectiveness of the Bechtel "Flags" review in accordance with their procedure.

The "Flags" review was first requested by the NRC during a meeting of May 2, 1980 at the USNRC Region III offices regarding Midland Reactor Vessel holddown bolts. The NRC requested the licensee to review their files to determine if items were purchased in which there was no source inspection and the files indicated that the manufacturer had difficulty in meeting purchase specification. CPCo assigned this task to Bechtel on June 20, 1980.

### 3.0 Method

3.1 Sample Selection A review of the Bechtel Flags Program Review Log found that a total of twelve purchase orders of a total population of 1720 Midland Project Field Purchase Orders has been reviewed by Bechtel to date. One purchase order was selected as noted below for MAC review.

Purchase Order No.: M-55AC

Vendor: Yuba Heat Transfer Corporation

Component: (4) Fuel Pool Heat Exchangers

3.2 Purchase Order Items Checked The MAC review included the following document files located at the Bechtel Ann Arbor office:

- A) Quality Assurance - (1) Folder
- B) Purchasing Department - (1) Folder
- C) Engineering Department (13) Folders

3.3 Generic Points Checked The MAC review was performed in accordance with the governing Bechtel Procedure 7220-001-081, Rev. 1. The primary purpose of the review is to identify any "Flags" within the files of various departments which have responsibilities for a specific purchase order.

The procedure defines a "Flag" as any document contained in a re-reviewed file that raises a question in the reviewer's mind that a condition exists which may effect product function but for which no objective evidence exists that the condition has been resolved or corrected.

#### 4.0 Results

The review of the above files did not identify any items of concern which had not been addressed and/or closed out prior to installation of the subject heat exchangers.



P.O. #	COMPONENT	VENDOR	A.E.O. #	DISCIPLINE	# OF DOC. PKGS.
C-2AC	Post Tensioning System	INRYCO	11264	M/E	1
C-44AC	Spent Fuel Pool Gates	W. J. Woolley	9642	M	1
C-52AC	Thickened Liner Plate	Inland Ryerson	MR QC 32 (2)	M	2
E-7	460v Motor Control Center	ITE Imperial	9202	E	1
E-20-3-13	Cable Penetrations	Bunker Ramo	5799	M/E	6
E-26	600v Power Cable	Rockbestos	9752	E	1
F-3107-3-299	Structural Steel	NPS Industries	6153	C/S	1
F-3107-3-540	Structural Steel	NPS Industries	6256	C/S	1
F-3107-3-987	Structural Steel	NPS Industries	7110	C/S	1
F-3136	Miscellaneous Fab. Metal	Chicago Bridge & Iron	8652, 9330	C/S	2
J-255A	Control Valves	Copes-Vulcan	12534	M	3
J-255AC	Control Valves	Copes-Vulcan	11650	M	2
J-256AC	3" Solenoid/Globe Valves	Target Rock	9860	M	1
J-275	Engineered Safety Isolation	Consolidated Cont.	7137	E	1
J-275AC	Safety Isolation System	Consolidated Cont.	6821	E	1
M-14-3-11	Auxiliary Feedwater Pumps	Bingham Willamette	4993	M/E	1
M-18	D.G. Class 3 Component Supports	Delaval	11960	M	1
M-18-3	Emergency St. dby Diesel Gen.	Delaval (Transamer.)	7923	M	1
M-51AC	Cooling Heat Exchanger	Yuba Heat	1343	M	1
M-51Q	Cooling Heat Exchanger	Yuba Heat	1556	M	3
M-56AC	Spent Fuel Pool Pumps	Goulds Pumps	8090, 9132	M/E	2
M-104A	Piping (Class I)	ITT Grinnell	3308	M	1
M-104-3	Piping (Class I)	ITT Grinnell	8957	M	1
M-112AC	Metal Expansion Joints	Temp Flex	3427	M	4
M-115-3	Containment Spray Piping (3)	M. W. Kellogg	339	M	3
M-118A	28" Main Steam Isolation Valves	Energy Products	8743, 6183	M	2
M-118BC	18" Valves	Energy Products	3390	M	4
M-127A	Check and Globe Valves	Kerotest	5580, 11644	M	2
M-127AC	Globe Valves	Kerotest	13496	M	1
M-127B-3	Class 3 Gate Valves	H. Vogt	1320	M	1
M-131AC	Diaphragm Valves	ITT Grinnell	14013	M	3
M-150AC	Air Filter Units	Mine Safety	4453	HVAC	1
M-150-3	Air Filter Units	Mine Safety	4448	HVAC	1
M-163AC	Recirculating Air Cooling Units	CVI Corporation	6310	HVAC	3
M-358AC	Anchor Flanges	Tube Turns	10683	M	4
M-358-3	Main Steam Anchors	Tube Turns	7016	M	2

DOCUMENTATION PACKAGES REVIEWED AT BECHTEL ANN ARBOR - ATTACHMENT C-3.1

Management Analysis Company

## DOCUMENT REVIEW

PURCHASE ORDER # C-2AC

SUPPLIER INRYCO

EVALUATOR R. E. Herbst

A.E.O. # 11264

LOCATION Melrose Park, Illinois


DATE 3/11/81

COMPONENT Post Tensioning System (Tendons) Cable Mark H21-206, H32-206, H21-204, H32-204 and H21-202

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory Satisfactory Satisfactory	Reviewed one document package and supporting P.O.'s, specifications, and inspection reports. In accordance with specification requirements. Traceable to certificate of inspection and to part numbers.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	Satisfactory Satisfactory	Certificate of Conformance for heat treatments. Were traceable to INRYCO's purchase order numbers.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.	N/A N/A N/A N/A	

# DOCUMENT REVIEW continued

PURCHASE ORDER # C-2AC                      SUPPLIER INRYCO                      EVALUATOR R. E. Herbst  
 A.E.O. # 11264                                      LOCATION Melrose Park, Illinois                      DATE 3/11/81  
 COMPONENT Post Tensioning System (see page one for cable marks)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports:		
4.1	Verify NDT required by code/specification was performed.	N/A	Not required. 
4.2	Review NDT reports as to acceptance criteria, quantities tested, etc.	N/A	
4.3	Verify reports are traceable to item(s).	N/A	
4.4	Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
5.1	Review random sample of applicable tests required by code/specification to ensure compliance.	Satisfactory	Loading tests and tendon fabrication records in accordance with specification.
5.2	Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	Traceable to tendon mark numbers - heat numbers.
			<u>COMMENT:</u> Reproducibility of SDJR No. 1482 and two sheets of tendon fabrication records are questionable.

## DOCUMENT REVIEW

PURCHASE ORDER # C-44AC      SUPPLIER W. J. Woolley Company      EVALUATOR J. R. Orlando  
 A.E.O. # 9642      LOCATION Sub: Smeco Ind. Chicago, Illinois      DATE 3/6/81  
 COMPONENT Spent Fuel Pool Gates S/N 35494

ITEM	CHARACTERISTICS	RESULTS	REMARKS																														
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):  1.1 Verify applicable reports are in data package.  1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory  Satisfactory	The following CMTR's were checked for chemical and physical properties:  <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Heat #</u></th> <th style="text-align: left;"><u>Material</u></th> <th style="text-align: left;"><u>Status</u></th> </tr> </thead> <tbody> <tr> <td>67328-3CR</td> <td>ASME SA-240-304L</td> <td>OK</td> </tr> <tr> <td>67421-2D</td> <td>ASME SA-240</td> <td>OK</td> </tr> <tr> <td>16018-1E</td> <td>ASME SA-240</td> <td>OK</td> </tr> <tr> <td>3E2521</td> <td>ASME SA-240</td> <td>OK</td> </tr> <tr> <td>724319</td> <td>ASME SA-240</td> <td></td> </tr> <tr> <td>222870</td> <td>?</td> <td>*No ref. to ASME design.</td> </tr> <tr> <td>99757</td> <td></td> <td></td> </tr> <tr> <td>377450</td> <td>ASTM A276-76A (AWS D.1.1)</td> <td>OK</td> </tr> <tr> <td>744415</td> <td>SFA A5.9</td> <td>*Cert. specifies Class ER309L filler material</td> </tr> </tbody> </table>	<u>Heat #</u>	<u>Material</u>	<u>Status</u>	67328-3CR	ASME SA-240-304L	OK	67421-2D	ASME SA-240	OK	16018-1E	ASME SA-240	OK	3E2521	ASME SA-240	OK	724319	ASME SA-240		222870	?	*No ref. to ASME design.	99757			377450	ASTM A276-76A (AWS D.1.1)	OK	744415	SFA A5.9	*Cert. specifies Class ER309L filler material
<u>Heat #</u>	<u>Material</u>	<u>Status</u>																															
67328-3CR	ASME SA-240-304L	OK																															
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744415	SFA A5.9	*Cert. specifies Class ER309L filler material																															
1.3	Ensure material is traceable to MTR/CMTR.	Satisfactory																															

# DOCUMENT REVIEW continued

PURCHASE ORDER # C-44AC                      SUPPLIER W. J. Woolley Company                      EVALUATOR J. R. Orlando  
 A.E.O. # 9642    LOCATION Chicago, Illinois                      DATE 3/6/81  
 COMPONENT Spent Fuel Pool Gases S/N 35494

ITEM	CHARACTERISTICS	RESULTS	REMARKS
2.0	Special Process Reports:		
2.1	Verify heat treat, coating, etc. reports meet code/specification requirements.	N/A	
2.2	Ensure process reports are traceable to component.	N/A	
3.0	Welding Records:		
3.1	Ensure approved weld procedure was utilized.	N/A	Reviewed sample of weld procedure qualification records.
3.2	Verify approved weld procedure specifies material required by specifications/drawings.	N/A	
3.3	Verify welder qualification covers weld process utilized (position, thickness, etc.)	Satisfactory	
3.4	Ensure weld data report is traceable to component.	N/A	
4.0	Nondestructive Examination Reports:		
4.1	Verify NDT required by code/specification was performed.	Satisfactory	Liquid penetrant and vacuum box was performed as required by specification. Randomly checked NDT personnel qualification records.
4.2	Review NDT reports as to acceptable criteria, quantities tested, etc.	Satisfactory	

# DOCUMENT REVIEW continued

PURCHASE ORDER # C-44AC      SUPPLIER W. J. Woolley Company      EVALUATOR J. R. Orlando  
 A.E.O. # 9642      LOCATION Chicago, Illinois      DATE 3/6/81  
 COMPONENT Spent Fuel Pool Gates S/N 35494

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	4.3 Verify reports are traceable to item(s).	Satisfactory	
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	See Comment	Seal and leak tightness tests to be performed at later date (See SDDR 1200)
	5.2 Verify applicable test data is traceable to component and quantities compatible.		
6.0	Verify that weld repair verification reports were included in G321-d package as required.	Satisfactory	No welding repairs were required with the exception of some minor surface grinding.
7.0	Verify that cleaning verification reports are in package.	Satisfactory	No verification reports for cleaning are available in the data package. Cleaning was certified as acceptable by component C of C.

## DOCUMENT REVIEW

PURCHASE ORDER # C-52AC SUPPLIER Inland Ryerson EVALUATOR J. R. Orlando  
 A.E.G. # MR QC 32 LOCATION Gibraltar, Michigan DATE 3/11/81  
 COMPONENT Thickened liner plate P,N F2A and N2A

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		Bechtel review noted several illegible portions of CMTR's.
	1.1 Verify applicable reports are in data package.	Satisfactory	Impact testing reports for Material Ht #C2141 was checked. CMTR's for plate, studs, and calweld sleeves wer reviewed for mech/chem and found satisfactory.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	
	1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory	
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	N/A	
	2.2 Ensure process reports are traceable to component.	N/A	
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	N/A	
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	N/A	
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A	

## DOCUMENT REVIEW continued

PURCHASE ORDER # C152AC SUPPLIER Inland Ryerson EVALUATOR J. R. Orlando  
 A.E.O. # MR QC 32 LOCATION Gibraltar, Michigan DATE 3/11/81  
 COMPONENT Thickened liner plate P/N F2A and N2A

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.4 Ensure weld data report is traceable to component.	N/A	
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	Satisfactory	UT and PT reports. Several minor legibility problems were identified by Bechtel.
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	
	4.3 Verify reports are traceable to item(s).	Satisfactory	
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	N/A	
	5.2 Verify applicable test data is traceable to component and quantities compatible.	N/A	



## DOCUMENT REVIEW

PURCHASE ORDER # E-7 SUPPLIER ITE EVALUATOR J. R. Orlando  
 A.E.O. # 9202 LOCATION \_\_\_\_\_ DATE 3/6/81  
 COMPONENT 460v Motor Control Centers, Item 59 - P/N 2B64

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	N/A	
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	N/A	
	1.3 Ensure material is traceable to MTR/CMTR.	N/A	
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	
	2.2 Ensure process reports are traceable to component.	Satisfactory	
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	N/A	
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	N/A	
	3.3 Verify welder qualification covers weld process utilized (e.g., thickness, etc.)	N/A	

# DOCUMENT REVIEW : continued

PURCHASE ORDER # E-7 SUPPLIER ITE EVALUATOR J. R. Orlando  
 A.E.O. # 9202 LOCATION \_\_\_\_\_ DATE 3/6/81  
 COMPONENT 460v Motor Control Center, Item 59 - P/N 2B64

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.4 Ensure weld data report is traceable to component.	N/A	
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	N/A	
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	N/A	
	4.3 Verify reports are traceable to item(s).	N/A	
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydro-Static/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	See Remarks	Reports for electrical/MCC tests and inspections were reviewed and found satisfactory. All additional testing requirements covered under Section 8.0 of the specification were covered in the "Gould Qualification Summary Report for Class IE Equipment", Doc. #7220-E7-129-2. It should be noted that Bechtel Engineering allowed the shipment of this equipment without approval of the qualification report. This was accomplished by SDDR 1151 dated 3/1/79. This item was snipped on 3/17/79. It should be noted that the qualification report has not been approved to date.

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# DOCUMENT REVIEW : continued

PURCHASE ORDER # E-7                      SUPPLIER ITE                      EVALUATOR J. R. Orlando  
 A.E.O. # 9202                      LOCATION \_\_\_\_\_                      DATE 3/6/81  
 COMPONENT 460v Motor Control Center, Item 59 - P/N 2B64

ITEM	CHARACTERISTICS	RESULTS	REMARKS
6.0	5.2 Verify applicable test data is traceable to component and quantities compatible.  Verify that all documentation required by the G321-D form has been met.	Satisfactory  See Remarks	All documents with the exception of test data in Qualification Report.

## DOCUMENT REVIEW

PURCHASE ORDER # E-20-2-13 SUPPLIER Bunker Ramo Corporation EVALUATOR J. R. Orlando  
 A.E.O. # 5799 LOCATION Chatsworth, California DATE 3/03/81  
 COMPONENT Cable Penetrations (component parts - see below) - Specification #7220-E-20, Rev. 6

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	<u>Penetrations covered by package</u> CRD Power Penetration PN 500013093-16 CRD Control 500013093-17 LV Power Load Gr. 2 500013093-20 LV Power 2 500013093-08 CRD Control 500013090-17		
	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	Satisfactory	It was verified that applicable data reports were located in the package.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Observation	CMTR's for penetration header plates, retaining flanges and bolting materials.  CMTR (Header Plate material) does not reference NA-3700 requirements of either Quality System Certification Number and Date of Expiration, nor a statement certifying compliance to the Code NA-3700.  CMTR for SA-479 T304 material refers to incorrect section of Code - NA 37674.4 Should be NA 3764.4
1.3 Ensure material is traceable to MTR/CMTR.	Observation	Manufacturing and Inspection reports for header plates for all penetrations identified above call out incorrect material - ASME SA-515, Gr. 70. Should be SA-516, Gr. 70.	
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory (G321-D)	C of C verifies coatings and applications.

## DOCUMENT REVIEW : continued


Page 2 of 3

PURCHASE ORDER # E-20-3-13      SUPPLIER Bunker Ramo Corporation      EVALUATOR J. R. Orlando  
 A.E.O. # 5799      LOCATION Chatsworth, California      DATE 3/03/61  
 COMPONENT Cable Penetrations (see page one for component parts)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	2.2 Ensure process reports are traceable to component.	N/A	
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	N/A	Penetrations - No welding for these particular penetrations: Seamless Pipe Bolted Construction
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	N/A	
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A	
	3.4 Ensure weld data report is traceable to component.	N/A	
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	N/A	
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	N/A	
	4.3 Verify reports are traceable to item(s).	N/A	
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	

# DOCUMENT REVIEW : continued

PURCHASE ORDER # E-20-3-13      SUPPLIER Bunker Ramo Corporation      EVALUATOR J. R. Orlando  
 A.E.O. # 5799      LOCATION Chatsworth, California      DATE 3/3/81  
 COMPONENT Cable Penetrations (see page one for component parts)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory 	Test Data Sheets for Leak Free Integrity Test, Pneumatic Proof Test, Dielectric withstanding voltage, Insulation Resistance and Continuity Tests.  NOTE: Bechtel SDDR 498 allows shipping of penetrations to site prior to approval of the Design Qualification Test Report.  <u>GENERAL COMMENT</u> A) Inspection Checklists: Part Number identified on the documents is not traceable to the particular penetration assembly. B) CMTR for Header Plate material - Bechtel SDDR 352, dated 1/15/77, states that Header Plate material SA-516, Gr. 70 - ASME Section III 1971 Winter 1973 was rejected and scrapped. It further stated that material was replaced by ASME Section III 1974 Summer 1976 Ht IGG291. The material used in the package is of the earlier year. C) Reference Item 1.2; see paragraph 3.3 D) of Task C-3, ground rules.

## DOCUMENT REVIEW

PURCHASE ORDER # E-26      SUPPLIER The Rockbestos Company      EVALUATOR R. E. Herbst  
 A.E.O. # 9752      LOCATION New Haven, CT      DATE 3/10/81  
 COMPONENT Cable - 3 Reels, Reel Nos. 10319, 9838 & 10683

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory  N/A  Satisfactory	Certified Test Reports Nos. 72G, 73G & 74G plus the Certificate of Conformance were included as required by the specification.  CTRs and Certificates of Conformance were traceable to each reel of cable.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	Satisfactory  Satisfactory	Certified Test Reports included all requirements and actual as-builts.  Traceable to each Cable Reel.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A ↓	

# DOCUMENT REVIEW continued

PURCHASE ORDER # E-26                      SUPPLIER The Rockbestos Company                      EVALUATOR R. E. Herbst  
 A.E.O. # 9752                                      LOCATION New Haven, CT                                      DATE 3/10/81  
 COMPONENT Cable - 3 Reels, Reel Nos. 10319, 9838 & 10683

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.4 Ensure weld data report is traceable to component.	N/A	
4.0	Nondestructive Examination Reports:	N/A	
	4.1 Verify NDT required by code/specification was performed.	↓	
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.		
	4.3 Verify reports are traceable to item(s).		
	4.4 Physically review random sample of film on weldments, if applicable.		
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	Satisfactory	Certified cable test reports were in accordance with requirements.
	5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	All test reports were traceable.
			<u>Comments:</u> #1: Three of the SDDRs were unreadable and not reproducible in the area of the Bechtel Disposition. Also, the reproducibility of others is questionable.  #2: This data package didn't contain a Bechtel re-review stamp.



## DOCUMENT REVIEW

PURCHASE ORDER # E-3107-3-299SUPPLIER NPS IndustriesEVALUATOR T. J. MarcellaA.E.O. # 6153LOCATION Secaucus, NJDATE 3/3/81COMPONENT Structural Steel

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	OK  OK  OK	Certificate of Conformance dated 3-31-78 does not reference ASME NA-3700 requirements.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	N/A ↓	
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A ↓	

# DOCUMENT REVIEW continued

PURCHASE ORDER # 17-3107-3-299      SUPPLIER NPS Industries      EVALUATOR T. J. Marcella  
 A.E.O. # 6153      LOCATION Secaucus, NJ      DATE 3/3/81  
 COMPONENT Structural Steel

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.4 Ensure weld data report is traceable to component.	N/A	
4.0	Nondestructive Examination Reports:	N/A	
	4.1 Verify NDT required by code/specification was performed.	↓	
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	↓	
	4.3 Verify reports are traceable to item(s).	↓	
	4.4 Physically review random sample of film on weldments, if applicable.	↓	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional)	N/A	
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	↓	
	5.2 Verify applicable test data is traceable to component and quantities compatible.	↓	

# DOCUMENT REVIEW

PURCHASE ORDER # F-3107-3-540

SUPPLIER NPS Industries

EVALUATOR T. J. Marcella

A.E.O. # 6256

LOCATION Secaucus,

DATE 3/3/81

COMPONENT Structural Steel

New Jersey

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
1.1	Verify applicable reports are in data package.	OK	Reviewed CMTR's BNF-394, BNF-423, BNF 394A, BNF-423B
1.2	Random sample MTR/CMTR reports to ensure specification/code requirements.	OK	Review indicated compliance.
1.3	Ensure material is traceable to MTR/CMTR.	OK	
2.0	Special Process Reports:		
2.1	Verify heat treat, coating, etc. reports meet code/specification requirements.	OK	Reviewed coating materials data sheets on batch A7M-097, A8B-171.
2.2	Ensure process reports are traceable to component.	OK	Verified Batch A7M-097, A8B-171 referenced on supplier's Shop Inspection Record, Job No. 13451.
3.0	Welding Records:		
3.1	Ensure approved weld procedure was utilized.	OK	Drawing D-8 Weld Procedure NPSI-10.
3.2	Verify approved weld procedure specifies material required by specifications/drawings.	OK	Drawing D-8.
3.3	Verify welder qualification covers weld process utilized (position, thickness, etc.)	OK	Reviewed weld data sheet.
3.4	Ensure weld data report is traceable to component.	OK	

# DOCUMENT REVIEW continued

PURCHASE ORDER # F-3107-3-540      SUPPLIER NPS Industries      EVALUATOR T. J. Marcella  
 A.E.O. # 6256      LOCATION Secaucus,      DATE 3/3/81  
 COMPONENT Structural Steel      New Jersey

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports:		
4.1	Verify NDT required by code/specification was performed.	OK	ASTM A588-75 Grade A requires 100% U/S.
4.2	Review NDT reports as to acceptance criteria, quantities tested, etc.	OK	ASTM A578 Level II 100% Scan - forgings.
4.3	Verify reports are traceable to item(s).	OK	
4.4	Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):	N/A	
5.1	Review random sample of applicable tests required by code/specification to ensure compliance.	↓	
5.2	Verify applicable test data is traceable to component and quantities compatible.	↓	

# DOCUMENT REVIEW

PURCHASE ORDER # F-3107-3-987      SUPPLIER NPS Industries      EVALUATOR T. J. Marcella  
 A.E.O. # 7110      LOCATION Secaucus,      DATE 3/3/81  
 COMPONENT Structural Steel      New Jersey

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
1.1	Verify applicable reports are in data package.	OK	
1.2	Random sample MTR/CMTR reports to ensure specification/code requirements.	OK	Reviewed CMTR's on ASTM A516-76, Gr. 55, ASTM A588-75 Gr. A, ASME SA 36-754 found no deficiencies.
1.3	Ensure material is traceable to MTR/CMTR.	OK	
2.0	Special Process Reports:		
2.1	Verify heat treat, coating, etc. reports meet code/specification requirements.	OK	Reviewed Mobil Chemical Company Certification Record Batch 3089-B-2; acceptable.
2.2	Ensure process reports are traceable to component.	OK	
3.0	Welding Records:		
3.1	Ensure approved weld procedure was utilized.	OK	Weld Procedure NPSI 14 utilized.
3.2	Verify approved weld procedure specifies material required by specifications/drawings.	OK	Drawing D-2.
3.3	Verify welder qualification covers weld process utilized (position, thickness, etc.)	OK	Reviewed Process Control Sheet on CC Restraints, Assembly 1-5B-2.
3.4	Ensure weld data report is traceable to component.	OK	

# DOCUMENT REVIEW continued

PURCHASE ORDER # E-3107-3-987      SUPPLIER NPS Industries      EVALUATOR T. J. Marcella  
 A.E.O. # 7110      LOCATION Secaucus,      DATE 3/3/81  
 COMPONENT Structural Steel      New Jersey

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports:		
4.1	Verify NDT required by code/specification was performed.	OK	CMTR's referenced U/S examination per ASTM A516-76, Gr. 55.
4.2	Review NDT reports as to acceptance criteria, quantities tested, etc.	OK	
4.3	Verify reports are traceable to item(s).	OK	
4.4	Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):	N/A	
5.1	Review random sample of applicable tests required by code/specification to ensure compliance.	↓	
5.2	Verify applicable test data is traceable; to component and quantities compatible.		

## DOCUMENT REVIEW

Page 1 of 2

PURCHASE ORDER # F3136

SUPPLIER Chicago Bridge & Iron

EVALUATOR T. J. Marcella

A.E.O. # 8652

LOCATION Salt Lake City & Chicago

DATE March 11, 1981

COMPONENT Misc. Fab. Metals

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	OK	Index identifies content of package.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	OK	1) American Alloy Steel, Inc., file #A-521216-1 indicates a sulphur content of .027; should be .015 maximum per spec. para. 5.11.1 page 7. 2) Cert. A-51891-1 indicates sulphur content of .016; should be .015 maximum per spec. para. 5.11.1 page 7. Para 5.11 of Tech Spec C.233 only imposes sulphur limitation when specifically called out on drawing.
	1.3 Ensure material is traceable to MTR/CMTR.	OK	Shop release reference heat number sheets which are traceable to price mark number.
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	OK	Heat treat requirements indicated on certs. CBI Form GO-1083 utilized for control of coatings.
	2.2 Ensure process reports are traceable to component.	OK	Same as 1.3 above.
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	OK	Weld procedures, weld maps and repair procedures available.
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	OK	CBI Form GE 515/516 utilized and acceptable.

## DOCUMENT REVIEW continued

Page 2 of 2

PURCHASE ORDER # F-3136                      SUPPLIER Chicago Bridge & Iron                      EVALUATOR T. J. Marcella  
 A.E.O. # 8652    LOCATION Salt Lake City & Chicago                      DATE March 11, 1981  
 COMPONENT Misc. Fab. Metals

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.).	OK	Same as above (welders qualification not available, required by G321-D).
	3.4 Ensure weld data report is traceable to component.	OK	Index number is key to traceability.
4.0	Nondestructive Examination Reports:	N/A	No evidence of NDE performed on these units.
	4.1 Verify NDT required by code/specification was performed.		
	4.2 Review NDT reports as to acceptance criteria, quantities, etc.		
	4.3 Verify reports are traceable to item(s).		
	4.4 Physically review random sample of film on weldments, if applicable.		
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):	N/A	<p><u>Comments:</u></p> <p>1.1 Numerous certifications appear to be non-reproducible, in fact, review was difficult.</p> <p>1.2 a) Certifications available do not reference NA-3700 which is referenced in specification.</p> <p style="padding-left: 20px;">b) Ref. Page 1: Cert A-51955-1 from American Alloy Steel, Inc. indicates sulphur content of .017; should be .015 maximum per spec. para. 5.11.1, page 7.</p> <p>3.3 Welders qualification data not available - required by Bechtel G321-D form.</p>
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.		
	5.2 Verify applicable test data is traceable to component and quantities compatible.		



# DOCUMENT REVIEW

PURCHASE ORDER # F-3136      SUPPLIER Chicago Bridge & Iron      EVALUATOR I. J. Marcella  
 A.E.O. # 9330      LOCATION 2060G Chagrin Blvd.      DATE 3/11/81  
 COMPONENT Miscellaneous Metal      Shaker Heights, OH

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
1.1	Verify applicable reports are in data package.	OK	Index identifies package content.
1.2	Random sample MTR/CMTR reports to ensure specification/code requirements.	Finding (ASTM A516)	Certification, American Alloy Steel, Inc. File #A-52146-1 indicates sulphur content of .027; S/B max. of .015 per specification, Para. 5.11.1, Page 7.
1.3	Ensure material is traceable to MTR/CMTR.	OK	Shop Release Ref. Heat No. sheets which are traceable to price mark No.
2.0	Special Process Reports:		
2.1	Verify heat treat, coating, etc. reports meet code/specification requirements.	OK	Heat treat requirements indicated on certifications CBI Form GO 1083 dated 12-76, utilized for coating control.
2.2	Ensure process reports are traceable to component.	OK	Same as 1.3, above.
3.0	Welding Records:		
3.1	Ensure approved weld procedure was utilized.	OK	Weld procedures, weld maps and repair procedures available.
3.2	Verify approved weld procedure specifies material required by specifications/drawings.	OK	CBI Form GE 515/516 dated 04 79 utilized.
3.3	Verify welder qualification covers weld process utilized (position, thickness, etc.)	OK	Same as above. Welders qualification not available.
3.4	Ensure weld data report is traceable to component.	OK	Index No. is the key to traceability.

## DOCUMENT REVIEW continued

PURCHASE ORDER # <u>F-3136</u>	SUPPLIER <u>Chicago Bridge &amp; Iron</u>	EVALUATOR <u>F. J. Marcella</u>
A.E.O. # <u>9330</u>	LOCATION <u>20600 Chagrin Blvd. Shaker Heights, OH</u>	DATE <u>3/11/81</u>
COMPONENT <u>Miscellaneous Metal</u>		

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports:	N/A ↓	No evidence of NDE performed on these units. UT requirements on plate, etc. documented on applicable certifications.
4.1	Verify NDT required by code/specification was performed.		
4.2	Review NDT reports as to acceptance criteria, quantities, tested, etc.		
4.3	Verify reports are traceable to item(s).		
4.4	Physically review random sample of film on weldments, if applicable.		
5.0	Operational Test Reports (hydrostatic/pneumatic/functional):		
5.1	Review random sample of applicable tests required by code/specification to ensure compliance.		
5.2	Verify applicable test data is traceable to component and quantities compatible.		

- |             |  |                 |
|-------------|--|-----------------|
| <u>Ref.</u> |  | <u>Comments</u> |
| 1.0         | 1) Numerous certifications appear to be non-producible. In fact, many are not legible for verification.<br>2) None of the certifications reference NA-3700 which is required by the specification. |                 |
| 3.0         | Weld data information not available for review.  |                 |
| 3.3         | Welders qualification data not available.  |                 |
| 4.0         | NDE appears to be nonexistent on fabricated parts; which may be acceptable, however, not having drawings to check, this area cannot be verified.   |                 |

# DOCUMENT REVIEW

PURCHASE ORDER # J-255A      SUPPLIER Copes - Vulcan      EVALUATOR R. E. Herbst  
 A.E.O. # 12534      LOCATION Lake City, Pennsylvania      DATE 3/4/81  
 COMPONENT Control Valves (3)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		Reviewed (3) Document Packages for valves: OPV-6580-A1, OPV-6580-A2, OPDV-6575A
	1.1 Verify applicable reports are in data package.	Satisfactory	All MTR's and CMTR's required were included in each valve package.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	Reviewed approximately 10% of pressure boundary material CMTR's - all physicals and chemicals satisfactory. SDDR #1833 denotes that various MTR's do not reflect compliance to NA-3700, requires that NPV-1 forms be revised to reflect Code Case N-242.
	1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory	All valves parts were traceable to MTR's and CMTR's.
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Heat treat charts for each valve, including repair welds are included and meet code requirements - no coating reports required by Bechtel G321-D doc. submitted form.
	2.2 Ensure process reports are traceable to component.	Satisfactory	Were traceable to part and/or assembly numbers.
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	N/A	Certified by material suppliers.
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	N/A	Unable to verify in document package.
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A	Certified by material suppliers.
	3.4 Ensure weld data report is traceable to component.	Satisfactory	Traceable to part numbers.

# DOCUMENT REVIEW continued

PURCHASE ORDER # J-255A      SUPPLIER Copes - Vulcan      EVALUATOR R. E. Herbst  
 A.E.O. # 12534      LOCATION Lake City, Pennsylvania      DATE 3/4/81  
 COMPONENT Control Valves (3)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports:		
4.1	Verify NDT required by code/specification was performed.	Satisfactory	NDE required by specification is included on inspection report data sheets - RT of Bonnets and Bodies documented.
4.2	Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	RT, MT, PT and visual reports
4.3	Verify reports are traceable to item(s).	Satisfactory	Traceable to part numbers.
4.4	Physically review random sample of film on weldments, if applicable.	N/A	RT film at site.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
5.1	Review random sample of applicable tests required by code/specification to ensure compliance.	Satisfactory	Hydro - valve assembly and seat leak test performed and documented to specification/code.
5.2	Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	Traceable to S/N and Ht numbers of Body and Bonnet and to valve serial number.
			NOTE: None of the document packages contained an index describing the contents.

## DOCUMENT REVIEW

PURCHASE ORDER # J-255AC

SUPPLIER Copes - Vulcan

EVALUATOR R. E. Herbst

A.E.O. # 1165U

LOCATION Lake City, Pennsylvania

DATE 3/4/81

COMPONENT Control Valves (2)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		Reviewed (2) document packages for valves: OTV-5755A and OTV-5755B
	1.1 Verify applicable reports are in data package.	Satisfactory	MTR and CMTR's for all part numbers are included in each document package.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	Reviewed approximately 10% of pressure boundary MTR's. SDDR #1833 denotes that various MTR's do not reflect compliance with NA-3700. SDDR requires that NPV-1 forms be revised to reflect Code Case N-242.
	1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory	Parts and weld were traceable to MTR's and CMTR's.
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Required IIT charts were included and met spec/code requirements. Coating reports were not required by Bechtel document submittal form.
	2.2 Ensure process reports are traceable to component.	Satisfactory	Were traceable to part and/or assembly numbers.
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	N/A	Certified by material suppliers.
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	N/A	Unable to verify.
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A	Certified by material suppliers.
	3.4 Ensure weld data report is traceable to component.	Satisfactory	Traceable to part numbers.

## DOCUMENT REVIEW continued

PURCHASE ORDER # J-255AC SUPPLIER Copes - Vulcan EVALUATOR R. E. Herbst  
 A.E.O. # 11650 LOCATION Lake City, Pennsylvania DATE 3/4/81  
 COMPONENT Control Valves (2)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports:		
4.1	Verify NDT required by code/specification was performed.	Satisfactory	NDE required by specification was documented on inspection report data sheets and RT report forms.
4.2	Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	RT, PT, MT and visual reports and/or certification were reviewed.
4.3	Verify reports are traceable to item(s).	Satisfactory	Traceable to part numbers.
4.4	Physically review random sample of film on weldments, if applicable.	N/A	RT film at site.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
5.1	Review random sample of applicable tests required by code/specification to ensure compliance.	Satisfactory	Reviewed hydrostatic test reports for valve assembly and seat leak tests.
5.2	Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	Traceable to S/N of Body and Bonnet and valve S/N.
			NOTE: None of the document packages contained an index describing the contents.

## DOCUMENT REVIEW

PURCHASE ORDER # J-256AC

SUPPLIER Target Rock Corporation

EVALUATOR T. J. Marcella

A.E.O. # 9860

LOCATION 1966 E. Broadhollow

DATE 2/27/81

COMPONENT 3" B.W. Sol. Globe Valve Assy.

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
1.1	Verify applicable reports are in data package.	OK	
1.2	Random sample MTR/CMTR reports to ensure specification/code requirements.	OK	1) Checked two AWS SFA 5-13-R-Co certifications. 2) Checked ASME SA-182, 316AF.
1.3	Ensure material is traceable to MTR/CMTR.	OK	
2.0	Special Process Reports:		
2.1	Verify heat treat, coating, etc. reports meet code/specification requirements.	OK	Checked heat treat to ASME SA-654 - heat treated to 1925 <sup>0</sup> F.
2.2	Ensure process reports are traceable to component.	OK	Forging heat lot 70W49 valve body, P/N 300130-1 Rev. C.
3.0	Welding Records:		
3.1	Ensure approved weld procedure was utilized.	OK	TRP 12.00 Rev. C - JWP 12.107 SS Rev. B weld procedure.
3.2	Verify approved weld procedure specifies material required by specifications/drawings.	OK	SST
3.3	Verify welder qualification covers weld process utilized (position, thickness, etc.)	OK	Bonnet to Body S/N 23-97 welder R. Strub, qualification verified on welding report.
3.4	Ensure weld data report is traceable to component.	OK	Each weld report referenced correct part numbers.

## DOCUMENT REVIEW continued

PURCHASE ORDER # J-256AC SUPPLIER Target Rock Corporation EVALUATOR T. J. Marcella  
 A.E.O. # 9860 LOCATION 1966 E. Broadhollow DATE 2/27/81  
 COMPONENT 3" B.W. Sol. Globe Valve Assy. E. Farmingdale, NY 11735

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/ specification was performed.	OK	LPI Proc. 868 Rev. A, Accept. Stds. 1303D meets requirements of ASME Section III '74 Edition, Para. NB 2546 - U/T per MIL-I-8950 Cl. A & Requirements of '74 Edition and NB 2546/NB 2542
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.		
	4.3 Verify reports are traceable to item(s).	OK	
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/ specification to ensure compliance.	OK	Hydro test report 1568A operational test utilizing nitrogen seat leak test.
	5.2 Verify applicable test data is traceable to component and quantities compatible.	OK	



## DOCUMENT REVIEW

PURCHASE ORDER # J-275

SUPPLIER Consolidated Controls

EVALUATOR J. R. Orlando

A.E.O. # 7137

LOCATION Bethel, Connecticut

DATE March 4, 1981

COMPONENT Analog Isolators for Cabinet 2C46, 33 items, P/N's 6N250-1 &amp; 6N249-1, 6N249-2 &amp; 6N249-3 (Spec. 7220-J-275)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	Satisfactory	a) CofC's covering use of flame retardant non-toxic smoking materials were reviewed.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	b) General CofC for materials, manufacturing inspection and testing were reviewed and found satisfactory.
	1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory.	
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	See Comment	Specification states that no QA required for cabinet coatings.
	2.2 Ensure process reports are traceable to component.	N/A	
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	N/A	No specific welding or fabrication requirements in specification for cabinets.
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.		
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)		
	3.4 Ensure weld data report is traceable to component.		

# DOCUMENT REVIEW continued

PURCHASE ORDER # J-275      SUPPLIER Consolidated Controls      EVALUATOR J. R. Orlando  
 A.E.O. # 7137      LOCATION Bethel, Connecticut      DATE March 4, 1981  
 COMPONENT Analog Isolator for Cabinet 2C46 (see page one for additional description)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance.  5.2 Verify applicable test data is traceable to component and quantities compatible.	Finding	The following test and inspection data reports were reviewed for the subject component parts: a) visual b) dielectric c) functional No evidence is available in the data package that 100% wiring continuity testing was performed, as required by Section 10.3.1 of the specification.
		Satisfactory	All test and inspection data in package was found fully identified and traceable to the parts involved.
6.0	Verify that all requirements of the Bechtel G321-D form were met.	Finding	The form was found properly completed. All required documents were available in the package except for Continuity Test Data (refer to 5.1) required by item 26 of the G321-D form.

## DOCUMENT REVIEW

PURCHASE ORDER # U-275ACSUPPLIER Consolidated Controls Corporation EVALUATOR J. R. OrlandoA.E.O. # 6821LOCATION Bethel, ConnecticutDATE 3/4/81COMPONENT Engineered Safety Isolation System Analog Isolation Cabinet Unit 2 P/N 9N46 (Spec. 7220-J-275)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):  1.1 Verify applicable reports are in data package.  1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. (CofC's)  1.3 Ensure material is traceable to MTR/CMTR. (CofC's for this report)	Satisfactory  Satisfactory  Satisfactory	a) Certificates of Compliance for use of flame retardant material and non-toxic and dense smoke releases of materials exposed to fire were reviewed. b) Certificates of Compliance for ground buses were reviewed. c) General CofC of materials, manufacturing inspection and testing was reviewed.
2.0	Special Process Reports:  2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.  2.2 Ensure process reports are traceable to component.	See Comment  N/A	Specification requires no QA for coating of assembly cabinets.
3.0	Welding Records:  3.1 Ensure approved weld procedure was utilized.  3.2 Verify approved weld procedure specifies material required by specifications/drawings.	N/A  N/A	No specific welding or fabrication requirements in specification for cabinets.

# DOCUMENT REVIEW continued

PURCHASE ORDER # J-275AC      SUPPLIER Consolidated Controls Corporation      EVALUATOR J. R. Orlando  
 A.E.O. # 6821      LOCATION Bethel, Connecticut      DATE 3/4/81  
 COMPONENT Engineered Safety Isolation System Analog Isolation Cabinet (see page 1 for additional description)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A	
	3.4 Ensure weld data report is traceable to component.	N/A	
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	N/A	
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	N/A	
	4.3 Verify reports are traceable to item(s).	N/A	
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	Finding	No evidence is available in the data package that 100% wiring continuity testing was performed as required by Section 10.3.1 of the specification.

# DOCUMENT REVIEW continued

PURCHASE ORDER # J-275AC                      SUPPLIER Consolidated Controls Corporation                      EVALUATOR J. R. Orlando  
 A.E.O. # 6821    LOCATION Bethel, Connecticut    DATE 3/4/81  
 COMPONENT Engineered Safety Isolation System Analog Isolation Cabinet (see page 1 for additional description)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
5.2	Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	All test and inspection data was found fully identified and traceable.  Comments regarding both 5.1 and 5.2: The following test and inspection reports were reviewed and found satisfactory to the requirements of the specification and IEEE 336. a) Qualification Demonstration Report for ESIS Analog Isolation Cabinets. b) Qualification Test Data Sheets for surge with stand capability (SWC) tests and RFI testing. c) Test Documentation sheets were reviewed for functional, dielectric, and visual.
6.0	Verify that all requirements of the Bechtel G321-D form were met.	Finding	The form was found properly completed. All documents were available except for Continuity Test data (Refer to item 5.1) Item #26 of the G321-D form.

## DOCUMENT REVIEW

PURCHASE ORDER # M-14-3-11 SUPPLIER Bingham Willamette EVALUATOR J. R. Orlando  
 A.E.O. # 4993 LOCATION Portland, Oregon DATE 3/10/81  
 COMPONENT Auxiliary Feedwater Pump S/N 2P05A

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory Satisfactory Satisfactory	a) NPV-1 Code Data Report notes that material meets ASME Section III W74. Actual CMTR for pressure boundary parts (typical noted below) were certified to Section III thru S74. Lower Pump Casing HT 143976 Upper Pump Casing HT 14237 b) The following sample of filler material certifications did not state any compliance to ASME Section III requirements: HT 48219 E7018 1/8" HT 641212 A675 1/16"
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	Satisfactory Satisfactory	Heat Treat Records were reviewed and found satisfactory.

## DOCUMENT REVIEW continued

PURCHASE ORDER # M-14-3-11 SUPPLIER Bingham Willamette EVALUATOR J. R. Orlando  
 A.E.O. # 4993 LOCATION Portland, Oregon DATE 3/10/81  
 COMPONENT Auxiliary Feedwater Pump S/N 2P05A

ITEM	CHARACTERISTICS	RESULTS	REMARKS
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	N/A	Data not included as part of package.
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	N/A	Data not included as part of package.
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A	Data not included as part of package.
	3.4 Ensure weld data report is traceable to component.	N/A	Data not included as part of package.
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	Satisfactory	Magnetic particle and ultrasonic test reports were reviewed and found satisfactory for pressure boundary parts.
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	LPI of pipe welds.
	4.3 Verify reports are traceable to item(s).	Satisfactory	Traceable by HT numbers.
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	To be checked at site.

## DOCUMENT REVIEW continued

PURCHASE ORDER # M-14-3-11      SUPPLIER Bingham Willamette      EVALUATOR J. R. Orlando  
 A.E.O. # 4993      LOCATION Portland, Oregon      DATE 3/10/81  
 COMPONENT Auxiliary Feedwater Pump S/N 2P05A

ITEM	CHARACTERISTICS	RESULTS	REMARKS
5.0	Operational Test Reports (hydrostatic/pneumatic/functional)		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	Satisfactory	Hydrotest records were reviewed.
	5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	



# DOCUMENT REVIEW

PURCHASE ORDER # M-18      SUPPLIER Delaval Industries      EVALUATOR J. R. Orlando  
 A.E.O. # 11960      LOCATION Oakland, California      DATE 3/5/81  
 COMPONENT Misc. ASME Section III Class 3 Component Supports and Pipe (see items listed below)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	<u>Type:</u> <u>I.D. No.:</u> <u>System:</u>		
1	Support      02-717-02-HU      Lube Oil System		
2	Support      02-717-02-JD      Jacket Water		
3	Support      02-717-02-JL      Jacket Water		
4	Support      02-717-02-QV      Jacket Water		
5	Support      02-717-02-QW      Jacket Water		
6	Support      02-717-02-QT      Jacket Water		
7	Support      02-717-02-QU      Jacket Water		
8	Support      02-717-02-QS      Jacket Water		
9	Flange      VA2N      Lube Oil System		
10	Pipe      L24909      Press. Reg. Valve		
11	Elbow      AL6C      Sump Tank		
12	Pipe      L24909      Sump Tank		
13	Support      02-717-02-JM      Jacket Water		
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
1.1	Verify applicable reports are in data package.	Satisfactory	Reports were verified for those items identified above.
1.2	Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	Chemical and physical properties were checked for items 1-13 above and found satisfactory. a) CMTR for material Ht 36654 (item 1-8) does not reflect code edition or addenda. b) CMTR for material Ht 96763, L45603 and 5437 (item 2-8) does not reflect code edition or addenda. c) CMTR for material Ht L24909 (item 10 and 12) does not reflect code edition or addenda.
1.3	Ensure material is traceable to MTR/CMTR.	Satisfactory	

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-18\* SUPPLIER Delaval Industries EVALUATOR J. R. Orlando  
 A.E.O. # 11960 LOCATION Oakland, California DATE 3/5/81  
 COMPONENT Misc. ASME Section III Class 3 Component Supports and Pipe (See page 1 for list of items)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
2.0	Special Process Reports:		
2.1	Verify heat treat, coating, etc. reports meet code/specification requirements.	N/A	
2.2	Ensure process reports are traceable to component.	N/A	
3.0	Welding Records:		
3.1	Ensure approved weld procedure was utilized.	N/A	
3.2	Verify approved weld procedure specifies material required by specifications/drawings.	N/A	
3.3	Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A	
3.4	Ensure weld data report is traceable to component.	N/A	
4.0	Nondestructive Examination Reports:		
4.1	Verify NDT required by code/specification was performed.	N/A	
4.2	Review NDT reports as to acceptance criteria, quantities tested, etc.	N/A	
4.3	Verify reports are traceable to item(s).	N/A	
4.4	Physically review random sample of film on weldments, if applicable.	N/A	

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-18 SUPPLIER DeLaval Industries EVALUATOR J. R. Orlando  
 A.E.O. # 11960 LOCATION Oakland, California DATE 3/5/81  
 COMPONENT Misc. ASME Section III Class 3 Component Support and Pipe (See page 1 for list of items)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	N/A	
	5.2 Verify applicable test data is traceable to component and quantities compatible.	N/A	
6.0	Verify that the requirements of Code Case N242 have been met. This code case was imposed on this order by Bechtel SDDR 1464 dated 9/12/79.	Observation	<p>Paragraph 6.0 of Code Case N242 has been met. Paragraph 6.0 of Code Code N242 requires that the case be indicated on the appropriate data report. This was not accomplished on code data reports for items 1 through 8 and 13. All other data reports of sample were revised.</p> <p>It should be noted that the requirements of the code case apply since the applicable specification appendix A, Section 6.0 imposes requirements of NF-2000 which in turn imposes NA-3700 for such supports.</p> <p>NOTE: Only a sample of items from this order were selected. Therefore, it can be assumed that additional data reports are present.</p> <p>See 3.3 D) of Task C-3. Code Case N242 deficiencies is being covered by ongoing Bechtel review.</p>

## DOCUMENT REVIEW

PURCHASE ORDER # M-18-3 SUPPLIER Transamerica - Delaval EVALUATOR J. R. Orlando  
 A.E.O. # 7923 LOCATION Oakland, CA DATE 3/5/81  
 COMPONENT (Emergency) Diesel Engine S/N 77002-2883

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory Satisfactory Satisfactory	MTR's & CMTR's for the following engine components were reviewed: Engine Base, Crankshaft, Crackcase, Engine Block Cylinder Head, Master Rod Pistons, Link Rod Pistons, Link Rods, Rods & Boxes, Flywheel. A random sample was selected. All material was traceable between MTR/CMTR's and Inspection & Test Data.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	Satisfactory Satisfactory	Finish Coat and Primer Certificate was present in the package.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A ↓	

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-18-3                      SUPPLIER Transamerica - Delaval                      EVALUATOR J. R. Orlando  
 A.E.O. # 7923    LOCATION Oakland, California                      DATE 3/5/81  
 COMPONENT (Emergency) Diesel Engine S/N 77002-2883

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.4 Ensure weld data report is traceable to component.	N/A	
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	Satisfactory	NDT reports for engine component parts were reviewed.
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	a) Magnetic particle inspection report for the engine crankshaft P/N 02310-05-AG references ASTM A456-64 as the acceptance code. However, the applicable Delaval Crankshaft Forging Specification requires MT acceptance to A456-71. A copy of the 1964 edition was not available for comparison. The 1971 edition does not state that the 1964 was revised for the 1971 edition. Susequent review noted no requirement differences. b) The above MT report reflects that a "Wet" method was utilized in the performance of the MT. This is contrary to the requirements of Section 11.3 (c) of the Bechtel specification which requires the use of a "Dry" method.
	4.3 Verify reports are traceable to item(s).	Satisfactory	All reports are traceable by means of part number and/or heat number.
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-18-3 SUPPLIER Transamerica - Delaval EVALUATOR J. R. Orlando  
A.E.O. # 7923 LOCATION Oakland, California DATE 3/5/81  
COMPONENT (Emergency) Diesel Engine S/N 77002-2883

ITEM	CHARACTERISTICS	RESULTS	REMARKS
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	See Comment	a) Pressure Test Certifications for engine blocks IA5001 and IA5002 were reviewed. It was observed that these test reports did not reflect the applicable test procedures or specifications. b) The package index noted that the engine qualification test had previously been submitted to Bechtel and could be found under Bechtel Log #7220-M-18-374. c) Delaval report of engine shop testing was reviewed with the following comments: All test and inspection reports were found satisfactory
	5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	Refer to above comment on 5.1c.

# DOCUMENT REVIEW

PURCHASE ORDER # M-51AC      SUPPLIER Yuba Heat      EVALUATOR T. J. Marcella  
 A.E.O. # 1343      LOCATION Tulsa, Oklahoma      DATE 3/10/81  
 COMPONENT Heat Exchangers - Cooling

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	OK	CMTR's on applicable material, filler rod available.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	OK	Verified various ASME CMTR's.
	1.3 Ensure material is traceable to MTR/CMTR.	OK	"Yuba case no." referenced on CMTR utilized for traceability
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	OK	HT certifications available. No coating data reports available; however, it was covered in component C of C.
	2.2 Ensure process reports are traceable to component.	OK	"Yuba case no." referenced on CMTR utilized for traceability
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	OK	Weld or qualification data references weld procedures.
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	OK	Weld procedure specifies design requirements.
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	OK	ASME form E-19 utilized and available.
	3.4 Ensure weld data report is traceable to component.	OK	

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-51AC

SUPPLIER Yuba Heat

EVALUATOR T. J. Marcella

A.E.O. # 1343

LOCATION Tulsa, Oklahoma

DATE 3/6/81

COMPONENT Heat Exchangers - Cooling

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports:		
4.1	Verify NDI required by code/specification was performed.	OK	UT, eddy current, PT and X-ray data available. See Part II of Section C-3 of report for additional X-ray evaluation. Acceptance criteria to applicable process is available. Job number is utilized to assure traceability. No film available at Ann Arbor.
4.2	Review NDI reports as to acceptance criteria, quantities tested, etc.	OK	
4.3	Verify reports are traceable to item(s).	OK	
4.4	Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/functional):		
5.1	Review random sample of applicable tests required by code/specification to ensure compliance.	OK	Hydro/pneumatic tests performed on installed tubes.
5.2	Verify applicable test data is traceable to component and quantities compatible.	OK	Air-soap test of tube welds and halogen leak test tube welds documented on applicable shop travellers.
			<u>COMMENTS:</u> A) Ref. Technical Specification for component cooling heat exchangers Section II, page 2, paragraph 1.2: "The stds. and specs., latest editions including addenda of the following agencies (ASME Section III is inclusive) shall apply to the design, construction and conformance of the equipment supplied to this specification.



# DOCUMENT REVIEW continued

PURCHASE ORDER # M-51AC

SUPPLIER Yuba Heat

EVALUATOR T. J. Marcella

A.E.O. # 1343

LOCATION Tulsa, Oklahoma

DATE 3/6/81

COMPONENT Heat Exchangers - Cooling

ITEM	CHARACTERISTICS	RESULTS	REMARKS
			<p><u>COMMENTS (CONTINUED)</u></p> <p>B) Documentation index not available.</p> <p>C) Purchase order award date was 2/5/74. N-1 data reports specify '71 edition '73 summer addenda.</p> <p>D) Form G321-D requested test reports, which coating data is considered to be weld data form, is also not available.</p>

# DOCUMENT REVIEW

PURCHASE ORDER # M-51Q      SUPPLIER Yuba Heat      EVALUATOR T. J. Marcella  
 A.E.O. # 1556      LOCATION Tulsa, Oklahoma      DATE 3/6/81  
 COMPONENT Cooling Heat Exchanger, 3 packages

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	OK	CMTR's pertaining to material, filler rod, HT, etc. are available.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	OK	ASME material SA-516-70 reviewed.
	1.3 Ensure material is traceable to MTR/CMTR.	OK	"Yuba case no." assigned to each CMTR is utilized for traceability.
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	OK	Heat treat certs/data reviewed. No evidence of coating data in the package.
	2.2 Ensure process reports are traceable to component.	OK	"Yuba case no." assigned to each CMTR/process report for traceability to applicable documentation.
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	OK	Procedure YA-3085 utilized on tube. MIC procedure MIG-F36 overlay metal arc - MW-p8-F5.
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	OK	Each weld procedure submitted references material requirement.
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	OK	ASME form E-19 utilized for weldor control - very good form
	3.4 Ensure weld data report is traceable to component.	OK	Weld data report is not available.

# DOCUMENT REVIEW continued

PURCHASE ORDER #           M-51Q                SUPPLIER           Yuba Heat                EVALUATOR           T. J. Marcella            
 A.E.O. #           1556                LOCATION           Tulsa, Oklahoma                DATE           3/6/81            
 COMPONENT           Cooling Heat Exchanger, 3 packages          

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	OK  OK  OK  N/A	UT, eddy current, PT and X-ray data available. See Part II of Section C-3 of report for additional X-ray information.  Acceptance criteria to applicable process is available.  Job number is utilized to assure traceability.  No film available at Ann Arbor.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	OK  OK	Hydro/pneumatic tests performed on installed tubes.  Air-soap test of tube welds and halogen leak test tube welds documented on applicable shop travellers.  <u>COMMENT:</u> A) Ref. Technical Specification for component cooling heat exchangers Section II, page 2, paragraph 1.2: "The stds. and specs., latest editions including addenda of the following agencies (ASME Section III is inclusive) shall apply to the design, construction and conformance of the equipment supplied to this specification.

# DOCUMENT REVIEW continued

PURCHASE ORDER #           M-51Q                SUPPLIER           Yuba Heat                EVALUATOR           T. J. Marcella            
 A.E.O. #           1556                LOCATION           Tulsa, Oklahoma                DATE           3/6/81            
 COMPONENT           Cooling Heat Exchanger, 3 packages          

ITEM	CHARACTERISTICS	RESULTS	REMARKS
			<p><u>COMMENT</u>      (CONTINUED)</p> <p>B) Documentation index not available.</p> <p>C) Purchase order award date was 2/5/74. N-1 data reports specify '71 edition '73 summer addenda.</p> <p>D) Form G321-D requested test reports, which coating data is considered to be weld data form, is also not available.</p>

# DOCUMENT REVIEW

PURCHASE ORDER # M-56AC      SUPPLIER Goulds Pumps, Inc.      EVALUATOR R. E. Herbst  
 A.E.O. # 8090      LOCATION Seneca Falls, New York      DATE 3/6/81  
 COMPONENT Spent Fuel Pool Pumps (s) Tag No. OP-76A & B

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory Satisfactory *See Note Satisfactory	Reviewed one data package. Index and page numbering satisfactory. Applicable reports for all castings, bedplate bolting and misc. parts are traceable to the NPV-1 and Pump No. - All included in package. Verified MTR's for pump casing, cover bearing frame, barstock, shaft material and studs. Chemicals and physicals were in accordance with specification/code. *Note: MTR's did not reflect compliance to NA-3700/NCA-3800. As-built material list on NPV-1 traceable to each MTR/CMTR.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	Satisfactory Satisfactory	Verified that normalizing and tempering of pump parts were in accordance with code and solution annealing of stainless steel. Coating/painting and cleaning process reports are included in C of C. Heat treat records were traceable to a unique number.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings.	N/A N/A	Bechtel's approval of weld procedures not in data package or P.O. file. Unable to verify.

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-56AC      SUPPLIER Goulds Pumps, Inc.      EVALUATOR R. E. Herbst  
 A.E.O. # 8090      LOCATION Seneca Falls, New York      DATE 3/6/81  
 COMPONENT Spent Fuel Pool Pumps (2) Tag No. OP-76A & B

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A	Unable to verify.
	3.4 Ensure weld data report is traceable to component.	Satisfactory	Gould's welding ticket record denotes all essential variables and is traceable to each part and/or component.
4.0	<b>Nondestructive Examination Reports:</b>		
	4.1 Verify NDT required by code/specification was performed.	Satisfactory	MT of welds performed by Gould and PT of repairs made by Gould's material suppliers were performed as required.
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	MT and PT reports contained all required information including SNT levels.
	4.3 Verify reports are traceable to item(s).	Satisfactory	All reports were traceable to part and/or component numbers
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	No RT on these two pumps.
5.0	<b>Operational Test Reports (Hydrostatic, Pneumatic/Functional):</b>		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	Satisfactory	Verified hydros, info on test log sheets and commercial test reports for the two motors.
	5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	All test reports were traceable to each pump serial number.

# DOCUMENT REVIEW

PURCHASE ORDER # M-56AC      SUPPLIER Goulds Pumps, Inc.      EVALUATOR R. E. Herbst  
 A.E.O. # 9132      LOCATION Seneca Falls, New York      DATE 3/10/81  
 COMPONENT Safeguard Chilled Water Pump (1) Tag. No. 2-VP-02C

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory Satisfactory *See Note Satisfactory	Reviewed one data package. Index and page numbering satisfactory. Applicable reports for all parts denoted on the NPV-1 included. Verified MTR's for pump casing, cover, bearing frame and weld materials. *Note: Most of the MTR's did not reflect compliance to NA-3700/NCA-3800. Each part number was traceable to each MTR.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	Satisfactory Satisfactory	Verified all heat treat charts were in accordance with specification/code. Cleaning and coating process reports are included in the C of C. Heat treat charts were traceable to a unique part/assembly number.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A N/A N/A	Unable to verify in document package. Unable to verify. Unable to verify.

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-56AC      SUPPLIER Goulds Pumps, Inc.      EVALUATOR R. E. Herbst  
 A.E.O. # 9132      LOCATION Seneca Falls, New York      DATE 3/10/81  
 COMPONENT Safeguard Chilled Water Pump (1) Tag No. 2-VP-02C

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.4 Ensure weld data report is traceable to component.	Satisfactory	Gould's welding ticket record denotes all essential variables and is traceable to each part and/or assembly.
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	Satisfactory	MT and PT was performed and documented as required by code/specification.
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	NDE reports contained all required information including SNT levels.
	4.3 Verify reports are traceable to item(s).	Satisfactory	Reports were traceable to parts and/or component.
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	No RT on this pump.
5.0	Operational Test Reports (Hydrostatic, Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	Satisfactory	Verified hydro tests, information on test log sheets and motor test reports.
	5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	All test reports were traceable to the pump serial numbers.



## DOCUMENT REVIEW

PURCHASE ORDER # M-104ASUPPLIER ITT GrinnellEVALUATOR T. J. MarcellaA.E.O. # 3308LOCATION Kernersville, North CarolinaDATE 2/26/81COMPONENT Piping, Schedule #160

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	OK	
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	OK	ASME material testing certified to 1971 Edition 1971 Addendum. S/B 1974 Edition - Ref. Peabody UT Report dated 3-31-77. ASME material certified to 1971 Edition 1973 Winter Addendum. Certification dated 5 April 1977 which meets P.O. requirements.
	1.3 Ensure material is traceable to MTR/CMTR.	OK	
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	OK	1) Material pickled & passivated - to 1971 ASME Edition, 1971 Addendum. 2) Intergranular test per ASTM A-262 S/B '71 Edition Winter '73 Addenda which is acceptable.
	2.2 Ensure process reports are traceable to component.	OK	
3.0	Welding Records:	N/A	Schedule #160 Piping.
	3.1 Ensure approved weld procedure was utilized.	↓	
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.		
	3.3 Verify welder qualification covers weld process utilized		

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-104A      SUPPLIER ITI Grinnell      EVALUATOR T. J. Marcella  
 A.E.O. # 3308      LOCATION Kernersville, North Carolina      DATE 2/26/81  
 COMPONENT Piping, Schedule #160

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.4 Ensure weld data report is traceable to component.	N/A	
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	OK	U.T. certified to ASME 1971 Edition 1971 Addendum, S/B 1974 Edition.
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	OK	
	4.3 Verify reports are traceable to item(s).	OK	
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	N/A	
	5.2 Verify applicable test data is traceable to component and quantities compatible.	N/A	

# DOCUMENT REVIEW

PURCHASE ORDER # M-104-3      SUPPLIER ITT Grinnell      EVALUATOR T. J. Marcella  
 A.E.O. # 8957      LOCATION Kernersville,      DATE 2/26/81  
 COMPONENT Piping 2 1/2 Schedule 1604      North Carolina

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
1.1	Verify applicable reports are in data package.	OK	
1.2	Random sample MTR/CMTR reports to ensure specification/code requirements.	Finding	1) Chemical, physical tests, bright annealing, hydro & UT certifications in accordance with Summer '71 Addenda (Ref. KER 13652-M).  2) Cert. #178601D, chemical cert., NI is 17.40 S/B 10.0-14.0; Heat HHH61i; CR is 13.37 S/B 16.0-18; Heat HHH 128, NI is 17.58, S/B 10.0-14.0, CR is 12.52, S/B 16.0-18.0.
1.3	Ensure material is traceable to MTR/CMTR.	OK	
2.0	Special Process Reports:		
2.1	Verify heat treat, coating, etc. reports meet code/specification requirements.	See Item 1.2, above.	Same as Item 1.2, above. Solution heat treat.
2.2	Ensure process reports are traceable to component.	OK	
3.0	Welding Records:		
3.1	Ensure approved weld procedure was utilized.	N/A	
3.2	Verify approved weld procedure specifies material required by specifications/drawings.	↓	

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-104-3      SUPPLIER ITT Grinnell      EVALUATOR J. J. Marcella  
 A.E.O. # 8957      LOCATION Kernersville,      DATE 2/26/81  
 COMPONENT Piping 2 1/2 Schedule 1604      North Carolina

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.).	N/A	
	3.4 Ensure weld data report is traceable to component.	↓	
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	OK	UT & LP certifications acceptable.
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	OK	
	4.3 Verify reports are traceable to item(s).	OK	
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	N/A	
	5.2 Verify applicable test data is traceable to component and quantities compatible.	N/A	

# DOCUMENT REVIEW : continued

PURCHASE ORDER # M-104-3      SUPPLIER ITT Grinnell      EVALUATOR T. J. Marcella  
 A.E.O. # 8957      LOCATION Kernersville, North Carolina      DATE 2/26/81  
 COMPONENT Piping 2½ Schedule 1604

ITEM	CHARACTERISTICS	RESULTS	REMARKS																				
			<p><u>GENERAL COMMENT</u></p> <p>Chemical certification of ASME material - CMTR 78601D specified:</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Lot</u></th> <th style="text-align: left;"><u>Chemical</u></th> <th style="text-align: left;"><u>Was</u></th> <th style="text-align: left;"><u>Should be</u></th> </tr> </thead> <tbody> <tr> <td>III611</td> <td>CR</td> <td>13.37</td> <td>16.0-18.0</td> </tr> <tr> <td></td> <td>NI</td> <td>17.40</td> <td>10.0-14.0</td> </tr> <tr> <td>III129</td> <td>NI</td> <td>17.58</td> <td>10.0-14.0</td> </tr> <tr> <td></td> <td>CR</td> <td>12.52</td> <td>16.0-18.0</td> </tr> </tbody> </table>	<u>Lot</u>	<u>Chemical</u>	<u>Was</u>	<u>Should be</u>	III611	CR	13.37	16.0-18.0		NI	17.40	10.0-14.0	III129	NI	17.58	10.0-14.0		CR	12.52	16.0-18.0
<u>Lot</u>	<u>Chemical</u>	<u>Was</u>	<u>Should be</u>																				
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	NI	17.40	10.0-14.0																				
III129	NI	17.58	10.0-14.0																				
	CR	12.52	16.0-18.0																				

# DOCUMENT REVIEW

PURCHASE ORDER # M-112AC, Rev. 2 SUPPLIER Temp Flex EVALUATOR R. E. Herbst  
 A.E.O. # 3427 LOCATION Compton, CA DATE 3/3/81  
 COMPONENT Metal Expansion Joints (4) - 2 for Unit 1; 2 for Unit 2

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		Reviewed S/N's J-0458, J-0459, J-0460 & J-0461 - Four (4) Document Packages.
1.1	Verify applicable reports are in data package.	Satisfactory	All CMTRs and material Certificates of Conformance are recorded on Shop Travelers and included in Document Packages.
1.2	Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory *	Reviewed approximately 10% of CMTRs for chemicals and physicals. *None of the CMTRs contain the Material Supplier's Cert. No. and Date or a certifying statement to the code as required by NA-3700.
1.3	Ensure material is traceable to MTR/CMTR.	Satisfactory	CMTRs and Material Certificates of Conformance unique numbers are recorded on Shop Travelers.
2.0	Special Process Reports:		
2.1	Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Cleaning & annealing procedures are specified on Shop Travelers, signed off by operators and approved by QC.
2.2	Ensure process reports are traceable to component.	Satisfactory	Traceable to each Expansion Joint S/N.
3.0	Welding Records:		
3.1	Ensure approved weld procedure was utilized.	N/A	Temp Flex - Certificate of Compliance certifies that all welding was in accord with Section III and IX of the Code.
3.2	Verify approved weld procedure specifies material required by specifications/drawings.	N/A	
3.3	Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A	

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-112AC, Rev. 2      SUPPLIER Temp Flex      EVALUATOR R. E. Herbst  
 A.E.O. # 3427      LOCATION Compton, CA      DATE 3/3/81  
 COMPONENT Metal Expansion Joints (4) - 2 for Unit 1; 2 for Unit 2

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.4 Ensure weld data report is traceable to component.	N/A	
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	Satisfactory	PT of all welds was performed as required by code/specification. Recorded on traveler and PT test report.
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	PT reports all contained required information, performed by Level II inspectors and approved by QC Mgr. & Bechtel QC.
	4.3 Verify reports are traceable to item(s).	Satisfactory	All reports traceable to each assembly S/N and weld joint number.
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	No RT on these assemblies.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	Satisfactory	Hydro tests performed at 80 psig and 130 psig and held for 10 minutes as required by specification and code.
	5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	Test reports are traceable and identified to each Expansion Joint Serial Number.

## DOCUMENT REVIEW

PURCHASE ORDER # M-115-3SUPPLIER M. W. Kellogg CompanyEVALUATOR R. E. HerbstA.E.O. # 339LOCATION Williamsport, PA.DATE 3/11/81COMPONENT Containment Spray Piping (3 Assemblies) - Control Nos. 17, 34, 37

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory Satisfactory * Satisfactory	Reviewed three (3) Document Packages.  All reports for the material specified on the As-Built Material Drawings are included in the package. Reviewed material for pipe, reducers and threadoletts to SA-312, 182 and 403 type 304. All chemicals and physicals were satisfactory. *NOTE: MTRs did not reflect compliance to NA-370C. Traceability is maintained on the as-built drawings.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	N/A N/A	No heat treat or special process reports on these pipe spools.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	Satisfactory Satisfactory	Customer approved procedures are listed on the Weld History Record for each pipe spool. Weld History Record includes type, size, and heat or lot number.  Unable to verify.



# DOCUMENT REVIEW continued

PURCHASE ORDER # M-115-3      SUPPLIER M. W. Kellogg Company      EVALUATOR R. E. Herbst  
 A.E.O. # 339      LOCATION Williamsport, PA.      DATE 3/11/81  
 COMPONENT Containment Spray Piping (3 Assemblies) - Control Nos. 17, 34, 37

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.4 Ensure weld data report is traceable to component.	Satisfactory	Weld History Record denotes Pipe Spool No.
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	Satisfactory	PT and RT as required by Code/Specification were performed and recorded.
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	PT and RT reports included all required data. See Part II of Section C-3 of report for detailed radiography evaluation
	4.3 Verify reports are traceable to item(s).	Satisfactory	Reports were traceable to each Spool No.
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	Film at Site.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	N/A	Final hydro test and acceptance to be performed after installation at the site.
	5.2 Verify applicable test data is traceable to component and quantities compatible.	N/A	<p><u>Comment</u>                      These packages were all complete and well organized. Legibility was satisfactory.</p> <p>All three NPP-1 Data Reports specified the ASME Code as the 1971 Edition W/Add. Summer 1973. - Why doesn't this piping material require Winter 1973 Addenda?</p>

# DOCUMENT REVIEW

PURCHASE ORDER # M-118A

SUPPLIER Energy Products Group  
Fluid System Division

EVALUATOR J. R. Orlando

A.E.O. # 6183

LOCATION Warwick, Rhode Island

DATE 2/27/81

COMPONENT 28" 1600# Main Steam Isolation Valve

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	Satisfactory	A check was completed to ensure that all records required by Bechtel G321-D form were included.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	See Comment	See General Comments at end of report.
	1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory	All CMTR's were found traceable to NDT Inspections and test reports.
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Heat treat charts and reports were reviewed.
	2.2 Ensure process reports are traceable to component.	Satisfactory	NDT and heat treat reports were found traceable to pressure boundary parts.
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	N/A	
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	N/A	
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	Satisfactory	
	3.4 Ensure weld data report is traceable to component.	Satisfactory	All weld data and repair reports were traceable.

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-118A

SUPPLIER Energy Products Group

EVALUATOR J. R. Orlando

A.E.O. # 6183

LOCATION Warwick, Rhode Island

DATE 2/27/81

COMPONENT 28" 1600# Main Steam Isolation Valve

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports:		
4.1	Verify NDT required by code/specification was performed.	Satisfactory	RT and LPT was checked for pressure boundary parts.
4.2	Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	Checked for all pressure boundary parts including bonnet, body, reducer, ball, spools and seal retainer.
4.3	Verify reports are traceable to item(s).	Satisfactory	All NDT reports were found traceable to the parts by heat and part numbers.
4.4	Physically review random sample of film on weldments, if applicable.	N/A	Not available at site.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
5.1	Review random sample of applicable tests required by code/specification to ensure compliance.	Satisfactory	Hydro test, seat leakage and valve and actuator cycle test records were reviewed.
5.2	Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	Checked above test data.

## DOCUMENT REVIEW continued

PURCHASE ORDER # M-118A      SUPPLIER Energy Products Group      EVALUATOR J. R. Orlando  
 A.E.O. # 6183      LOCATION Warwick, Rhode Island      DATE 2/27/81  
 COMPONENT 28" 1600# Main Steam Isolation Valve

ITEM	CHARACTERISTICS	RESULTS	REMARKS
			<p><u>GENERAL COMMENTS</u></p> <p>Reference Item 1.2:</p> <p>A) All CMTR for pressure boundary parts and a random sample of filler material certifications were reviewed for chemical and physical content and found satisfactory. A further review of all CMTR in the package noted that the following did not reference the proper code year as required by specification 7220-M-118(Q).</p> <p>1) Valve "Spool" HT #D637, D638 and D648 were manufactured in accordance with ASME Section III 1971 through winter 1973 addenda.</p> <p>2) Valve "Seal Retainer" HT #138756 same as 1) above. The applicable Spec. 7220-M-118(Q) clearly requires that materials be supplied to Section III 1974 edition.</p> <p>B) EPG CMTR for the valve "Body" forging and all EPG weld material upgrades do not specify year of ASME Section III code that material was supplied and or upgraded to.</p> <p>C) A review of the NPV-1 "Manufacturing Code Data Report" noted that the valve was manufactured utilizing an additional code case (1787, dated 9/10/76) then allowed by the spec. (The code case deals with allowable depths of weld repairs in forgings).</p>

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-118A

SUPPLIER Energy Products Group

EVALUATOR J. R. Orlando

A.E.O. # 6183

LOCATION Warwick, Rhode Island

DATE 2/27/81

COMPONENT 28" 1600# Main Steam Isolation Valve

ITEM	CHARACTERISTICS	RESULTS	REMARKS
			<p><u>GENERAL COMMENTS (CONTINUED)</u></p> <p>Comment on Item 1.2A:</p> <p>D) CMTR for Bonnet material Heat #214480 has no reference to ASME Section III.</p> <p>E) Certification of Ball materials is to ASME Section III 1971 through winter 1973 addenda. It should be 1974, no addenda. Refer HT #2288.</p>

## DOCUMENT REVIEW

PURCHASE ORDER # M-118A

SUPPLIER Energy Products Group  
Fluid System Division

EVALUATOR J. R. Orlando

A.E.O. # 8743

LOCATION Warwick, Rhode Island

DATE 2/26/81

COMPONENT 28" 900# Main Steam Isolation Valve

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory See Comment Satisfactory	All QA records required by Bechtel Engineering and Quality Verification Doc. Req'ts. Form G321-D were found in pkg. See General Comments at end of report. CMTR for all pressure boundary parts were checked for traceability.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	Satisfactory Satisfactory	A random sampling of heat treating certifications and charts were reviewed. NDE and heat treat reports were found traceable to pressure boundary parts.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.	N/A N/A See Comment Satisfactory	Could not be verified. Could not be verified. EPG had a general certification in package stating welders were qualified to ASME Section 9. No year or addenda was noted.

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-118A

SUPPLIER Energy Products Group

EVALUATOR J. R. Orlando

A.E.O. # 8743

LOCATION Warwick, Rhode Island

DATE 2/26/81

COMPONENT 28" 900# Main Steam Isolation Valve

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	Satisfactory  See Comment  Satisfactory  See Comment	Checked for body and bonnet.  A complete review could not be accomplished since vendor NDT procedures were not available. However, visual review of reports appear to indicate documents are in order.  Sample to be checked at site.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory  Satisfactory	Hydro test, seat leak and valve and actuator cycle test records were reviewed.  Checked above test data.

## DOCUMENT REVIEW continued

PURCHASE ORDER # M-118A SUPPLIER Energy Products Group EVALUATOR J. R. Orlando  
 A.E.O. # 8743 LOCATION Warwick, Rhode Island DATE 2/26/81  
 COMPONENT 28" 900# Main Steam Isolation Valve

ITEM	CHARACTERISTICS	RESULTS	REMARKS
			<p><u>GENERAL COMMENTS</u></p> <p>Reference Item 1.2:</p> <p>A) All CMTR for pressure boundary parts and a random sample of filler material certifications were reviewed for chemical and physical content and found satisfactory. A further review of all CMTR in the package noted that the following did not reference the proper code year as required by specification 7220-M-118(Q).</p> <p>1) Valve "Spool" HT #D637, D638 and D648 were manufactured in accordance with ASME Section III 1971 through winter 1973 addenda.</p> <p>2) Valve "Seal Retainer" HT #138756 same as 1) above. The applicable Spec. 7220-M-118(Q) clearly requires that materials be supplied to Section III 1974 edition.</p> <p>B) EPG CMTR for the valve "Body" forging and all EPG weld material upgrades do not specify year of ASME Section III code that material was supplied and or upgraded to.</p> <p>C) A review of the NPV-1 "Manufacturing Code Data Report" noted that the valve was manufactured utilizing an additional code case (1787, dated 9/10/76) then allowed by the spec. (The code case deals with allowable depths of weld repairs in forgings. I could not obtain a copy of the CC for review at this time.) The Bechtel Spec. Appendix A1, para. A1.28 clearly states that only Code Case 1332-6 is approved (with 1974 code edition) for construction of the valves under this specification. No Bechtel Engineering approval of the additional CC could be located.</p>



# DOCUMENT REVIEW continued

PURCHASE ORDER # M-118A                      SUPPLIER Energy Products Group                      EVALUATOR J. R. Orlando  
 A.E.O. # 8743                                      LOCATION Warwick, Rhode Island                      DATE 2/26/81  
 COMPONENT 28" 900# Main Steam Isolation Valve

ITEM	CHARACTERISTICS	RESULTS	REMARKS
			<p><u>GENERAL COMMENTS (CONTINUED)</u></p> <p>Comment on Item 1.2A:</p> <p>This was a serious problem on the STP project that warranted close attention of the ASME and NRC. The final fix approved by ASME and agreed by NRC was that all deviations from the specified code years and addendas will be reviewed and approved by the Engineer on an individual basis. Such reviews and acceptance would be documented. I have requested a copy of a letter from the STP Project that was received from ASME.</p> <p>D) CMTR for Bonnet material Heat #214480 has no reference to ASME Section III. No other certifications available for upgrading material in the package.</p> <p>E) Certification of Ball materials is to ASME Section III 1971 through winter 1973 addenda. It should be 1974 no addenda. Refer HT# 2288.</p> <p>F) See Section C-3, Part II, of report for detail data on radiography evaluation.</p>

## DOCUMENT REVIEW

PURCHASE ORDER # M-118BCSUPPLIER Rockwell InternationalEVALUATOR J. M. NorrisA.E.O. # 3390LOCATION Raleigh, NCDATE 3/5/81COMPONENT 18X16X18-612 BJMMTY Ser. Mo-38 - Tag #18" - ELB-Y-GB-2XV-3966 A.R.

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Accept Accept Accept	Per Ht. #.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	Observation	Body CMTR states Heat Treat 1700 <sup>0</sup> F - 10 hrs. Temper 1250 <sup>0</sup> F for 9.5 hrs. Furnace card shows 1250 <sup>0</sup> F for 8 hrs. Bonnet CMTR shows 1700 <sup>0</sup> F Heat Treat for 8 hrs. and Draw at 1250 <sup>0</sup> F 1 hr/inch. Heat treat log shows 16" - furnace card shows 7 hrs. at 1100 <sup>0</sup> . Disk CMTR shows 1700 <sup>0</sup> for 8 hrs. normalize and 1300 <sup>0</sup> for 10 hrs. draw. Furnace card shows 4 hrs. at 1200 <sup>0</sup> F. Check Element CMTR shows 1700 <sup>0</sup> F for 4 hrs. - Draw 1250 <sup>0</sup> for 4 hrs. Furnace card shows 3 hrs. at 1250 <sup>0</sup> F.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized.	Not Identified	

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-118BC      SUPPLIER Rockwell International      EVALUATOR J. M. Norris  
 A.E.O. # 3390      LOCATION Raleigh, NC      DATE 3/5/81  
 COMPONENT 18X16X18-612 BJMMTY Ser. Mo-38 - Tag #18" - ELB-Y-GB-2XV-3966 A.R.

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	Not Identified	
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	Not Identified	
	3.4 Ensure weld data report is traceable to component.	Accept	
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	Accept	RT reports show rejection of vendor films. Re-radiograph by Rockwell shows accept.
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	Accept	
	4.3 Verify reports are traceable to item(s).	Accept	Per Mfr. Ser. #.
	4.4 Physically review random sample of film on weldments, if applicable.		
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	Accept Hydro	
	5.2 Verify applicable test data is traceable to component and quantities compatible.	Accept	Per Tag #.

## DOCUMENT REVIEW

PURCHASE ORDER # M-118BC

SUPPLIER Rockwell International

EVALUATOR J. M. Norris

A.E.O. # 3390

LOCATION Raleigh, NC

DATE 3/5/81

COMPONENT GB-IXV-3866-B-R Ser. #MN 3 Ser. 203

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Accept Accept Accept	Per Mfg. Ser. #.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.  2.2 Ensure process reports are traceable to component.	Observation	Body Per CMTR Heat Treat is 1700 <sup>0</sup> F - 8.5 hrs. normalize & 1250 <sup>0</sup> F 8.0 hrs. Temper furnace card shows 1250 <sup>0</sup> for 5 hours.  Bonnet Per CMTR Heat Treat is 1250 <sup>0</sup> F 1 hr/in for temper. Furnace card shows 5 hours @ 1250 <sup>0</sup> F. Heat Treat Log shows size as 16", billet size shown as 24 7/8".  Check Element Per CMTR heat treat draw is 1250 <sup>0</sup> F for 4 hours. Furnace chart shows 1250 <sup>0</sup> for 3 hours.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized.	Not Identified.	

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-118BC      SUPPLIER Rockwell International      EVALUATOR J. M. Norris  
 A.E.O. # 3390      LOCATION Raleigh, NC      DATE 3/5/81  
 COMPONENT GB-IXV-3866-B-R Ser. #MN 3 Ser. 203

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	Not Identified	
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	Not Identified	
	3.4 Ensure weld data report is traceable to component.	Accept	Per Mfr. Ser. #.
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	Accept	
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	Accept	
	4.3 Verify reports are traceable to item(s).	Accept	Per Mfr. Ser. #.
	4.4 Physically review random sample of film on weldments, if applicable.		
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	Accept	

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-118BC      SUPPLIER Rockwell International      EVALUATOR J. M. Norris  
 A.E.O. # 3390      LOCATION Raleigh, NC      DATE 3/5/81  
 COMPONENT GB-IXV-3866-B-R Ser. #MN 3 Ser. 203

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	5.2 Verify applicable test data is traceable to component and quantities compatible.	Accept	Per Tag #.  <u>Comment:</u> See Section II of C-3 of this report for detail data on radiography evaluation.

## DOCUMENT REVIEW

PURCHASE ORDER # M-118BC SUPPLIER Rockwell International EVALUATOR: J. M. Norris  
 A.E.O. # 3390 LOCATION Raleigh, NC DATE 3/5/81  
 COMPONENT Valve Ser. MM-12, 18" X 18" - Balanced Disk Stop Valve Ser. #209

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Accept	Data report does not reference weld repairs nor weld build-up of thin spot.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Accept	<u>Body</u> Furnace card shows 7 hrs. @1250 <sup>0</sup> F - Charge #3212. Reqt. for temper is 10 hrs. @1250 <sup>0</sup> F. There are no charts for normalizing.  <u>Bonnet</u> Furnace card shows 4 hours @1250 <sup>0</sup> F for tempering. Reqt. is 1 hr. per inch of diameter. Billet is 24 7/8".  <u>Check Element</u> Reqt. for normalize 1700 <sup>0</sup> F - 4 hrs. Temper - 1250 <sup>0</sup> F - 4 hrs. Furnace card shows 1200 <sup>0</sup> F for 3 hrs. - Charge 878
3.0	Welding Records: 3.1 Ensure approved weld procedure	Accept	

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-118BC      SUPPLIER Rockwell International      EVALUATOR/ J. M. Norris  
 A.E.O. # 3390      LOCATION Raleigh, NC      DATE 3/5/81  
 COMPONENT Valve Ser. MM-12, 18" X 18" - Balanced Disk Stop Valve Ser. #209

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	Accept	
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	Accept	
	3.4 Ensure weld data report is traceable to component.	Accept	
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	Accept	
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	Accept	Weld repairs made per RT reports dated 1/18/77, 4/8/77.
	4.3 Verify reports are traceable to item(s).	Accept	Per Mfr. Ser. #.
	4.4 Physically review random sample of film on weldments, if applicable.	Accept	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	Accept	
	5.2 Verify applicable test data is traceable to component and quantities compatible.	Accept	Per Tag #.



## DOCUMENT REVIEW

PURCHASE ORDER # M-118BC SUPPLIER Rockwell International EVALUATOR J. M. Norris  
 A.E.O. # 3390 LOCATION Raleigh, NC DATE 3/5/81  
 COMPONENT Valves, 18" X 18" ELB600#, Ser. #207

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Accept    Accept	MTR 1971 - 1973 Summer Addenda.  CMTR ASME SA-216 meets chemistry; it does not include radiographic results or repairs. These are available in data package.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.          2.2 Ensure process reports are traceable to MTR/CMTR.	Accept See remarks.          Accept	Body Heat Tr. Req. per CMTR states 1700 <sup>0</sup> F 10 hrs. Normalize 1250 <sup>0</sup> F for 9.5 hrs. Temper furnace cards furnished show only 1200 <sup>0</sup> F for 7 hrs. and 4 hrs. respectively, charts for Charge #3215 and 3250.  Bonnet Heat Tr. Req. per CMTR 1700 <sup>0</sup> F - 8 hrs. Temper 1250 <sup>0</sup> F 1 hr. & account. Furnace chart shows 1300 <sup>0</sup> for 6 hrs. Charge 3167.  Check Element Ht. reqt. per CMTR 1700 <sup>0</sup> F - 4 hrs. Temper 1250 <sup>0</sup> F for 4 hrs. Furnace card charge 878 shows 1250 <sup>0</sup> 3 hrs.  Desk Heat Tr. Req. per CMTR 1700 <sup>0</sup> for 8 hrs. Drawn at 1300 <sup>0</sup> F for 10 hrs. Furnace card shows 1200 <sup>0</sup> for 8 1/2 hrs.

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-1188C      SUPPLIER Rockwell International      EVALUATOR J. M. Norris  
 A.E.O. # 3390      LOCATION Raleigh, NC      DATE 3/5/81  
 COMPONENT Valves, 18" X 18" ELB600#, Ser. #207

ITEM	CHARACTERISTICS	RESULTS	REMARKS
3.0	Welding Records:		
3.1	Ensure approved weld procedure was utilized.	Observation	Weld reports do not indicate whether weld repair procedures are approved. Welders are identified by name, but nothing in file relates to qualification.
3.2	Verify approved weld procedure specifies material required by specifications/drawings.	N/A	
3.3	Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A	
3.4	Ensure weld data report is traceable to component.	Accept	
4.0	Nondestructive Examination Reports:		
4.1	Verify NDT required by code/specification was performed.	Accept	RT Report 9-9-76, Ser. #207 shows RT film reject locations, 1, 7-9, 9-10 surf. blend & accept 10-21-76. RT Report dated 4-26-76 showed defects areas #1, 4-6, 6-7, 9-10, #1A, 4-6, 7-9, 9-10 and refers to Inspection Report dated 9/28/76 - such is not in file.
4.2	Review NDT reports as to acceptance criteria, quantities tested, etc.	Accept	
4.3	Verify reports are traceable to item(s).	Accept	
4.4	Physically review random sample of film on weldments, if applicable.	Accept	

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-118BC      SUPPLIER Rockwell International      EVALUATOR J. M. Norris  
 A.E.O. # 3390      LOCATION Raleigh, NC      DATE 3/5/81  
 COMPONENT Valves, 18" X 18" ELB600#, Ser. #207

ITEM	CHARACTERISTICS	RESULTS	REMARKS
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	Accept	
	5.2 Verify applicable test data is traceable to component and quantities compatible.	Accept	
			<p><u>Comment:</u> See Part II of Section C-3 for detail radiographic evaluation data.</p>

## DOCUMENT REVIEW

PURCHASE ORDER # M-127A SUPPLIER Kerotest Manufacturing Corp. EVALUATOR R. E. Herbst  
 A.E.O. # 5580 & 11644 LOCATION Pittsburgh, PA. DATE 3/11/81  
 COMPONENT Check & Globe Valves (4) & (4) - S/Ns WGI-3, 4, 5 & 7 & S/Ns XA43-5, 14, 15 & 21

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory Satisfactory * Satisfactory	Reviewed two (2) Document Packages.  All required MTRs are in Document Packages.  Reviewed SA-105 for Body & Bonnets; & SA-479 for Disc. Assy - all satisfactory. - Mechanicals & Physicals *NOTE: None of the MTRs reflect compliance with NA-3700/NC-3800.  Traceable to each part and/or valve assembly.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	N/A Satisfactory	No heat treat performed and painting was certified by Kerotest in accordance with their approved procedure & materials.  Certificate of Conformance traceable to Valve S/Ns.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A N/A N/A	Unable to verify in Document Package.  Unable to verify in Document Package.  Kerotest certifies welders for seal welds and hardfacing on their Certificate of Conformance.

## DOCUMENT REVIEW continued

PURCHASE ORDER # M-127A SUPPLIER Kerotest Manufacturing Corp. EVALUATOR R. E. Herbst  
 A.E.O. # 5580 & 11644 LOCATION Pittsburgh, PA. DATE 3/11/81  
 COMPONENT Check & Globe Valves (4) & (4) - S/Ns WG1-3, 4, 5 & 7 & S/Ns XA43-5, 14, 15 & 21

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.4 Ensure weld data report is traceable to component.	Satisfactory	Certificate of Conformance traceable to valve S/Ns.
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed	N/A Not in package.	Only certification by Kerotest that PT was performed to approved procedure and in accord with code/specification.
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	N/A Not in package.	Only certification by Kerotest that PT was performed to approved procedure and in accord with code/specification.
	4.3 Verify reports are traceable to item(s).	N/A Not in package.	Certificate of Conformance traceable to Valve S/Ns.
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	No RT on these small valves.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	N/A Not in package.	Only certification by Kerotest that Hydro was performed to a specific hydro procedure and code.
	5.2 Verify applicable test data is traceable to component and quantities compatible.	N/A	Certificate of Conformance traceable to Valve S/Ns.
			<u>Comments</u> Welding/Hardfacing, Cleaning, Hydro Test and PT Verification Reports are not included in the Document Package as required by Bechtel Form G321-D. Kerotest only included a Certificate of Conformance.

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-127A                      SUPPLIER Kerotest Manufacturing Corp.                      EVALUATOR R. E. Herbst  
 A.E.O. # 5580 & 11644                      LOCATION Pittsburgh, PA.                      DATE 3/11/81  
 COMPONENT Check & Globe Valves (4) & (4) - S/Ns WG1-3, 4, 5 & 7 & S/Ns XA43-5, 14, 15 & 21

ITEM	CHARACTERISTICS	RESULTS	REMARKS
			<p><u>Comments - (Continued)</u></p> <p>There was no INDEX on these valve packages. Legibility was satisfactory.</p>

## DOCUMENT REVIEW

PURCHASE ORDER # M-127AC SUPPLIER Kerotest Manufacturing Co. EVALUATOR R. E. Herbst  
 A.E.O. # 13496 LOCATION Pittsburgh, Pennsylvania DATE 3/27/81  
 COMPONENT 1" 1500# Globe Valves (20 valves)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		Review (1) small document package (14 pages), Bechtel specifications, and P.C.
	1.1 Verify applicable reports are in data package.	Satisfactory	All of the applicable MTR's for the 20 valves are in the package.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	MTR's meet requirements of specification. NOTE: Valves are certified to the 1974 Edition of ASME III but none of the MTR's reflect compliance to NA-3700/NCA-3800.
	1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory	Body, Bonnets and Disc MTR Code numbers are recorded on the NPV-1 Form.
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Heat treatments are certified by the material suppliers on the MTR's.
	2.2 Ensure process reports are traceable to component.	Satisfactory	MTR's are traceable to each valve.
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	N/A	Kerotest's Certificate of Compliance certifies the weld procedures and welders that were used to manufacture these valves.
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	N/A	
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A	
	3.4 Ensure weld data report is traceable to component.	N/A	

## DOCUMENT REVIEW continued

PURCHASE ORDER # M-127AC      SUPPLIER Kerotest Manufacturing Co.      EVALUATOR R. E. Herbst  
 A.E.O. # 13496      LOCATION Pittsburgh, Pennsylvania      DATE 3/27/81  
 COMPONENT 1" 1500# Globe Valves (20 valves)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/ specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	Satisfactory ↓ N/A	Comment Bechtel's Spec. M-127A(Q) and Form G321-D require that Verification Reports be submitted that document the results of the NDE examination. This document package only contains a Certificate of Conformance certifying that the test was completed and approved by QC.  No radiography on these valves.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/ specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory ↓	Comment Same as 4.0 above - no Verification Reports of the Hydro Test of these valves.  Comment Document package only contains NPV-1 Form, G321-D forms, Kerotest Certificate of Compliance, MTR's and a Dimensional Wall Thickness Report. It appears that the Kerotest Certificate of Compliance is supposed to be the written proof or record that work performed and inspections were satisfactorily completed and in accordance with all requirements.



# DOCUMENT REVIEW

PURCHASE ORDER # M-127B-3      SUPPLIER H. Vogt Machine Co.      EVALUATOR J. R. Orlando  
 A.E.O. # 1320      LOCATION Louisville, Kentucky      DATE 3/11/81  
 COMPONENT Class 3 Manual Line Gate Valves

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		All items covered by 1.0 through 3.4 were checked. Many deficiencies were noted, such as missing CMTR's, NDT reports, incomplete data reports, etc. However, they were all found to have been previously identified by the Bechtel re-review and are in the process of resolution. Refer to Bechtel Review Sheet DRR 1218.
	1.1 Verify applicable reports are in data package.	Satisfactory	
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	
	1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory	
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	
	2.2 Ensure process reports are traceable to component.	Satisfactory	
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was	Satisfactory	
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	Satisfactory	
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	Satisfactory	
	3.4 Ensure weld data report is traceable to component.	Satisfactory	

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-127B-3      SUPPLIER H. Vogt Machine Co.      EVALUATOR J. R. Orlando  
 A.E.O. # 1320      LOCATION Louisville, Kentucky      DATE 3/11/81  
 COMPONENT Class 3 Manual Line Gate Valves

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	Satisfactory  Satisfactory  Satisfactory  Satisfactory	All items covered by 4.0 through 5.2 were checked. Many deficiencies were noted, such as missing CMTR's, NDT reports, incomplete data reports, etc. However, they were all found to have been previously identified by the Bechtel re-review and are in the process of resolution. Refer to Bechtel Review Sheet DRR 1218.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory  Satisfactory	

## DOCUMENT REVIEW

PURCHASE ORDER # M-131AC SUPPLIER ITT Grinnell Valve Company EVALUATOR R. E. Herbst  
 A.E.O. # 14013 LOCATION Lancaster, Pennsylvania DATE 3/27/81  
 COMPONENT 3/4" & 1" Diaphragm Valves (24 valves); 3/4" S/N 52745-2-1 thru 8. 1" S/N 52745-1 thru 14, 1" S/N 52745-3-18

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		Reviewed (3) document packages, specifications and Bechtel P.O.
	1.1 Verify applicable reports are in data package.	Satisfactory	All MTR's for each of the valve parts identified on the Valve/Heat Code Identification sheets were in each package.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	Material specifications are in accordance with Bechtel specification requirements.
	1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory	Unique numbers on the MTR's are included on the Heat Code Identification sheets for each valve.
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Heat treat charts and/or heat treat certifications are in accord with code/specification and included in the Document Package.
	2.2 Ensure process reports are traceable to component.	Satisfactory	Traceable to each unique part number for each valve.
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	N/A	Unable to verify - not in package.
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	N/A	Unable to verify - not in package.
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A	Unable to verify - material suppliers certify on the MTR that their welders were qualified.
	3.4 Ensure weld data report is traceable to component.	N/A	None in package - only certifications.

## DOCUMENT REVIEW continued

PURCHASE ORDER # M-131AC SUPPLIER ITT Grinnell Valve Company EVALUATOR R. E. Herbst  
 A.E.O. # 14013 LOCATION Lancaster, Pennsylvania DATE 3/27/81  
 COMPONENT 3/4" & 1" Diaphragm Valves (24 valves); 3/4" S/N 52745-2-1 thru 8, 1" S/N 52745-1 thru 14, 1" S/N 52745-3-1&2

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	Satisfactory  Concern  N/A  N/A	NDE required by specification is certified as being in accordance with ASME Section III requirements and also specified on the ITT Shop Traveler. Bechtel Spec. M-131(Q), Section 9.A.4, requires that verification documentation be submitted for the results of the required examinations. Bechtel Form G321-D also requires verification reports for the PT examinations performed. Reports must include SNT level of the inspector to meet code. No reports - only certification and shop traveler. No radiography on these valves.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional) 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory  Satisfactory	Hydro tests required by specification and code were performed and are documented in the package. Test data is traceable to each of the valves. Comments: 1. Bechtel Spec. M-131(Q), Sect. 7.C.1 states: "Stainless steel valves shall not be painted." These Diaphragm Valves are stainless steel and the ITT Certification and Report in each document package records that painting was performed using ITT Grinnell Std. paint.

## DOCUMENT REVIEW continued

PURCHASE ORDER # M-131AC SUPPLIER ITT Grinnell Valve Company EVALUATOR R. E. Herbst  
 A.E.O. # 14013 LOCATION Lancaster, Pennsylvania DATE 3/27/81  
 COMPONENT 3/4" & 1" Diaphragm Valves (24 valves); 3/4" S/N 52745-2-1 thru 8, 1" S/N 52745-1 thru 14, 1" S/N 52745-3-1&2

ITEM	CHARACTERISTICS	RESULTS	REMARKS
			<p><u>Comments (Continued)</u></p> <p>2. Item 4.2 above - no PT verification reports.</p> <p>3. Legibility was satisfactory and document packages included documentation required by Bechtel Specification and was acceptable except for the above two comments.</p>

## DOCUMENT REVIEW

PURCHASE ORDER # M-150AC SUPPLIER Mine Safety Appliance EVALUATOR T. J. Marcella  
 A.E.O. # 4453 LOCATION Evans City, PA. DATE 3/4/81  
 COMPONENT Air Filter Units and Miscellaneous Hardware

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
1.1	Verify applicable reports are in data package.	OK	Bill of material depicts applicable certificate numbers.
1.2	Random sample MTR/CMTR reports to ensure specification/code requirements.	Observation	Numerous certifications reference ASTM A-XXX-(?) no year, for ease of utilizing ASTM books.
1.3	Ensure material is traceable to MTR/CMTR.	OK	
2.0	Special Process Reports:		
2.1	Verify heat treat, coating, etc. reports meet code/specification requirements.	OK	Reviewed dry film thickness measurement qualification form. Summary work inspection records compiled on each job.
2.2	Ensure process reports are traceable to component.	OK	Technical data sheets completed for traceability and compliance.
3.0	Welding Records:		
3.1	Ensure approved weld procedure was utilized.	OK	List of approved weld procedures and qualified welders reviewed.
3.2	Verify approved weld procedure specifies material required by specifications/drawings.	OK	
3.3	Verify welder qualification covers weld process utilized (position, thickness, etc.)	OK	
3.4	Ensure weld data report is traceable to component.	OK	No weld data reports contained in this package.

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-150AC      SUPPLIER Mine Safety Appliance      EVALUATOR T. J. Marcella  
 A.E.O. # 4453      LOCATION Evans City, PA.      DATE 3/4/81  
 COMPONENT Air Filter Units and Miscellaneous Hardware

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	N/A 	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	OK  OK	Pneumatic & soap bubble test performed to Bechtel approved procedures, available.  Test data refers to drawing, P.O. & system No.  <u>Comment</u> Reference Item 1.2; see paragraph 3.3 D) of Section C-3, Part I (ground rules). Code Case N242 deficiency is being covered by ongoing Bechtel review.

## DOCUMENT REVIEW

PURCHASE ORDER # M-150-3 SUPPLIER Mine Safety Appliances EVALUATOR T. J. Marcella  
 A.E.O. # 4448 LOCATION McKeesport, PA. DATE 3/4/81  
 COMPONENT Air Filtering Units

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	OK	Certifications required for these units are available.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Observation	Numerous certifications reference ASTM A-XXX-(?) no year, for ease of utilizing ASTM books.
	1.3 Ensure material is traceable to MTR/CMTR.	OK	All certifications are assigned a certification number for control.
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	OK	Reviewed numerous I.C. coating work acceptance forms for completeness. No discrepancies.
	2.2 Ensure process reports are traceable to component.	OK	Summary work inspection record utilized.
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized. Fill metal certification verification.	OK	Certification #248 from Chartiers Supply Corporation does not reference a specification, only type, however does indicate A-240 S/B ASTM A-240.
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	OK	Verified list of weld procedures and welders qualified to applicable procedures.
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	OK	



# DOCUMENT REVIEW continued

PURCHASE ORDER # M-150-3      SUPPLIER Mine Safety Appliances      EVALUATOR T. J. Marcella  
 A.E.O. # 4448      LOCATION McKeesport, PA.      DATE 3/4/81  
 COMPONENT Air Filtering Units

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.4 Ensure weld data report is traceable to component.	See remarks	No weld data reports contained in this package.
4.0	Nondestructive Examination Reports:	N/A	
	4.1 Verify NDT required by code/specification was performed.	↓ ↓ ↓ ↓	
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.		
	4.3 Verify reports are traceable to item(s).		
	4.4 Physically review random sample of film on weldments, if applicable.		
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional)		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	OK	Pneumatic and soap bubble test reports reviewed.
	5.2 Verify applicable test data is traceable to component and quantities compatible.	OK	Test data traceable to drawing, P.O. & system.
			<u>Comment</u> Reference Item 1.2; see paragraph 3.3 D) of Section C-3, Part I (ground rules).

## DOCUMENT REVIEW

PURCHASE ORDER # M-163AC

SUPPLIER CVI Corporation

EVALUATOR R. E. Herbst

A.E.O. # 6310

LOCATION Columbus, Ohio

DATE 3/5/81

COMPONENT Recirculating Air Cooling Unit, Unit IVM-56A

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory Satisfactory * Satisfactory	Reviewed (3) document packages for above.  Test reports for each part are included in the applicable section of the data packages. Random samples selected were in accordance with Code. *None of the MTR's reflect compliance to NA-3700.  Each MTR/CMTR is recorded on the Product QC Checklist for each part and/or assembly.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	Satisfactory Satisfactory	Heat treat, painting, cleaning verification reports were in accordance with code/specification, and included in package.  All reports reference the unique numbers of each part/assembly.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.	Satisfactory N/A Satisfactory Satisfactory	Verified Bechtel's approval of procedures.  Weld procedure not in data package.  Welders QW-484 forms included.  Weld numbers, weld procedures, welder's stamp and filler metal lot/heat numbers recorded on Product QC checklist for each assembly.

## DOCUMENT REVIEW continued

PURCHASE ORDER # M-163AC SUPPLIER CVI Corporation EVALUATOR R. E. Herbst  
 A.E.O. # 6310 LOCATION Columbus, Ohio DATE 3/5/81  
 COMPONENT Recirculating Air Cooling Unit, Unit IVM-56A

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	Satisfactory  Satisfactory  Satisfactory  N/A	Specification only required PT submittals and reports. Data package includes all required PT records and MT reports of MT performed.  All reports included required data.  Reports were traceable to unique numbers of each assembly.  No radiography required by specification.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory  Satisfactory	Hydro tests were in accordance with specification/code requirements.  Hydro tests were traceable to each unique assembly number.  NOTE: This was a well organized data package, with a detailed index, including page numbers in each of the three volumes.  FINDING: Pages 89, 143, 197, 253, 306, 362, 417 and 473 Revere Co. MTR's do not include the chemicals and physicals. The MTR's say "see attachment," but there are no attachments to the above pages.

# DOCUMENT REVIEW

PURCHASE ORDER # M-358AC

SUPPLIER Tube Turns

EVALUATOR T. J. Marcella

A. E. O. # 10683

LOCATION P.O. Box 987

DATE 3/5/81

COMPONENT Anchor Flange (4)

Louisville, KY

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	Satisfactory	
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	Does not comply with memo to supplier dated 10/4/79 which specifies that CMTR's shall identify MFGR's quality system certificate number and expiration date. Ref. NA-3700 or NCA-3800.
	1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory	
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Heat treat Certificate does not comply with memo to supplier dated 10-4-79 (same as above)
	2.2 Ensure process reports are traceable to component.	Satisfactory	
3.0	Welding Records:	N/A	
	3.1 Ensure approved weld procedure was utilized.	↓	
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.		
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)		

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-358AC      SUPPLIER Tube Turns      EVALUATOR T. J. Marcella  
 A.E.O. # 10683      LOCATION P.O. Box 987      DATE 3/5/81  
 COMPONENT Anchor Flange (4)      Louisville, KY

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.4 Ensure weld data report is traceable to component.	N/A	
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	Satisfactory	U.T. - Per input 415 Rev. C accepted
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	L.P. - Per T & IP Peabody 3.23A.1 plus Amend. 0500-1, -2, Tech T-5379-1 PT accepted.
	4.3 Verify reports are traceable to item(s).	Satisfactory	R.T. - Peabody Proc. 3.20.A.5, accepted. Stds. ASME E446-75 & E186-73 acceptable.
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	Reports specify drawing numbers, part name, heat lot.
			Films are not available at Ann Arbor.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):	N/A	
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	↓	
	5.2 Verify applicable test data is traceable to component and quantities compatible.	↓	
			Note: Documentation Index not available.

## DOCUMENT REVIEW

PURCHASE ORDER # M-358-3SUPPLIER Tube Turns Div. ChemetronEVALUATOR T. J. MarcellaA.E.O. # 7016LOCATION P.O. Box 987DATE 3/5/81COMPONENT Main Steam Anchors (2)Louisville, KY

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
1.1	Verify applicable reports are in data package.	Satisfactory	Documentation Index form depicts reports required.
1.2	Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	(4) CMTR's reviewed CC-RT 8315, CC-RT 8316, CC-RT 8317 and CC-RT 8318.
1.3	Ensure material is traceable to MTR/CMTR.	Satisfactory	Identification number utilized for traceability.
2.0	Special Process Reports:		
2.1	Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	(2) Heat treat reports reviewed; (1) Coating record reviewed.
2.2	Ensure process reports are traceable to component.	Satisfactory	Identification numbers are used from CMTR to final product.
3.0	Welding Records:	N/A	No welding data required on this job. Weld prep included
3.1	Ensure approved weld procedure was utilized.	↓	
3.2	Verify approved weld procedure specifies material required by specifications/drawings		
3.3	Verify welder qualification covers weld process utilized (process, thickness, etc.)		

# DOCUMENT REVIEW continued

Page 2 of 2

PURCHASE ORDER # M-398-3

SUPPLIER Tube Turns Div. Chemetron

EVALUATOR T. J. Marcella

A.E.O. # 7016

LOCATION P.O. Box 987

DATE 3/5/81

COMPONENT Main Steam Anchors (2)

Louisville, KY

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.4 Ensure weld data report is traceable to component.	N/A	
4.0	Nondestructive Examination Reports:	Satisfactory	U.T. examination procedure FI-PE114 Rev. I Instruction No. FI-IU 8015, Rev. D rough machining after heat treat. Procedure approved 5/17/78. L.P. examination procedure FI-PE 113 Rev. I approved 5/17/78.  Acceptance criteria and quantities specified on applicable forms.  Drawing, item, I.D. numbers on form.  No x-ray required.  Visual procedure FI-PE116, Rev. I approved 5/17/78.  Dimensional inspection performed per procedure FI-PE 115, Rev. I, approved 5/17/78.
	4.1 Verify NDT required by code/specification was performed.		
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	
	4.3 Verify reports are traceable to item (s).	Satisfactory	
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	
	4.5 Visual Examination	Satisfactory	
	4.6 Dimensional Examination	Satisfactory	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):	N/A	
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	↓	
	5.2 Verify applicable test data is traceable to component and quantities compatible.	↓	



Management Analysis Company

DOCUMENTATION PACKAGES REVIEWED AT MIDLAND SITE - ATTACHMENT C-3.2

P.O. #	COMPONENT	VENDOR	A.E.O. #	DISCIPLINE	# OF DOC. PKGS.
C-2AC	Tendons	INRYCO	11264	C	1
C-2AC	Tendons, Type 170W	INRYCO	11851	C	1
C-2AC	Bushings and Anchorages	INRYCO	13196	C	1
E-20AC	Electrical Penetrations	Bunker Ramo	13001	M/E	1
F-3091	Structural Steel	INRYCO	13805	C/S	1
J-232AC	Orifice Plates	Vickery-Simms	6879	M	1
J-256AC	Solenoid Globe Valves	Target Rock	10149	M	1
M-111-3	Fluid Head Fittings	Tube Turns	3886	M	1
M-111-3	Fluid Head Fittings	Tube Turns	3886	M	1
M-118BC	Actuator	Rockwell Int'l.	10637	M/E	1
M-125A	Swing Check Valve	Westinghouse	2700	M	1
M-125A	8" Gate Valve	Westinghouse	3881	M	1
M-125A-3	Swing Check Valve	Westinghouse	3135	M	1
M-125A-3	Swing Check Valve	Westinghouse	3135	M	1
M-125A-3	8" 150# Gate Valve	Westinghouse	3174	M	1
M-125A-3	8" 150# Gate Valve	Westinghouse	3174	M	1
M-125A-3	Gear Assisted Manual Gate Valve	Westinghouse	4739	M	1
M-125C	Gate Valves	Anchor Darling	12824	M	2
M-125CC	Gate Valves	Anchor Darling	8866	M	1
M-127AC	Globe Valves	Kerotest	13496	M	1
M-131AC	Diaphragm Valves	ITT Grinnell	14013	M	1
M-132-3	12" Butterfly Valve	Henry Pratt	5128	M	1
M-140	Pressure Relief Valve	Crosby Valve	13271	M	1
M-140AC	Safety Relief Valve	Crosby Valve	11543	M	1



# DOCUMENT REVIEW

PURCHASE ORDER # C-2AC

SUPPLIER INRYCO

EVALUATOR R. E. Herbst

A.E.O. # 11264

LOCATION Melrose Park, Illinois

DATE 3/24/81

COMPONENT Post Tensioning System (tendons) Cable Mark H21-206, H32-206, H21-204, H32-204, H21-202

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		Reviewed one document package and supporting purchase orders, specifications, and inspection reports.
1.1	Verify applicable reports are in data package.	Satisfactory	
1.2	Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	In accord with specification requirements.
1.3	Ensure material is traceable to MTR/CMTR.	Satisfactory	Traceable to certificate of inspection and to part numbers.
2.0	Special Process Reports:		
2.1	Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Certificate of conformance for heat treatments.
2.2	Ensure process reports are traceable to component.	Satisfactory	Were traceable to INRYCO's purchase order number.
3.0	Welding Records:		
3.1	Ensure approved weld procedure was utilized.	N/A	
3.2	Verify approved weld procedure specifies material required by specifications/drawings.	N/A	
3.3	Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A	
3.4	Ensure weld data report is traceable to component.	N/A	

# DOCUMENT REVIEW continued

PURCHASE ORDER # C-2AC SUPPLIER INRYCO EVALUATOR R. E. Herbst  
 A.E.O. # 11264 LOCATION Melrose Park, Illinois DATE 3/24/81  
 COMPONENT Post Tensioning System (tendons), see page one for cable mark numbers

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports:		
4.1	Verify NDT required by code/specification was performed.	N/A	
4.2	Review NDT reports as to acceptance criteria, quantities tested, etc.	N/A	None required.
4.3	Verify reports are traceable to item(s).	N/A	
4.4	Physically review random sample of film on weldments, if applicable.	N/A	None required.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
5.1	Review random sample of applicable tests required by code/specification to ensure compliance.	Satisfactory	Loading tests and tendon fabrication records in accord with specification.
5.2	Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	Traceable to tendon mark number and heat number.
			<p><u>Comments:</u>                      Reproducibility of SDDR No. 1492 and two sheets of tendon fabrication records are questionable.</p>

## DOCUMENT REVIEW

PURCHASE ORDER # C-2AC

SUPPLIER INRYCO

EVALUATOR J. R. Orlando

A.E.O. # 11851

LOCATION Melrose Park, Illinois

DATE 4/1/81

COMPONENT Tendons, Cable Mark V22-1 through V28-1 and Field Bushings (170W15)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	Satisfactory	Applicable CMTR's were in the package.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	The following tendon materials were checked and found satisfactory: Ht #55984 - ASTM A-322, Gr. 4140 Ht #53315 - ASTM A-322, Gr. 4142
	1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory	
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Heat treat records (C of C) were reviewed.
	2.2 Ensure process reports are traceable to component.	Satisfactory	Traceable to INRYCO purchase order number.
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	N/A	
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	N/A	
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A	
	3.4 Ensure weld data report is traceable to component.	N/A	

# DOCUMENT REVIEW continued

PURCHASE ORDER # C-2AC SUPPLIER INRYCO EVALUATOR J. R. Orlando  
 A.E.O. # 11851 LOCATION Melrose Park, Illinois DATE 4/1/81  
 COMPONENT Tendons and Field Bushings (see page one for cable mark numbers)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	N/A	
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	N/A	
	4.3 Verify reports are traceable to item(s).	N/A	
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	Satisfactory	Relaxation test and tendon fabrication records were reviewed.
	5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	Traceable by tendon mark numbers and/or material heat numbers.

## DOCUMENT REVIEW

PURCHASE ORDER # C-2AC

SUPPLIER INRYCO

EVALUATOR J. R. Orlando

A.E.O. # 13196

LOCATION Melrose Park, Illinois

DATE 4/2/81

COMPONENT Bushings and Anchorages for Post Tensioning System

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	Satisfactory	CMTR's for materials were located in package.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	The following material chemical and physical characteristics were checked: Ht #6056594 - ASTM A-322, Gr. 4140 Ht #6056600 - ASTM A-322, Gr. 4140 Ht #13087 - ASTM A-322, Gr. 4142
	1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory	
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Heat treat certifications were reviewed.
	2.2 Ensure process reports are traceable to component.	Satisfactory	By serial numbers.
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	N/A	
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	N/A	
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A	
	3.4 Ensure weld data report is	N/A	

# DOCUMENT REVIEW continued

PURCHASE ORDER # C-2AC                      SUPPLIER INRYCO                      EVALUATOR J. R. Orlando  
 A.E.O. # 13196                      LOCATION Melrose Park, Illinois                      DATE 4/2/81  
 COMPONENT Bushings and Anchorages for Post Tensioning System

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/ specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	N/A N/A N/A N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/ specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory Satisfactory	Certifications of anchorage inspection records were reviewed.  By serial numbers.

## DOCUMENT REVIEW

PURCHASE ORDER # E-20AC SUPPLIER Bunker Ramo EVALUATOR R. E. Herbst  
 A.E.O. # 13001 LOCATION Chatsworth, California DATE 3/24/81  
 COMPONENT Electrical Penetrations (6 modules), S/N 791220-1-06, 800109-1-07, 800214-1-05, 800416-1-03, 800417-1-03, 800417-1-04

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory Satisfactory Satisfactory	Reviewed one document package, purchase order, specification, and inspection reports. Certificate of compliance certifies that all material used on this order meets all applicable specification requirements and are on file per Bechtel P.O. requirements. C of C denotes each of the six modules and their S/N's.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	N/A	Data package only contains assembly and testing of the six modules.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.	N/A	

# DOCUMENT REVIEW continued

PURCHASE ORDER # E-20AC SUPPLIER Bunker Ramo EVALUATOR R. E. Herbst  
 A.E.O. # 13001 LOCATION Chatsworth, California DATE 3/24/81  
 COMPONENT Electrical Penetrations (6 modules), see page one for serial numbers

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	N/A	Data package only contains assembly and testing of the six modules.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory  Satisfactory	Leak, pneumatic, continuity, insulation resistance, and dielectric strength tests were in accordance with specification requirements.  Test data was traceable to each of the six modules.  <u>Comments:</u> Legibility and reproducibility was satisfactory.



## DOCUMENT REVIEW

PURCHASE ORDER # F-3091

SUPPLIER INRYCO (American Anchor Bolt)

EVALUATOR J. R. Orlando

A.E.O. # 13805

LOCATION Hinsdale, Illinois

DATE 4/2/81

COMPONENT Misc. Decay Heat Jet Barriers (Structural Steel), Specification C-233, Rev. 18

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	Satisfactory	CMTR's for materials are in package.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	Materials were supplied as required by the specifications.
	1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory	Traceable by heat and vendor release numbers.
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Records for cleaning and coating processes were reviewed.
	2.2 Ensure process reports are traceable to component.	Satisfactory	
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	N/A	
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	N/A	
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A	
	3.4 Ensure weld data report is traceable to component.	Satisfactory	Weld inspection records were reviewed and are traceable by part number and heat number code.

# DOCUMENT REVIEW continued

PURCHASE ORDER # F-3091

SUPPLIER INRYCO (American Anchor Bolt)

EVALUATOR J. R. Orlando

A.E.O. # 13805

LOCATION Hinsdale, Illinois

DATE 4/2/81

COMPONENT Misc. Decay Heat Jet Barriers (Structural Steel)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	N/A ↓	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	N/A ↓	

## SYSTEM WALKDOWN

## DOCUMENT REVIEW

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PURCHASE ORDER # J-232AC

SUPPLIER Vickery-Simms

EVALUATOR C. A. Smiroldo

A.E.O. # 6879

LOCATION Arlington, Texas

DATE 4/15/81

COMPONENT Orifice Plates, QFE 1436A, B

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory Satisfactory Satisfactory	Chemical and material test reports included.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	Satisfactory Satisfactory	Certificate of compliance is only applicable document in package relating to special processes.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.		Unable to determine whether welding was required in fabrication.

PURCHASE ORDER # J-232AC

SUPPLIER Vickery-Simms

EVALUATOR C. A. Smiroldo

A.E.O. # 6879

LOCATION Arlington, Texas

DATE 4/15/81

COMPONENT Orifice Plates, OFE 1436A, B

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	Satisfactory Satisfactory Satisfactory N/A	Certificate of compliance is only applicable document in package relating to NDE.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	N/A N/A	Not applicable.

## DOCUMENT REVIEW

PURCHASE ORDER # J-256AC

SUPPLIER Target Rock

EVALUATOR R. E. Herbst

A.E.O. # 10149

LOCATION E. Farmingdale, New York

DATE 3/25/81

COMPONENT 2½" Solenoid Globe Valves (eight valves), S/N 1 - 8

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		Reviewed one document package, specifications, and Bechtel purchase order.
1.1	Verify applicable reports are in data package.	Satisfactory	Material test reports for all valve bodies, bonnets, discs and other main parts as described on the NPV-1 form are included.
1.2	Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	Verified in accordance with specification requirements.
1.3	Ensure material is traceable to MTR/CMTR.	Satisfactory	Traceable and recorded on the QC documentation checklist for each valve.
2.0	Special Process Reports:		
2.1	Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Heat treat certifications and hardfacing reports are included in package and are in accordance with specification.
2.2	Ensure process reports are traceable to component.	Satisfactory	Traceable to each part and/or valve number.
3.0	Welding Records:		
3.1	Ensure approved weld procedure was utilized.	N/A	Unable to verify.
3.2	Verify approved weld procedure specifies material required by specifications/drawings.	N/A	Unable to verify.
3.3	Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A	Unable to verify.

## DOCUMENT REVIEW continued

PURCHASE ORDER # J-256AC      SUPPLIER Target Rock      EVALUATOR R. E. Herbst  
 A.E.O. # 10149      LOCATION E. Farmingdale, New York      DATE 3/25/81  
 COMPONENT 2 1/2" Solenoid Globe Valves (eight valves), S/N 1 - 8

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.4 Ensure weld data report is traceable to component.	Satisfactory	Detailed welding reports for each seam are included and traceable to part number.
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	Satisfactory	PT reports as required by specification are included in package.
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	All required data is recorded on PT reports, including SNT level of inspector.
	4.3 Verify reports are traceable to item(s).	Satisfactory	Traceable to part numbers and/or weld numbers.
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	Not required.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	Satisfactory	Shell hydro, disc, seat leakage, op. test, hydraulic, and position indicator operational test reports as required by specification are included in package. Hydros were in accord with code requirements.
	5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	All reports are identified with the applicable valve's serial number.
			<u>Comment:</u> Very good document package; indexed. Legibility was satisfactory and all verification reports required by Bechtel's G321-D form were included.

## DOCUMENT REVIEW

PURCHASE ORDER # M-111-3

SUPPLIER Tube Turns

EVALUATOR J. R. Orlando

A.E.O. # 3886 (Item 30.2)

LOCATION Houston, Texas

DATE 4/2/81

COMPONENT Fluid Head Fittings

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory Satisfactory Observation Satisfactory	CMTR's for material required by specification were in package. Chemical and physical characteristics were checked for the following materials: Ht #73002 - SA-192, F-304 CMTR's do not specify year/addenda of applicable code.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	Satisfactory Satisfactory	Heat treat certifications and furnace charts were reviewed for the above mentioned material heat numbers. Traceable by heat and customer order number.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A N/A N/A	

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-111-3

SUPPLIER Tube Turns

EVALUATOR J. R. Orlando

A.E.O. # 3886 (Item 30.2)

LOCATION Houston, Texas

DATE 4/2/81

COMPONENT Fluid Head Fittings

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.4 Ensure weld data report is traceable to component.	N/A	
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/ specification was performed.	Satisfactory	PT was performed.
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	PT report was found satisfactory.
	4.3 Verify reports are traceable to item(s).	Satisfactory	Reports were traceable by item number 30.2.
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/ specification to ensure compliance.	See Remarks	Vendor inspection reports for dimensions, cleaning and documentation review was checked.
	5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	
			<p><u>Comments:</u></p> <p>All applicable documents required by the Bechtel G321-D form were found in the package.</p> <p>Reference Item 1.2; see paragraph 3.3 D) of Section C-3, Part I (ground rules).</p>



# DOCUMENT REVIEW

PURCHASE ORDER # M-111-3

SUPPLIER Tube Turns

EVALUATOR J. R. Orlando

A.E.O. # 3886 (Item 34.2)

LOCATION Houston, Texi

DATE 4/2/81

COMPONENT Fluid Head Fittings for Containment Penetrations

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	<p>Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):</p> <p>1.1 Verify applicable reports are in data package.</p> <p>1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.</p> <p>1.3 Ensure material is traceable to MTR/CMTR.</p>	<p>Satisfactory</p> <p>Satisfactory</p> <p>Satisfactory</p>	<p>Applicable CMTR's are in the data package.</p> <p>a) Chemical and physical characteristics were checked for the following materials: Ht #824428 - SA-183, F-304</p> <p>b) CMTR doesn't state date of applicable material specification.</p> <p>Material is traceable by heat number.</p>
2.0	<p>Special Process Reports:</p> <p>2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.</p> <p>2.2 Ensure process reports are traceable to component.</p>	<p>Satisfactory</p> <p>Satisfactory</p>	<p>Heat treat certifications and furnace charts for above material heat numbers were reviewed and found satisfactory</p> <p>Reports are traceable by means of heat and customer order number.</p>
3.0	<p>Welding Records:</p> <p>3.1 Ensure approved weld procedure was utilized.</p> <p>3.2 Verify approved weld procedure specifies material required by specifications/drawings.</p>	<p>N/A</p> <p>N/A</p>	

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-111-3                      SUPPLIER Tube Turns                      EVALUATOR J. R. Orlando  
 A.E.O. # 3886 (Item 34.2)                      LOCATION Houston, Texas                      DATE 4/2/81  
 COMPONENT Fluid Head Fittings for Containment Penetrations

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	N/A	
	3.4 Ensure weld data report is traceable to component.	N/A	
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	Satisfactory	PT was performed on the fluid head.
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	PT reports were reviewed and the data was found satisfactory.
	4.3 Verify reports are traceable to item(s).	Satisfactory	PT report was traceable by means of item number 34.2
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	See Remarks	Inspection report covering marking, dimensions and cleaning was reviewed.
	5.2 Verify applicable test data is traceable to component and quantities compatible.		
			<u>Comments:</u> All applicable documents required by the Bechtel G321-D form were included in the package.


## DOCUMENT REVIEW

PURCHASE ORDER # M-118BC                      SUPPLIER Rockwell International                      EVALUATOR R. E. Herbst  
 A.E.O. # 10637                                      LOCATION Raleigh, North Carolina                      DATE 3/26/81  
 COMPONENT A-100 Actuator for Feedwater Isolation Valve, S/N 3G6281-3

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Not available	Reviewed one document package, specifications, and Bechtel purchase order.  Document package only includes what was required by Bechtel Specification No. 7220-G-32 and form G321-D as listed below: 1. Rockwell's certification on form G321-D 2. Heat number of casting 3. SDDR Numbers 974 and 1442 4. Pneumatic shell test report 5. Hydraulic shell test report 6. Hydraulic control assembly test report 7. Solenoid test report 8. Performance test report  All test reports were signed as witnessed by the Bechtel Q.C. Inspector and were traceable to the actuator S/N.  Document package met requirements of Bechtel P.O. and specifications.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.		
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.		

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-118BC                      SUPPLIER Rockwell International                      EVALUATOR R. E. Herbst  
 A.C.O. # 10637                                      LOCATION Raleigh, North Carolina                      DATE 3/26/81  
 COMPONENT A-100 Actuator for Feedwater Isolation Valve, S/N 3G6281-3

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	N/A 	See Part II of Section C-3 of report for detail radiography evaluation data.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory  Satisfactory	See page one.  See page one.

## SYSTEM WALKDOWN

## DOCUMENT REVIEW

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PURCHASE ORDER # M-125A

SUPPLIER Westinghouse

EVALUATOR C. A. Smiroldo

A.E.O. # 2700

LOCATION Cheswick, Pennsylvania

DATE 4/14/81

COMPONENT Swing Check Valve, S740001, Spec. 4936A60, item 21.1, OCKFPC003A

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	Satisfactory	Chemical and mechanical test report included.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	
	1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory	
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Certification of cleaning included in package. NPV-1 form notes heat treatments associated with parts.
	2.2 Ensure process reports are traceable to component.	Satisfactory	
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	Satisfactory as noted	Certificate of welding included in package. Procedures and data at vendor's plant.
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	Satisfactory	Welding wire chemical analysis included.
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	Satisfactory	
	3.4 Ensure weld data report is traceable to component.	Satisfactory	

SYSTEM WALKDOWN

## DOCUMENT REVIEW continued

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PURCHASE ORDER # M-125A

SUPPLIER Westinghouse

EVALUATOR C. A. Smiroldo

A.E.O. # 2700

LOCATION Cheswick, Pennsylvania

DATE 4/14/81

COMPONENT Swing Check Valve, S740001

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	Satisfactory Satisfactory Satisfactory N/A	Ultrasonics and dye penetrant inspections noted on certificate of tests. Certified inspection reports included. Visual inspection in compliance with NB2582.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory Satisfactory	Hydrostatic test report included.

SYSTEM WALKDOWN

## DOCUMENT REVIEW

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PURCHASE ORDER # H-125A

SUPPLIER Westinghouse

EVALUATOR C. A. Smiroldo

A.E.O. # 3881

LOCATION Cheswick, Pennsylvania

DATE 4/15/81

COMPONENT 8" Gate Valve, S740003, item 19.1, 0VFPC006B

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	Satisfactory	Chemical and mechanical test reports included in package.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	Verified ASME SA-182 CMTR's against actuals.
	1.3 Verify material is traceable to	Satisfactory	
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Form NPV-1 notes heat treatment associated with valve parts. Cleaning and painting certification noted on certificate of NDE.
	2.2 Ensure process reports are trace-	Satisfactory	
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	Satisfactory	Certificate of welding for welders, procedures and rod included in package.
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	Satisfactory	
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	Satisfactory	
	3.4 Ensure weld data report is traceable to component.	Satisfactory	

SYSTEM WALKDOWN

## DOCUMENT REVIEW continued

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PURCHASE ORDER # M-125A

SUPPLIER Westinghouse

EVALUATOR C. A. Smiroldo

A.E.O. # 3881

LOCATION Cheswick, Pennsylvania

DATE 4/15/81

COMPONENT 8" Gate Valve, S740003

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	Satisfactory Satisfactory Satisfactory N/A	Qualifications of NDE personnel and dye penetrant on certifications of NDE. Physical examination report, UT examination report, PT examination report included in package.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory Satisfactory	Valve test report included in package.



## SYSTEM WALKDOWN

## DOCUMENT REVIEW

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PURCHASE ORDER # M-125A-3

SUPPLIER Westinghouse

EVALUATOR C. A. Smiroldo

A.E.O. # 3135

LOCATION Cheswick, Pennsylvania

DATE 4/15/81

COMPONENT Swing Check Valve, S740C01, OCKFPC008

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory Satisfactory Satisfactory	Chemical and mechanical test reports included in package. Verified ASME SA-182 CMTR's against actuals.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	Satisfactory Satisfactory	Form NPV-1 and valve data report associated heat treats with valve parts. Certifications for painting and cleaning included.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.	Satisfactory Satisfactory Satisfactory Satisfactory	Certification for welders, weld rod and procedures included in package. Weld report also included.

PURCHASE ORDER # M-125A-3

SUPPLIER Westinghouse

EVALUATOR C. A. Smioldo

A.E.O. # 3135

LOCATION Cheswick, Pennsylvania

DATE 4/15/81

COMPONENT Swing Check Valve, S740001

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	Satisfactory Satisfactory Satisfactory N/A	UT, RT, PT and physical examination test results included in package. (RT for repair) Certification of NDE personnel and dye penetrant examination and referenced procedure included.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory Satisfactory	Valve test report included in package.

## SYSTEM WALKDOWN

## DOCUMENT REVIEW

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PURCHASE ORDER # M-125A-3

SUPPLIER Westinghouse

EVALUATOR C. A. Smiroldo

A.E.O. # 3135

LOCATION Cheswick, Pennsylvania

DATE 4/15/81

COMPONENT Swing Check Valve, 5740002, OCKPC003B

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	Satisfactory	Chemical and mechanical test reports included in package.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	Verified ASME SA-194 CMTR's against actuals.
	1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory	
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Certification of cleaning and painting included. Form NPV-1 and valve data report associated heat treat with valve parts.
	2.2 Ensure process reports are traceable to component.	Satisfactory	
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	Satisfactory	Certification for welders, procedures and weld rod included in package.
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	Satisfactory	
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	Satisfactory	
	3.4 Ensure weld data report is traceable to component.	Satisfactory	

## SYSTEM WALKDOWN

## DOCUMENT REVIEW

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PURCHASE ORDER # M-125A-3

SUPPLIER Westinghouse

EVALUATOR C. A. Smiroldo

A.E.O. # 3135

LOCATION Cheswick, Pennsylvania

DATE 4/15/81

COMPONENT Swing Check Valve, S740002, OCKPC003B

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory Satisfactory Satisfactory	Chemical and mechanical test reports included in package. Verified ASME SA-194 CMTR's against actuals.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	Satisfactory Satisfactory	Certification of cleaning and painting included. Form NPV-1 and valve data report associated heat treat with valve parts.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.	Satisfactory Satisfactory Satisfactory Satisfactory	Certification for welders, procedures and weld rod included in package.

PURCHASE ORDER # M-125A-3

SUPPLIER Westinghouse

EVALUATOR C. A. Smiroldo

A.E.O. # 3135

LOCATION Cheswick, Pennsylvania

DATE 4/15/81

COMPONENT Swing Check Valve, S740002

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/ specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	Satisfactory Satisfactory Satisfactory N/A	PT, UT and physical examination reports included. Certification of NDE notes qualified personnel and dye penetrant to procedure used.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/ specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory Satisfactory	Valve test report included in package.

## SYSTEM WALKDOWN

## DOCUMENT REVIEW

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PURCHASE ORDER # M-125A-3

SUPPLIER Westinghouse

EVALUATOR C. A. Smiroldo

A.E.O. # 3174

LOCATION Cheswick, Pennsylvania

DATE 4/15/81

COMPONENT 8" 150# Gate Valve, S740005, OVFC004A

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	Satisfactory	Chemical and mechanical test reports included in package.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	Verified ASME SA-182 CMTR against actual.
	1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory	
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Valve data report and NPV-1 form associated heat treats with valve parts.
	2.2 Ensure process reports are traceable to component.	Satisfactory	
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	Satisfactory	Certification of welding certified welders, procedures and rod.
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	Satisfactory	
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	Satisfactory	
	3.4 Ensure weld data report is traceable to component.	Satisfactory	

PURCHASE ORDER # M-125A-3

SUPPLIER Westinghouse

EVALUATOR C. A. Smioldo

A.E.O. # 3174

LOCATION Cheswick, Pennsylvania

DATE 4/15/81

COMPONENT 8" 150# Gate Valve, S740005

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports:		
4.1	Verify NDT required by code/ specification was performed.	Satisfactory	Certification of NDE notes qualification of NDE personnel and dye penetrant to WEMD procedure. Physical, UT and PT examination reports included.
4.2	Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	
4.3	Verify reports are traceable to item(s).	Satisfactory	
4.4	Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
5.1	Review random sample of applicable tests required by code/ specification to ensure compliance.	Satisfactory	Test data reported in valve test report.
5.2	Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	

SYSTEM WALKDOWN\*

## DOCUMENT REVIEW

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PURCHASE ORDER # M-25A-3

SUPPLIER Westinghouse

EVALUATOR C. A. Smiroldo

A.E.O. # 3174

LOCATION Cheswick, Pennsylvania

DATE 4/15/81

COMPONENT 8" 150# Gate Valve, S740006, 0VFPC004B

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
1.1	Verify applicable reports are in data package.	Satisfactory	Chemical and mechanical test reports included in package.
1.2	Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	Verified ASME SA-453, grade 660 against actuals.
1.3	Ensure material is traceable to MTR/CMTR.	Satisfactory	
2.0	Special Process Reports:		
2.1	Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Form NPV-1 and valve data report associated heat treatment with valve parts. Certifications for cleaning and painting included.
2.2	Ensure process reports are traceable to component.	Satisfactory	
3.0	Welding Records:		
3.1	Ensure approved weld procedure was utilized.	Satisfactory	Certification of welders, procedures and weld rod included
3.2	Verify approved weld procedure specifies material required by specifications/drawings.	Satisfactory	
3.3	Verify welder qualification covers weld process utilized (position, thickness, etc.)	Satisfactory	
3.4	Ensure weld data report is traceable to component.	Satisfactory	



PURCHASE ORDER # M-125A-3

SUPPLIER Westinghouse

EVALUATOR C. A. Smiroldo

A.E.O. # 3174

LOCATION Cheswick, Pennsylvania

DATE 4/15/81

COMPONENT 8" 150# Gate Valve, S740006

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	Satisfactory Satisfactory Satisfactory N/A	Physical, UT and PT examination reports included in package. Also, certification of NDE personnel and dye penetrant examination included.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory Satisfactory	Valve test report included in package.

## SYSTEM WALKDOWN

## DOCUMENT REVIEW

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PURCHASE ORDER # M-125A-3

SUPPLIER Westinghouse

EVALUATOR C. A. Smirolfo

A.E.O. # 4739

LOCATION Cheswick, Pennsylvania

DATE 4/15/81

COMPONENT Gear Assisted Manual Gate Valve, S740001, OVFC009

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory Satisfactory Satisfactory	Chemical and mechanical test reports included. Verified CMTR for ASME SA-182 against actuals.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	Satisfactory Satisfactory	NPV-1 form and valve data report associated heat treats to valve parts. Certification for cleaning and painting included.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.	Satisfactory Satisfactory Satisfactory Satisfactory	Certification for welders, procedure, and weld rod included. CMTR's for weld rod included in package.

PURCHASE ORDER # M-125A-3

SUPPLIER Westinghouse

EVALUATOR C. A. Smiroldo

A.E.O. # 4739

LOCATION Cheswick, Pennsylvania

DATE 4/15/81

COMPONENT Gear Assisted Manual Gate Valve, S740001

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	Satisfactory Satisfactory Satisfactory N/A	PT, RT, UT and visual examination reports are included. (RT for repair) Certification of NDE for dye penetrant and NDE qualifications included.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory Satisfactory	Gate valve test report included in package.

## DOCUMENT REVIEW

PURCHASE ORDER # M-125C      SUPPLIER Anchor Darling      EVALUATOR R. E. Herbst  
 A.E.O. # 12824      LOCATION Hayward, California      DATE 3/26/81  
 COMPONENT 4" 300# Gate Valves (2), S/N 5205-55-001-L1407 and 5205-55-001-L1408

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory Satisfactory Satisfactory	Reviewed two document packages, specifications and Bechtel purchase order.  Verified that MTR's for coatings (body, bonnet, disc), studs, nuts and seat ring are in both packages.  All MTR's specification, type or grade are in accordance with the Bechtel specification and are denoted on the NPV-1 data report. Anchor Darling also certifies that all parts were manufactured in accordance with NA-3700/NCA-3800 requirements.  MTR's are traceable to each valve part for each of the two valves.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	Satisfactory Satisfactory	Heat treat charts and/or certifications and painting inspection reports are in accordance with specification requirements.  Heat treat reports are traceable to valve part numbers and painting reports are traceable to each valve.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.	Satisfactory N/A Satisfactory Satisfactory	Anchor Darling's certificate of conformance certifies that all weld procedures were qualified in accordance with code requirements.  Unable to verify - procedure not in package.  C of C's and certified material test reports certify that welders are qualified in accordance with ASME Section III and IX.  Weld reports and weld repair reports are traceable to a unique part number.

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# DOCUMENT REVIEW continued

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PURCHASE ORDER # M-125C

SUPPLIER Anchor Darling

EVALUATOR R. E. Herbst

A.E.O. # 12824

LOCATION Hayward, California

DATE 3/26/81

COMPONENT 4" 300# Gate Valves (2), see page one for serial numbers

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	Satisfactory	PT reports and RT reader sheets, technique sheets and film location sketches are included as required by specification  PT and RT reports include all required criteria, including inspector's SNT levels. See Part II of Section C-3 of report for detail radiography evaluation data.  Reports are traceable to valve part numbers.  Reviewed reader sheets and technique sheets only. All recorded information was satisfactory.
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	
	4.3 Verify reports are traceable to item(s).	Satisfactory	
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	Satisfactory	Hydro test reports were in accordance with specification and code requirements.  Traceable to each valve serial number.  <u>Comments:</u> Good document packages; contained the verification records required by Bechtel specification M-125C and form G321-D.
	5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	

## SYSTEM WALKDOWN

## DOCUMENT REVIEW

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PURCHASE ORDER # M-125CC

SUPPLIER Anchor Darling

EVALUATOR C. A. Smiroldo

A.E.O. # 8866

LOCATION Hayward, California

DATE 4/14/81

COMPONENT 10" 150# Gate Valves (2), item 51.2, OVPC002A, B

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory Satisfactory Satisfactory	Chemical and material tests included.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	Satisfactory Satisfactory	NPV-1 form notes heat treating associated with parts. Paint inspection report included.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.	Satisfactory Satisfactory Satisfactory Satisfactory	Analysis of weld electrodes included.  Procedures not included in package. Rod issue cards referencing weld procedure number included in package.

PURCHASE ORDER # M-125CC

SUPPLIER Anchor Darling

EVALUATOR C. A. Smiroldo

A.E.O. # 8866

LOCATION Hayward, California

DATE 4/14/81

COMPONENT 10" 150# Gate Valves (2)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports:		
4.1	Verify NDT required by code/specification was performed.	Satisfactory	Certificate of NDE included for PT and visual. PT report and visual report included.
4.2	Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	
4.3	Verify reports are traceable to item(s).	Satisfactory	
4.4	Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
5.1	Review random sample of applicable tests required by code/specification to ensure compliance.	Satisfactory	Valve hydro test report included in package.
5.2	Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	

## DOCUMENT REVIEW

PURCHASE ORDER # M-127AC

SUPPLIER Kerotest

EVALUATOR J. R. Orlando

A.E.O. # 13496

LOCATION Pittsburgh, Pennsylvania

DATE 4/1/81

COMPONENT 1" x 1" Globe Valves (20)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	Satisfactory	CMTR's for valve body disc and bonnets are in the package.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	a) Satisfactory b) Observation	a) Chemical and physical characteristics for the following items were checked and found satisfactory: Ht #6011724 = valve body Ht #4419730 = bonnet  b) Review of CMTR's in the package noted that the year/addenda of the applicable material specifications are not stated.
	1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory	
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	
	2.2 Ensure process reports are traceable to component.	Satisfactory	
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	N/A	
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	N/A	<p><u>Comment</u> Reference Item 1.2b); see paragraph 3.3 D) of Section C-3, Part I (ground rules).</p>



# DOCUMENT REVIEW continued

PURCHASE ORDER # M-127AC

SUPPLIER Kerotest

EVALUATOR J. R. Orlando

A.E.O. # 13496

LOCATION Pittsburgh, Pennsylvania

DATE 4/1/81

COMPONENT 1" x 1" Globe Valves (20)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	Satisfactory	Welder numbers and components are noted on C of C, along with certification to the applicable codes.
	3.4 Ensure weld data report is traceable to component.	N/A	
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	Satisfactory	It appears from available data that required NDT was performed.
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	PT reports are not in package. Reference to procedure number K292, Revision F and NDT technician is in C of C.
	4.3 Verify reports are traceable to item(s).	Satisfactory	
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	Satisfactory	Hydrostatic test reports are not in data package. Only reference is to a procedure number T-2009, Revision E in the vendor's C of C. The specification paragraph 10.3 requires that results of test to be submitted. G321-D also requires verification reports.
	5.2 Verify applicable test data is traceable to component and quantities compatible.	See Remarks	Actual test data other than C of C is not included in the data package.
6.0	Review vendor NPV-1 form.	Satisfactory	NPV-1 form satisfactory for applicable valves.

## DOCUMENT REVIEW

PURC. ORDER # M-131AC

SUPPLIER ITT Grinnell

EVALUATOR J. R. Orlando

A.E. # 14013

LOCATION Memphis, Tennessee

DATE 4/1/81

COMPONENT 1" Diaphragm Valves (20)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
1.1	Verify applicable reports are in data package.	Satisfactory	Applicable CMTR's were found in the package.
1.2	Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	a) Chemical and physical characteristics for the following were checked and found satisfactory: Ht #X2735 - SA-351-77, Cl. F8 Ht #G3 - SA-351, Cl. F8 NY-8069131 38NFX 1.75 studs b) Dates of applicable material code year/addenda is not always specified. Example: Ht #D741 - SA-351, Cl. F8 Ht #G3 - SA-351, Cl. F8
1.3	Ensure material is traceable to MTR/CMTR.	Satisfactory	
2.0	Special Process Reports:		
2.1	Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Heat treat charts and records were reviewed and found satisfactory and traceable.
2.2	Ensure process reports are traceable to component.	Satisfactory	Same as 2.1 above.
3.0	Welding Records:		
3.1	Ensure approved weld procedure was utilized.	N/A	
3.2	Verify approved weld procedure specifies material required by specifications/drawings.	N/A	

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-131AC

SUPPLIER ITT Grinnell

EVALUATOR J. R. Orlando

A.E.O. # 14013

LOCATION Memphis, Tennessee

DATE 4/1/81

COMPONENT 1" Diaphragm Valves (20)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
	3.3 Verify welder qualification covers weld process utilized.	N/A	
	3.4 Ensure weld data report is traceable to component.	N/A	
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	Satisfactory	Refer to ITT Grinnell machining and testing travellers for NDT reporting.
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	
	4.3 Verify reports are traceable to item(s).	Satisfactory	
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	Satisfactory	Hydrostatic "test reports" were not submitted as required by paragraph C-5, page 4 of technical specification. Vendor did include minimum information regarding psi, time/min in the valve certification and report. There is no reference as to the applicable testing procedure or the individuals who performed the test.
	5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	

**DOCUMENT REVIEW continued**

PURCHASE ORDER # M-131AC SUPPLIER ITT Grinnell EVALUATOR J. R. Orlando  
 A.E.O. # 14013 LOCATION Memphis, Tennessee DATE 4/1/81

COMPONENT 1" Diaphragm Valves (20)

ITEM	CHARACTERISTICS	RESULTS	REMARKS
6.0	Review Minimum Wall Measurement Records	Satisfactory	A random sample was checked and found satisfactory.

## SYSTEM WALKDOWN

## DOCUMENT REVIEW

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PURCHASE ORDER # M-132-3

SUPPLIER Henry Pratt

EVALUATOR C. A. Smiroldo

A.E.O. # 5128

LOCATION Aurora, Illinois

DATE 4/15/81

COMPONENT 12" Butterfly Valve, QVFPC001

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
1.1	Verify applicable reports are in data package.	Satisfactory	Chemical and material test reports included.
1.2	Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	
1.3	Ensure material is traceable to MTR/CMTR.	Satisfactory	
2.0	Special Process Reports:		
2.1	Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Certificate of cleaning included. NPV-1 form notes heat treats associated with valve parts. Heat treat record included.
2.2	Ensure process reports are traceable to component.	Satisfactory	
3.0	Welding Records:		
3.1	Ensure approved weld procedure was utilized.	Satisfactory	Welding material identified and procedures referenced. CMTR for electrodes included in package.
3.2	Verify approved weld procedure specifies material required by specifications/drawings.	Satisfactory	
3.3	Verify welder qualification covers weld process utilized (position, thickness, etc.)	Satisfactory	
3.4	Ensure weld data report is traceable to component.	Satisfactory	

## DOCUMENT REVIEW continued

PURCHASE ORDER # M-132-3

SUPPLIER Henry Pratt

EVALUATOR C. A. Smiroldo

A.E.O. # 5128

LOCATION Aurora, Illinois

DATE 4/15/81

COMPONENT 12" Butterfly Valve

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports:		
4.1	Verify NDT required by code/specification was performed.	Satisfactory	Certificates of UT, PT and NDE personnel qualifications, visual inspection reports included.
4.2	Review NDT reports as to acceptance criteria, quantities tested, etc.	Satisfactory	
4.3	Verify reports are traceable to item(s).	Satisfactory	
4.4	Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
5.1	Review random sample of applicable tests required by code/specification to ensure compliance.	Satisfactory	Certification of hydrostatic and leakage tests included.
5.2	Verify applicable test data is traceable to component and quantities compatible.	Satisfactory	

# DOCUMENT REVIEW

PURCHASE ORDER # M-140

SUPPLIER Crosby Valve & Gage Co.

EVALUATOR R. E. Herbst

A.E.O. # 13271

LOCATION Wrentham, Massachusetts

DATE 3/25/81

COMPONENT Pressure Relief Valve, Tag. #2PSV-0487

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory Satisfactory Satisfactory	Reviewed one document package, purchase order. Verified that all pressure containing material reports for the valve components specified in the NPV-1 data report are in the package. Crosby's certificate of conformance certifies that parts were produced in accordance with ASME Section III Edition and addenda through Summer 1976 and Code Cases 1711 and N-242. Verified that all CMTR's were traceable to a unique identification number.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	Satisfactory Satisfactory	All required heat treat reports and/or certifications were included. Process reports were traceable to valve component parts.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.	Satisfactory N/A Satisfactory Satisfactory	Document package contains a Crosby certificate of compliance for welding procedures and repair procedures. Unable to verify - weld procedure not in package. Welders summary of qualification, process, position, etc. included in package. Weld data reports are traceable to a unique number on the valve parts.

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-140                      SUPPLIER Crosby Valve & Gage Co.                      EVALUATOR R. E. Herbst  
 A.E.O. # 13271                                      LOCATION Wrentham, Massachusetts                      DATE 3/25/81  
 COMPONENT Pressure Relief Valve, Tag #2PSV-0487

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	N/A N/A N/A N/A	None required.    None required.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory  Satisfactory	Loading tests and tendon fabrication records in accordance with specification.  Traceable to tendon mark number and heat number.  <u>Comments:</u> Reproducibility of SDDR No. 1492 and two sheets of tendon fabrication records are questionable.



## DOCUMENT REVIEW

PURCHASE ORDER # M-140AC

SUPPLIER Crosby Valve &amp; Gage Co.

EVALUATOR R. E. Herbst

A.E.O. # 11543

LOCATION Wrentham, Massachusetts

DATE 3/26/81

COMPONENT Safety Relief Valve (1), Tag #1PSV-1669C

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		Reviewed one document package, specifications, and Bechtel purchase order.
	1.1 Verify applicable reports are in data package.	Satisfactory	Verified that pressure retaining parts specified on the NV-1 data report had material test reports included in pkg
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	Satisfactory	Material specifications including type or grade were as required by Bechtel Spec. Crosby's C of C certified that materials were produced in accordance with ASME III, '74 edition and addenda through Summer '76.
	1.3 Ensure material is traceable to MTR/CMTR.	Satisfactory	Verified that each material test report was traceable to each part number of the valve.
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	Satisfactory	Heat treat certification and/or heat treat charts were included in the document package as required by specification.
	2.2 Ensure process reports are traceable to component.	Satisfactory	Were traceable to valve part serial numbers.
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	Satisfactory	Crosby's certificate of compliance for welding certifies that all weld and weld repair procedures are qualified in accordance with Section III and IX of the Code.
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	N/A	Unable to verify - procedures not in package.
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	Satisfactory	List of certified welders included in package.
	3.4 Ensure weld data report is traceable to component.	Satisfactory	Weld data reports are traceable to the identification numbers of the valve parts.

# DOCUMENT REVIEW continued

PURCHASE ORDER # M-140AC      SUPPLIER Crosby Valve & Gage Co.      EVALUATOR R. E. Herbst  
 A.E.O. # 11543      LOCATION Wrentham, Massachusetts      DATE 3/26/81  
 COMPONENT Safety Relief Valve (1), Tag #1PSV-1669C

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	Satisfactory  Satisfactory  Satisfactory  N/A	PT was the only NDE required, PT reports are included in the package. Crosby's C of C certifies that NDE personnel have been qualified in accordance with SNT-TC-1A. PT reports include the essential criteria, including inspector and SNT level.  PT reports were traceable to each valve part. No radiography required for this valve.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	Satisfactory  Satisfactory	Valve test report includes hydro test, cold differential test and seat leakage test.  Test reports are identified to valve tag number and valve serial number.  <u>Comments:</u> A good document package; contains an Index. All verification reports required by specification, and legibility is satisfactory.

P.O./P.A. #	COMPONENT	VENDOR	DOCUMENT I.D. #	DISCIPLINE
020049LJ	Level Transmitters	Rosemount, Inc.	23-1943-01	INST
020682LW	RC Pump Internals, Motor & H/E	Byron-Jackson Pump	23-1903-01	M
020682LW	RC Pump Internals, Motor & H/E	Byron-Jackson Pump	23-1975-01	M
021408LL	Fuel Storage Handling Bridge	Stearns-Roger	23-2045-01	M/E
022757LS	Pressurizer Safety Valves	Dresser Industries	23-2181-01	M
022777LK	Decay Heat Coolers	Atlas Industrial Mfg.	23-0001-01	M
024998LE	Letdown Cooler	Atlas Industrial Mfg.	23-1612-02	M
027496LA	Make-Up Storage Tank	Whitlock Mfg. Co.	23-1044-01	M
026506LR	Decay Heat Pump Motors	General Electric Co.	23-1424-01	E
83-761015-03,04	Core Flooding Tank	Stearns-Roger	23-1335-01	M
83-762292-01	Pressurizer Heater Bundles	B & W (Lynchburg)	23-0989-01	M
83-762724-00,01	Reactor Vessel & Closure Head	B & W (Mt. Vernon)	23-1129-02	M
83-767032-00,01,02	Core Support Assembly	B & W (W. Barberton)	23-1145-01	M

## DOCUMENT REVIEW

PURCHASE ORDER # 020049LJ SUPPLIER Rosemount, Inc. EVALUATOR C. A. Smiroldo  
 DOCUMENT I.D. # 23-1943-01 LOCATION P.O. Box 35129, Minneapolis, MN DATE 3/24/81  
 COMPONENT Level Transmitters

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	Not applicable Not applicable Not applicable	Not applicable to M & TE
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	Not applicable Not applicable	Not applicable to M & TE
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.	Not applicable Not applicable Not applicable Not applicable	Not applicable to M & TE

## DOCUMENT REVIEW continued

PURCHASE ORDER # 020049LJ

SUPPLIER Rosemount, Inc.

EVALUATOR C. A. Smiroldo

DOCUMENT I.D. # 23-1943-01

LOCATION P.O. Box 35129, Minneapolis, MN

DATE 3/24/81

COMPONENT Level Transmitters

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/ specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	Not applicable Not applicable Not applicable Not applicable	Not applicable to M & TE
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/ specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	Not applicable	Calibration data traceable to C of C. See Page 3 for additional information.

# DOCUMENT REVIEW continued


Page 3 of 3

PURCHASE ORDER # 020049LJ SUPPLIER Rosemount, Inc. EVALUATOR C. A. Smiroldo  
DOCUMENT I.D. # 23-1943-01 LOCATION P.O. Box 35129, Minneapolis, MN DATE 3/24/81  
COMPONENT Level Transmitters

- 1) Quality C of C data sheet for Rosemount Differential Pressure Transmitter. Tag No. is missing notation 2LT-0509C.
- 2) Quality C of C data sheet for Rosemount Differential Pressure Transmitter. Tag No. 620-0012/2CA-LT-9-2LT-05G7 should read 620-0012/2CA-LT-9/2LT-0507.
- 3) Rosemount Model 1152 LL4A2A0 should read LL5A2A0. Also measured output looks suspicious.
- 4) Quality C of C data sheet for Rosemount Differential Pressure Transmitter. Tag No. is missing notation after 620-0012/2BS-LT8A/\_\_\_\_\_.
- 5) Quality C of C data sheet for Rosemount Differential Pressure Transmitter. Tag No. is missing notation after 620-0012/2BS-LT11A/\_\_\_\_\_.
- 6) Quality C of C data sheet for Rosemount Differential Pressure Transmitter. Tag No. is missing notation after 620-0012/2BS-LT11B/\_\_\_\_\_.
- 7) Other than a notation that the accuracy data was determined per Rosemount Procedure 117510, there is no statement regarding traceability to the National Bureau of Standards for their calibrating equipment. It is recognized, however, that the C of C (and traceability to NBS) is only good until the gauge is recalibrated on site. Reference: ANSI N45.2 and ASME III MA-3700.

## DOCUMENT REVIEW

PURCHASE ORDER # 020682LW      SUPPLIER Byron-Jackson Pump      EVALUATOR C. A. Smiroldo  
 DOCUMENT I.D. # 23-1903-01      LOCATION Los Angeles, California      DATE 3/31/81  
 COMPONENT RC Pump Internals and Motor Stand with Heat Exchanger 691-N-0042

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	OK  OK  OK	Verified chemical and mechanical tests to ASME SA-479, ASME SA-182.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	OK  OK	Heat treat, sandblasting, and coating, etc. certificates included in QA data package.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.	N/A 	Weld procedures and qualification not required in QA data package.  Weld filler records, weld rod analysis, included in QA data package.

# DOCUMENT REVIEW continued

PURCHASE ORDER # 020682LW      SUPPLIER Byron-Jackson Pump      EVALUATOR C. A. Smiroldo  
 DOCUMENT I.D. # 23-1903-01      LOCATION Los Angeles, California      DATE 3/31/81  
 COMPONENT RC Pump Internals and Motor Stand with Heat Exchanger 691-N-0042

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	OK -  OK  OK  N/A	NDT Inspection Reports included in package.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	OK  OK	Hydro certificate in QA data package.



## DOCUMENT REVIEW

PURCHASE ORDER # 020682LW

SUPPLIER Byron-Jackson Pump

EVALUATOR C. A. Smiroldo

DOCUMENT I.D. # 23-1975-01

LOCATION Los Angeles, California

DATE 3/26/81

COMPONENT RC Pump Internals and Motor Stand with Heat Exchanger 691-N-0044

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	OK	Verified chemical and mechanical tests to ASTM-A-194-73, ASME SA-182 and ASME SA-351.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	OK	
	1.3 Ensure material is traceable to MTR/CMTR.	OK	
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	OK	Heat treats sampled meet code and specification requirements.
	2.2 Ensure process reports are traceable to component.	OK	
3.0	Welding Records:	N/A	Weld procedures and qualification not required in QA data package per QA matrix.  Weld filler metal record, weld rod analysis, included in QA data package.
	3.1 Ensure approved weld procedure was utilized.	↓	
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.		
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)		
	3.4 Ensure weld data report is traceable to component.		

# DOCUMENT REVIEW continued

PURCHASE ORDER # 020682LW      SUPPLIER Byron-Jackson Pump      EVALUATOR C. A. Smiroldo  
 DOCUMENT I.D. # 23-1975-01      LOCATION Los Angeles, California      DATE 3/26/81  
 COMPONENT RC Pump Internals and Motor Stand with Heat Exchanger 691-N-0044

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports:		
	4.1 Verify NDT required by code/specification was performed.	OK	NDT Inspection Reports included in QA data package.
	4.2 Review NDT reports as to acceptance criteria, quantities tested, etc.	OK	
	4.3 Verify reports are traceable to item(s).	OK	
	4.4 Physically review random sample of film on weldments, if applicable.	N/A	
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional):		
	5.1 Review random sample of applicable tests required by code/specification to ensure compliance.	OK	Hydro, sandblasting and coating, etc. certificates included in QA data package.
	5.2 Verify applicable test data is traceable to component and quantities compatible.	OK	
			NOTE: Bechtel NCR 1680 dated 12/78 documented several discrepancies in QA data package. Examples are C of C lacks Heat Exchanger, Driver Mount Assy stud and stud bracket have no mechanical properties listed, Contract Variation 87-0945-00 not listed in QA data package. NCR still open after three letters have been sent to B & W (latest dated May 7, 1980) requesting resolution of NCR, per Bechtel Procurement.

## DOCUMENT REVIEW

PURCHASE ORDER # 021408LL

SUPPLIER Stearns - Roger

EVALUATOR C. A. Smiroldo

DOCUMENT I.D. # 23-2045-01

LOCATION P.O. Box 5888, Denver, Colorado


DATE 3/26/81

COMPONENT Fuel Storage Handling Bridge

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	OK OK OK	Chemicals and mechanicals for type 17-4 Ph, 304, etc. included. Verified ASTM-A-564-74, grade 630 and ASME SA-240.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	OK OK	S-R letters verify paint, cleaning, compliance with CMAA. Heat treat records OK.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.	N/A ↓	Not available. Not required to be submitted to CPCo per QA matrix.

# DOCUMENT REVIEW continued

PURCHASE ORDER # 021408LL      SUPPLIER Stearns - Roger      EVALUATOR C. A. Smiroldo  
 DOCUMENT I.D. # 23-2045-01      LOCATION P.O. Box 5888, Denver, Colorado      DATE 3/26/81  
 COMPONENT Fuel Storage Handling Bridge

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/ specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	N/A 	Not available. Not required to be submitted to CPCo per QA matrix.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/ specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	OK  OK	Checkout and operating procedures part of QA package.  NOTE: Appendix A to 620-0013, page A-3 references 620-0012 in upper right, should be 620-0013 (contract number). Appendix A is data sheet for handling bridges.

## DOCUMENT REVIEW

PURCHASE ORDER # 022757LS

SUPPLIER Dresser Industries

EVALUATOR C. A. Smiraldo

DOCUMENT I.D. # 23-2181-01

LOCATION Alexandria, Louisiana

DATE 3/27/81

COMPONENT Pressurizer Safety Valves

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	OK OK OK	Chemical and mechanical tests included. Verified C & M tests of ASME SA-182, Grade F-316.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	OK OK	Heat treat information provided.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.	N/A ↓	Weld rod certifications included; however, no other weld information is provided.

# DOCUMENT REVIEW continued

PURCHASE ORDER # 022757LS      SUPPLIER Dresser Industries      EVALUATOR C. A. Smiroldo  
 DOCUMENT I.D. # 23-2181-01      LOCATION Alexandria, Louisiana      DATE 3/27/81  
 COMPONENT Pressurizer Safety Valves

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	OK  OK  OK  N/A	Certificates of UT, Radiographic Logs, Liquid Penetrant, Mag. Particle reports included.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	See Note 2  OK	Record of hydrostatic tests included.   NOTE: 1) QA requirements matrix 205606E-2 is not in the data package. 2) Dresser's Nuclear Test Log for Backpressure Proof Test of Order No. 35-12875-0 (filed under valve data) shows illegible pressure reading in psig. This page is intended to provide verification that the valve does not leak after 30 minutes of testing.

## DOCUMENT REVIEW

PURCHASE ORDER # 022777LK

SUPPLIER Atlas Industrial Manufacturing Co. EVALUATOR C. A. Smiroldo

DOCUMENT I.D. # 23-0001-01

LOCATION P.O. Box 10325, Pittsburgh, PA DATE 3/24/81

COMPONENT Decay Heat Coolers

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	OK OK OK	Verified type 304SS to ASME SA-240 and type F304 to ASTM A-182.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	OK OK	
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.		Not available. Not required per QA matrix to be submitted to CPCo.

# DOCUMENT REVIEW continued

PURCHASE ORDER # 022777LK

SUPPLIER Atlas Industrial Manufacturing Co.

EVALUATOR C. A. Smiroldo

DOCUMENT I.D. # 23-0001-01

LOCATION P.O. Box 10325, Pittsburgh, PA

DATE 3/24/81

COMPONENT Decay Heat Coolers

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	OK  OK  OK  OK	Covered in C of C and QA matrix.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	OK  OK	Covered in C of C and QA matrix.



## DOCUMENT REVIEW


PURCHASE ORDER # 024998LE

SUPPLIER Atlas Industrial Manufacturing Co. EVALUATOR C. A. Smiroldo

DOCUMENT I.D. # 23-1612-02

LOCATION 81 Somerset Place, Clifton, NJ DATE 3/26/81

COMPONENT Letdown Cooler

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	OK  OK  OK	Verified chemical and mechanical for ASME SA-240 and SA-106B.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	OK  OK	Certification exists for painting, sandblasting, etc.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.	N/A 	Not required per specification to be included in data package. Welding to be in accordance with ASME Section IX 1971 Edition.

# DOCUMENT REVIEW continued

PURCHASE ORDER # 024998LE

SUPPLIER Atlas Industrial Manufacturing Co.

EVALUATOR C. A. Smiroldo

DOCUMENT I.D. # 23-1612-02

LOCATION 81 Somerset Place, Clifton, NJ

DATE 3/26/81

COMPONENT Letdown Cooler

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	OK OK OK N/A	Atlas letter of qualified NDE personnel does not list Messrs. T. Ciampi and P.J. Branch for 2MU-HXIA and M. Wish, P. Branch and T. Ciampi for 2MU-HXIB.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	OK OK	Hydrostatically tested to Atlas Standard III, Rev. 1 submitted to B & W. Certification letters exist for hydro, air test, sand-blasting, etc.  NOTE: Nameplate data has been inked in on record copy with no initials, date, or indication attesting to accuracy for 2MU-HXIA and 2MU-HXIB.

## DOCUMENT REVIEW

PURCHASE ORDER # 027496LA

SUPPLIER Whitlock Manufacturing Company

EVALUATOR C. A. Smiroldo

DOCUMENT I.D. # 23-1044-01

LOCATION 77 South St., W. Hartford, CT

DATE 3/19/81

COMPONENT Make-up Storage Tank

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	OK	
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	OK	Verified parts T3, T4, T5, T18 and T19 chemical and mechanical properties. Also verified equivalency of ASTM & ASME.
	1.3 Ensure material is traceable to MTR/CMTR.	OK	
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	See Remarks	Heat treat - OK. No physical evidence exists that shop primer was applied to Spec., para. 7.0.
	2.2 Ensure process reports are traceable to component.	OK	
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	N/A	Welding to ASME Sec. III and IX per spec. weld procedures and NDE to be retained by vendor per QA matrix.
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	↓	Not available.
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	↓	Not available.
	3.4 Ensure weld data report is traceable to component.	OK	

# DOCUMENT REVIEW continued

PURCHASE ORDER # 027496LA      SUPPLIER Whitlock Manufacturing Company      EVALUATOR C. A. Smiroldo  
 DOCUMENT I.D. # 23-1044-01      LOCATION 77 South St., W. Hartford, CT      DATE 3/19/81  
 COMPONENT Make-up Storage Tank

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/ specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	OK -  OK  OK  See Remark	No letter in file attesting to qualifications of radiographer or reviewer.   Vendor to hold film.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/ specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	See Remark   OK	NDE reports of acceptability exist for hydro, cleaning, but no procedures. Procedures not required per QA matrix.   NOTE: Material documentation sheet has many editorial errors: Part T4 - Material spec. should read (71 Ed. S73 Addenda) Part T6 - Material spec. should read ASTM-A-240* Part T9 - Material spec. - no edition or addenda called out for SA-182. Part T9 - Supplier should read CAMCO. Studs - Material spec. - no edition or addenda called out for SA-193.

## DOCUMENT REVIEW

PURCHASE ORDER # 026506LR

SUPPLIER General Electric Company

EVALUATOR C. A. Smiroldo

DOCUMENT I.D. # 23-1424-01

LOCATION Box 6974, Richmond, Virginia

DATE 3/31/81

COMPONENT Decay Heat Pump Motors

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	N/A	Not applicable to this P.O.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.	OK	Locked rotor data, air gap measurements within spec. and included in QA data package.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.	N/A	Not applicable to this P.O.

# DOCUMENT REVIEW continued

PURCHASE ORDER # 026506LR      SUPPLIER General Electric Company      EVALUATOR C. A. Smioldo  
 DOCUMENT I.D. # 23-1424-01      LOCATION Box 6974, Richmond, Virginia      DATE 3/31/81  
 COMPONENT Decay Heat Pump Motors

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	N/A N/A N/A N/A	Not applicable to this P.O.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	OK Not available	Complete tests and noise tests are documented by B & W to have been done by GE and that they were satisfactory.

## DOCUMENT REVIEW

P.A. # 83-761015-03,04

SUPPLIER Stearns - Roger

EVALUATOR C. A. Smiroldo

DOCUMENT I.D. # 23-1335-01

LOCATION Box 5888, Denver, Colorado

DATE 3/26/81

COMPONENT Core Flooding Tank

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's):		
	1.1 Verify applicable reports are in data package.	OK	Chemical and mechanical tests included.
	1.2 Random sample MTR/CMTR reports to ensure specification/code requirements.	OK	
	1.3 Ensure material is traceable to MTR/CMTR.	OK	
2.0	Special Process Reports:		
	2.1 Verify heat treat, coating, etc. reports meet code/specification requirements.	OK	List of material heat numbers included. Cover sheet for S-R painting specification included.
	2.2 Ensure process reports are traceable to component.	OK	
3.0	Welding Records:		
	3.1 Ensure approved weld procedure was utilized.	See Remarks	Weld procedures submitted to B & W for approval.
	3.2 Verify approved weld procedure specifies material required by specifications/drawings.	N/A	Procedures not required to be in QA data package per QA matrix.
	3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.)	OK	List of weld procedures and qualifications included.
	3.4 Ensure weld data report is traceable to component.	N/A	Reports not required to be part of CPCo's QA data package.

# DOCUMENT REVIEW continued

P. A. # 83-761015-03,04      SUPPLIER Stearns - Roger      EVALUATOR C. A. Smiroldo  
 DOCUMENT I.D. # 23-1335-01      LOCATION Box 5888, Denver, Colorado      DATE 3/26/81  
 COMPONENT Core Flooding Tank

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	<b>Nondestructive Examination Reports:</b> 4.1 Verify NDT required by code/ specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	OK OK OK N/A	S-R C of C included for cleaning, painting, examinations, tests and inspections. Radiographic inspection reports included.
5.0	<b>Operational Test Reports (Hydrostatic/Pneumatic/Functional):</b> 5.1 Review random sample of applicable tests required by code/ specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.	OK OK	Hydrostatic test certification and S-R C of C included.



## DOCUMENT REVIEW

P. A. # 83-762292-01

SUPPLIER B &amp; W

EVALUATOR C. A. Smiroldo

DOCUMENT I.D. # 23-0989-01

LOCATION Lynchburg, Virginia

DATE 3/24/81

COMPONENT Pressurizer Heater Bundles

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	OK	C of C only documentation of consequence in QA data package.  QA requirement matrix indicates most paperwork available at B & W for review.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.		
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.	OK	Not available for review. Held at vendor's plant per QA matrix.

# DOCUMENT REVIEW continued

P. A. # 83-762292-01 SUPPLIER B & W EVALUATOR C. A. Smiroldo  
 DOCUMENT I.D. # 23-0989-01 LOCATION Lynchburg, Virginia DATE 3/24/81  
 COMPONENT Pressurizer Heater Bundles

ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to item(s). 4.4 Physically review random sample of film on weldments, if applicable.	-	Not available.  Not available.  Not available.  Not available.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.		Not available.  Not available.

## DOCUMENT REVIEW

P.A. # 83-762724-00,01

SUPPLIER B &amp; W

EVALUATOR C. A. Smiroldo

DOCUMENT I.D. # 23-1129-02

LOCATION Mt. Vernon, Indiana

DATE 3/27/81

COMPONENT Reactor Vessel and Closure Head

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.		Not included in QA data package. Not required, per QA matrix, to be provided to CPCo.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.		Final heat treatment reports included in QA package. Specifics of heat treat, cladding, etc. not required in QA data package per QA matrix.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.		List of weld and list of welding material provided in QA package. Specifics not required in QA data package per QA matrix.

# DOCUMENT REVIEW continued

P.A. # 83-762724-00,01 SUPPLIER B & W EVALUATOR C. A. Smiroldo  
 DOCUMENT I.D. # 23-1129-02 LOCATION Mt. Vernon, Indiana DATE 3/27/81  
 COMPONENT Reactor Vessel and Closure Head

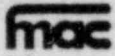
ITEM	CHARACTERISTICS	RESULTS	REMARKS
4.0	Nondestructive Examination Reports: 4.1 Verify NDT required by code/specification was performed. 4.2 Review NDT reports as to acceptance criteria, quantities tested, etc. 4.3 Verify reports are traceable to Item(s). 4.4 Physically review random sample of film on weldments, if applicable.		B & W report of final inspection and list of RT acceptance provided in QA package. Specifics not required in QA package per QA matrix.
5.0	Operational Test Reports (Hydrostatic/Pneumatic/Functional): 5.1 Review random sample of applicable tests required by code/specification to ensure compliance. 5.2 Verify applicable test data is traceable to component and quantities compatible.		Hydrostatic test report included in QA package. Specifics not required in QA package per QA matrix.  NOTE: B & W's stress report certification document page 1 of 4 references ASME Sec. III, 1968, with Summer addenda; however, no date for Summer addenda is indicated.

# DOCUMENT REVIEW

P. A. # 83-767032-00,01,02    SUPPLIER B & W    EVALUATOR C. A. Smiroldo  
 DOCUMENT I.D. # 23-1145-01    LOCATION West Barberton, Ohio    DATE 3/26/81  
 COMPONENT Core Support Assembly

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Material Test Reports (MTR's) and Certified Material Test Reports (CMTR's): 1.1 Verify applicable reports are in data package. 1.2 Random sample MTR/CMTR reports to ensure specification/code requirements. 1.3 Ensure material is traceable to MTR/CMTR.	N/A 	All MTR's are available at B & W, and are not required to be part of the QA data package. See Note.
2.0	Special Process Reports: 2.1 Verify heat treat, coating, etc. reports meet code/specification requirements. 2.2 Ensure process reports are traceable to component.		See Note.
3.0	Welding Records: 3.1 Ensure approved weld procedure was utilized. 3.2 Verify approved weld procedure specifies material required by specifications/drawings. 3.3 Verify welder qualification covers weld process utilized (position, thickness, etc.) 3.4 Ensure weld data report is traceable to component.		B & W Certificate of Conformance included together with certification and release for shipment. Both indicate all welding operators and weld procedures were qualified. List of weld including such items as welding data sheet, procedure qualification, parts joined and filler material provided in the QA data package.





RADIOGRAPHIC RECORDS EXAMINATION - ATTACHMENT C-3.4

P.O. #	COMPONENT	VENDOR
C-50A	Reactor Liner Plate	Delta Southern
J-258	Butterfly Valves	Fisher Controls
M-051	Cooling Heat Exchanger	Yuba Heat
M-140A	Pipe Spools	ITT Grinnell
M-115	Pipe Spools	M. W. Kellogg
M-117	Nuclear Service Valves	Anchor Darling
M-118A	Nuclear Valves	Energy Products Group
M-118BC	Flow Control Valves	Rockwell International
M-125C	4" 150# Gate Valve Discs	Anchor Darling

# RADIOGRAPHIC REVIEW

BECHTEL P.O. NO.	SUPPLIER/ LOCATION	COMPONENT DESCRIPTION	SERIAL NO. TAG NO.	PART NUMBER	FILM DATE	NUMBER OF VIEWS	READER/ TECHNIQUE SHEETS	READER/ TECHNIQUE FILM	REVIEWER AND DATE/ REMARKS
C-50A	Delta Southern	Reactor Bldg. Liner Plate			1970 1975	Number OUS	Unsatis.	Satis.	TJM 3/24/81 (1)(2)(3)

- (1) Reader sheets are not traceable to item number, vessel number, etc.  
 Note: Film package has an excellent form on cover, however it is not utilized.
- (2) Reader sheets do not list essential items, i.e.:
- |                                  |  |
|----------------------------------|--|
| a) reference acceptance standard | c) screens                               |
| b) density                       | d) viewing; single, duplicate, composite |
- (3) Technique sheets not available or referenced.

Note: Reviewed one package of film from a lot of three.



# RADIOGRAPHIC REVIEW

BECHTEL P.O. NO.	SUPPLIER/ LOCATION	COMPONENT DESCRIPTION	SERIAL NO. TAG NO.	PART NUMBER	FILM DATE	NUMBER OF VIEWS	READER/ TECHNIQUE SHEETS	READER/ TECHNIQUE FILM	REVIEWER AND DATE/ REMARKS
J-258	Fisher Controls	Casting	PSA 7768	G 25808	3/03/78	V-A,B 4	Satis.	Satis.	TJM 3/25/81
J-258	Fisher Controls	Casting	PSA 7769	G 25808	3/30/78	V-A,B 4	Satis.	Satis.	TJM 3/25/81
J-258	Fisher Controls	Casting	PSA 7770	G 25808	3/30/78	V-A,B 4	Unsatis.	Satis.	TJM 3/25/81 (1)

(1) Technique sheet not available; certificate of inspection sheet provided with film is for P/N G 25802.\*

\*G25802 is the number for a machined casting versus rough casting G25808.

Note: A random sample of three packages was reviewed.

# RADIOGRAPHIC REVIEW

BECHTEL P.O. NO.	SUPPLIER/ LOCATION	COMPONENT DESCRIPTION	SERIAL NO. TAG NO.	PART NUMBER	FILM DATE	NUMBER OF VIEWS	READER/ TECHNIQUE SHEETS	READER/ TECHNIQUE FILM	REVIEWER AND DATE/ REMARKS
M-051	Yuba Heat	Cooling Heating Exchanger	NO 11-1A	Seam D N2 Nozzle	12/20/75	1 Loc 5-6	Unsatis.	Satis.	TJM 3/19/81 (1)
M-051	Yuba Heat	Cooling Heating Exchanger	NO 11-1A	Seam D N2 Nozzle	12/23/75	1-2 4-5 6-1	Unsatis.	Satis.	TJM 3/19/81 (2)
M-051	Yuba Heat	Cooling Heating Exchanger	NO 11-1A	Seam D N2 Nozzle	12/17/75	1-2	Satis.	Unsatis.	TJM 3/19/81 (3)

(1) Reader sheet does not identify acceptable film as R-2.

(2) Reader sheet dated 12/23/75 indicates above film rejected - film package indicates acceptable.

(3) Film identifies Locator 2 - Locator 1 not visible on film.

Note: Selected 8 packages of film/reader sheets - above results were based on review of 3 packages of film/reader sheets. Recommend complete packages to be reviewed.

(4) Film was not reviewed for verification of acceptance.

(5) Numerous entries are in pencil - not a permanent entry.

(6) Technical sheets not available.

# RADIOGRAPHIC REVIEW

BECHTEL P.O. NO.	SUPPLIER/ LOCATION	COMPONENT DESCRIPTION	SERIAL NO. TAG NO.	PART NUMBER	FILM DATE	NUMBER OF VIEWS	READER/ TECHNIQUE SHEETS	READER/ TECHNIQUE FILM	REVIEWER AND DATE/ REMARKS
M-104A	ITT Grinnell Kernersville, NC	Pipe Spools		E MR 62-2x	8/77	4	Satis.	Satis.	TJM 3/26/81
M-104A	ITT Grinnell Kernersville, NC	Pipe Spools		C MR 80-33x	1/78	5	Satis.	Satis.	TJM 3/26/81
M-104A	ITT Grinnell Kernersville, NC	Pipe Spools		B MP 62-277x	3/1/77	6	Satis.	Satis.	TJM 3/26/81
M-104A	ITT Grinnell Kernersville, NC	Pipe Spools		C MP 62-277x	3/1/77	6	Satis.	Satis.	TJM 3/26/81
M-104A	ITT Grinnell Kernersville, NC	Pipe Spools		F MR 62-2x	8/71	4	Satis.	Satis.	TJM 3/26/81
M-104A	ITT Grinnell Kernersville, NC	Pipe Spools		D* MR 80-33x	1/11/78	5	Unsatis.	Unsatis.	TJM 3/26/81

\*Part number MR 80-33x, seam "D" film was observed to have a linear indication. Subject film was presented to CPCo NDE personnel for confirmation; results were positive.

# RADIOGRAPHIC REVIEW

BECHTEL P.O. NO.	SUPPLIER/ LOCATION	COMPONENT DESCRIPTION	SERIAL NO. TAG NO.	PART NUMBER	FILM DATE	NUMBER OF VIEWS	READER/ TECHNIQUE SHEETS	READER/ TECHNIQUE FILM	REVIEWER AND DATE/ REMARKS
M-115	M. W. Kellogg Williamsport, PA	Pipe Spools		A thru D 2GCB-003	7/8/74	16	Satis.	Satis.	TJM 3/26/81
M-115	M. W. Kellogg Williamsport, PA	Pipe Spools		A thru C 2GCB-004	7/8/74	12	Satis.	Satis.	TJM 3/26/81
M-115	M. W. Kellogg Williamsport, PA	Pipe Spools		A and B 2GCB-002	7/8/74	8	Satis.	Satis.	TJM 3/26/81
M-115	M. W. Kellogg Williamsport, PA	Pipe Spools		A and B 2GCB-005	7/8/74	8	Satis.	Satis.	TJM 3/26/81
M-115	M. W. Kellogg Williamsport, PA	Pipe Spools		A 2GCB-006	7/8/74	4	Satis.	Satis.	TJM 3/26/81

# RADIOGRAPHIC REVIEW

BECHTEL P.O. NO.	SUPPLIER/ LOCATION	COMPONENT DESCRIPTION	SERIAL NO. TAG NO.	PART NUMBER	FILM DATE	NUMBER OF VIEWS	READER/ TECHNIQUE SHEETS	READER/ TECHNIQUE FILM	REVIEWER AND DATE/ REMARKS
M-115	M. W. Kellogg Williamsport, PA	Pipe Spools		A thru G 2GCB-003	6/24/74	24	Satis.	Satis.	TJM 3/26/81
M-115	M. W. Kellogg Williamsport, PA	Pipe Spools		A 2GCB-001	6/24/74	8	Satis.	Satis.	TJM 3/26/81
M-115	M. W. Kellogg Williamsport, PA	Pipe Spools		A and B 2GCB-002	6/24/74	8	Satis.	Satis.	TJM 3/26/81
M-115	M. W. Kellogg Williamsport, PA	Pipe Spools		F 2GCB-002	6/24/74	8	Satis.	Satis.	TJM 3/26/81
M-115	M. W. Kellogg Williamsport, PA	Pipe Spools		A 2GCB-004	6/24/74	4	Satis.	Satis.	TJM 3/26/81

- A total of 24 packages reviewed 100%.
- This number was a sample of approximately 200 packages in the vault.
- Review consisted of traceability of film with reader sheets and review of film.
- No deficiencies were observed.

# RADIOGRAPHIC REVIEW

BECHTEL P.O. NO.	SUPPLIER/ LOCATION	COMPONENT DESCRIPTION	SERIAL NO. TAG NO.	PART NUMBER	FILM DATE	NUMBER OF VIEWS	READER/ TECHNIQUE SHEETS	READER/ TECHNIQUE FILM	REVIEWER AND DATE/ REMARKS
M-117	Anchor Darling Haywood, CA	Nuc. Serv. Valves 2½" & larger		6" 600# SC Body	6/22/78	Reviewed 50 film from lot of 96	Satis.	Satis.	TJM 3/24/81 (1-4)

- (1) Reader sheets are complete, legible and traceable to film.
- (2) Technical sheets accompanied reader sheets.
- (3) Shooting sketch accompanied packages identifying each shot and location.
- (4) Density checks are within code requirements.

Note: This package of film meets requirements of P.O., ASME & ASNI requirements.

# RADIOGRAPHIC REVIEW

BECHTEL P.O. NO.	SUPPLIER/ LOCATION	COMPONENT DESCRIPTION	SERIAL NO. TAG NO.	PART NUMBER	FILM DATE	NUMBER OF VIEWS	READER/ TECHNIQUE SHEETS	READER/ TECHNIQUE FILM	REVIEWER AND DATE/ REMARKS
M-118A	EPC (Wisc. Centrifugal, Inc X-Ray Reports)	Nuclear Valves (Misc.)	WC 10746 WC 10747		2/19/76	24	Satis. Unsatis.	Satis. Unsatis.	TJM 3/25/81 (1)(2)
M-118A	EBV	"B" Port HT 214480	#2	D112-000- 1628-002	9/14/78	Box of 14x17"	Unsatis.	Satis.	TJM 3/25/81 (3)

- (1) Technical sheets/reader sheets not available. Radiographic report submitted.
- (2) View 12.1 of WC 10747 has water marks and was stuck to the film cover package.
- (3) Item (3) has no documentation as to acceptance/rejection data other than notation on film packages.

Note: A random sample of approximately 200 film was reviewed.

# RADIOGRAPHIC REVIEW

BECHTEL P.O. NO.	SUPPLIER/ LOCATION	COMPONENT DESCRIPTION	SERIAL NO. TAG NO.	PART NUMBER	FILM DATE	NUMBER OF VIEWS	READER/ TECHNIQUE SHEETS	READER/ TECHNIQUE FILM	REVIEWER AND DATE/ REMARKS
M-118BC	Rockwell Int'l. Raleigh, NC	Flow Control Valves	2760180-209		4/27/77	8	Satis.	Satis.	TJM 3/25/81
M-118BC	Rockwell Int'l. Raleigh, NC	Flow Control Valves	2760180-209		4/8/77	3	Satis.	Satis.	TJM 3/25/81
M-118BC	Rockwell Int'l. Raleigh, NC	Flow Control Valves	2760180-209		1/18/77	2	Satis.	Satis.	TJM 3/25/81

This package is acceptable. A sample of 75 films was reviewed.



# RADIOGRAPHIC REVIEW

BECHTEL P.O. NO.	SUPPLIER/ LOCATION	COMPONENT DESCRIPTION	SERIAL NO. TAG NO.	PART NUMBER	FILM DATE	NUMBER OF VIEWS	READER/ TECHNIQUE SHEETS	READER/ TECHNIQUE FILM	REVIEWER AND DATE/ REMARKS
M-125C	Anchor Darling (Pal Industries)	4" 150# Gate Valves Discs	RSSS# 1037	DPP 0000 6C01A	11/27/78	RT#K1387 2	Satis.	Satis.	TJM 3/27/81
M-125C	Anchor Darling (Pal Industries)	4" 150# Gate Valves Discs	RSSS# 1037	DPP 0000 6C01A	11/22/78	RT#K1386 2	Satis.	Satis.	TJM 3/27/81
M-125C	Anchor Darling (Pal Industries)	4" 150# Gate Valves Discs	RSSS# 1037	DPP 0000 6C01A	11/22/78	RT#K1385 2	Satis.	Satis.	TJM 3/27/81 (1)
M-125C	Anchor Darling (Pal Industries)	4" 150# Gate Valves Discs	RSSS# 1175	5205-45-1- L99	4/10/79	40	Satis.	Satis.	TJM 3/27/81

(1) OBSERVATION: Acceptance was predicated on R-2 film; R-2 film was dated 1/4/78, original shot was dated 12/4/78, obviously R-2 date should be 1/4/79.

Remainder of the review indicated compliance to ASME Code and P.O. requirements.

P.O. #	COMPONENT	VENDOR	A.E.O. #
C-44AC	Spent Fuel Pool Gates	W. J. Woolley	9642
C-50A	Lower Dome Liner Plate	Delta Southern	2214
F-3107	Miscellaneous Steel	NPS Industries	7310, 7447
F-3136Q & C-233AQ	Pipe Restraints	Chicago Bridge & Iron	8652
J-258AC	Butterfly Valve	Fisher Controls	9796
M-14-11	Auxiliary Feedwater Pump	Bingham Willamette	4993
M-18	D Engine Supports	Delaval	11960
M-93AC	12 ST x SAM Crane Trolley	Ederer	13030
M-104A-3	Pipe Spools	ITT Grinnell	8957, 13026
M-111-3	Fluid Head Fittings	Tube Turns	3886
M-118A	Main Steam Isolation Valve	Energy Products Group	8743
M-127AC	Globe Valves	Kerotest Manufacturing	13496
M-131AC	One Inch Valves	ITT Grinnell	14013
M-140	Relief Valves	Crosby Valve	13271, 10271
M-150	Air Filtering Units	Mine Safety Appliances	4448, 4453

# CMTR DOCUMENT REVIEW

PURCHASE ORDER # C-44AC                      SUPPLIER W. J. Woolley                      EVALUATOR J. R. Orlando  
 A.E.O. # 9642                                      LOCATION Chicago, Illinois                      DATE 4/15/81  
 COMPONENT Spent Fuel Pool Gates

ITEM	CHARACTERISTICS	RESULTS	REMARKS												
1.0	Determine if there is linkage between material specification dates indicated on CMTR and the required material specification date and addenda.	N/A	<p>CMTR HEAT NUMBERS AND MATERIAL TYPE:</p> <table style="margin-left: 20px;"> <thead> <tr> <th style="text-decoration: underline;">Heat #</th> <th style="text-decoration: underline;">Material</th> </tr> </thead> <tbody> <tr> <td>724319</td> <td>SA-240, T-304L</td> </tr> <tr> <td>722870</td> <td>A-36</td> </tr> <tr> <td>761021</td> <td>SFA-5.9, ER-308L</td> </tr> <tr> <td>744415</td> <td>SFA-5.9, ER-309L</td> </tr> <tr> <td>929615</td> <td>ASTM A-249</td> </tr> </tbody> </table> <p>No linkage - no dates indicated on CMTR's.</p>	Heat #	Material	724319	SA-240, T-304L	722870	A-36	761021	SFA-5.9, ER-308L	744415	SFA-5.9, ER-309L	929615	ASTM A-249
Heat #	Material														
724319	SA-240, T-304L														
722870	A-36														
761021	SFA-5.9, ER-308L														
744415	SFA-5.9, ER-309L														
929615	ASTM A-249														
2.0	Review CMTR chemicals against applicable material specification.	See Comment	<p>CMTR heat number 744415: material specification SFA-5.9 does not have a material type ER-309L. However, CMTR was checked to ER-309 and found satisfactory.</p>												
3.0	Review CMTR mechanical requirements and results against applicable material specification.	See Comment	<p>Material to be supplied to 1977 Edition of Code as required by purchase order.</p> <p><u>Bechtel Comment:</u></p> <p>Winter of '77 Addendum revised SFA-5.9 to be compatible with AWSA-5.9-77. One of the changes ASME incorporated was the addition of ER-309L.</p> <p>CMTR meets requirements of SFA 5-9-77 type 309L.</p> <p>Comment acceptable; delete comment. TJM 4/17/81</p>												

## CMTR DOCUMENT REVIEW

 PURCHASE ORDER # C-50A

 SUPPLIER Delta Southern

 EVALUATOR J. R. Orlando

 A.E.O. # 2214

 LOCATION Baton Rouge, Louisiana

 DATE 4/14/81

 COMPONENT Lower Dome Liner Plate

ITEM	CHARACTERISTICS	RESULTS	REMARKS
1.0	Determine if there is linkage between material specification dates indicated on CMTR and the required material specification date and addenda.	N/A	CMTR HEAT NUMBERS AND MATERIAL TYPE: <u>Heat #</u> <u>Material</u> 21302    SA-285 Grade A  No linkage noted.
2.0	Review CMTR chemicals against applicable material specification	Satisfactory	
3.0	Review CMTR mechanical requirements and results against applicable material specification.	Satisfactory	Note: It appears that the 1969 code was applied to this purchase order. The earliest code year available at Bechtel was 1974, and was utilized for purposes of this review.  Comment: No X-ray technique sheets were available in data package reviewed at Ann Arbor.

# CMTR DOCUMENT REVIEW

PURCHASE ORDER # F-3107      SUPPLIER NPS Industries      EVALUATOR J. R. Orlando  
 A.E.O. # 7310/7447      LOCATION Tualatin, Oregon      DATE 4/14/81  
 COMPONENT Miscellaneous Steel

ITEM	CHARACTERISTICS	RESULTS	REMARKS								
			CMTR HEAT NUMBERS AND MATERIAL TYPE: <table style="margin-left: 20px; border-collapse: collapse;"> <tr> <td style="border-bottom: 1px solid black; padding: 2px;">Heat #</td> <td style="border-bottom: 1px solid black; padding: 2px;">Material</td> </tr> <tr> <td style="padding: 2px;">201061</td> <td style="padding: 2px;">SA-36</td> </tr> <tr> <td style="padding: 2px;">35769</td> <td style="padding: 2px;">A-36, A-6</td> </tr> <tr> <td style="padding: 2px;">202342</td> <td style="padding: 2px;">SA-36</td> </tr> </table>	Heat #	Material	201061	SA-36	35769	A-36, A-6	202342	SA-36
Heat #	Material										
201061	SA-36										
35769	A-36, A-6										
202342	SA-36										
1.0	Determine if there is linkage between material specification dates indicated on CMTR and the required material specification date and addenda.	N/A	No linkage.								
2.0	Review CMTR chemicals against applicable material specification.	Satisfactory	All CMTR's were checked.								
3.0	Review CMTR mechanical requirements and results against applicable material specification.	Satisfactory	All CMTR's were checked. Specification requires SA-36-70a, 74, 75.								

# CMTR DOCUMENT REVIEW

PURCHASE ORDER # F-3136Q & C-233AQ      SUPPLIER Chicago Bridge & Iron      EVALUATOR T. J. Marcella  
 A.E.O. # 8652      LOCATION Salt Lake City, Utah      DATE 4/14/81  
 COMPONENT Pipe Restraints

ITEM	CHARACTERISTICS	RESULTS	REMARKS																						
			<p>CMTR HEAT NUMBERS AND MATERIAL TYPE:</p> <table style="margin-left: 20px;"> <thead> <tr> <th style="text-decoration: underline;">Heat #</th> <th style="text-decoration: underline;">Material</th> </tr> </thead> <tbody> <tr><td>1A235</td><td>A-36-74</td></tr> <tr><td>79D995</td><td>A-36-74</td></tr> <tr><td>53209</td><td>A-36-74</td></tr> <tr><td>27497</td><td>SA-53, Gr. B</td></tr> <tr><td>ST-297</td><td>A-36-74</td></tr> <tr><td>A7708</td><td>A-36-74</td></tr> <tr><td>7L30856</td><td>A-325-74</td></tr> <tr><td>6065796</td><td>A-540-B23, Cl. 3</td></tr> <tr><td>LT13358</td><td>A-194-2H, Gr. 7</td></tr> <tr><td>D6228</td><td>SA-56, Gr. 55-55</td></tr> </tbody> </table>	Heat #	Material	1A235	A-36-74	79D995	A-36-74	53209	A-36-74	27497	SA-53, Gr. B	ST-297	A-36-74	A7708	A-36-74	7L30856	A-325-74	6065796	A-540-B23, Cl. 3	LT13358	A-194-2H, Gr. 7	D6228	SA-56, Gr. 55-55
Heat #	Material																								
1A235	A-36-74																								
79D995	A-36-74																								
53209	A-36-74																								
27497	SA-53, Gr. B																								
ST-297	A-36-74																								
A7708	A-36-74																								
7L30856	A-325-74																								
6065796	A-540-B23, Cl. 3																								
LT13358	A-194-2H, Gr. 7																								
D6228	SA-56, Gr. 55-55																								
1.0	Determine if there is linkage between material specifications sites indicated on CMTR and the required material specifications and addenda.	OK	Reviewed 40 CMTR's selected the above 25 which represented suppliers/material specification cross section. No data code sheet was available, (not required) utilized P.O./specification for code date. No date of material specification was available for CMTR's.																						
2.0	Review CMTR chemicals against applicable material specification.	OK	Reviewed the above 25 CMTR's 100% for completeness/compliance.																						
3.0	Review CMTR mechanical requirements and results against applicable material specification.	OK																							

# CMTR DOCUMENT REVIEW continued

PURCHASE ORDER # F-3136A & C-223A0      SUPPLIER Chicago Bridge & Iron      EVALUATOR T. J. Marcella  
 A.E.O. # 8652      LOCATION Salt Lake City, Utah      DATE 4/14/81  
 COMPONENT Pipe Restraints

ITEM	CHARACTERISTICS	RESULTS	REMARKS
			<p><u>Bechtel Comment:</u></p> <p>Material A-36 2½" x 2½" x 3/8" thickness as specified in AISC Steel Construction Manual, material of the above configuration is rated as 5.9 lb./ft.</p> <p>Although the CMTR should have listed lb./ft. rating, Bechtel stand is that by not listing lb./ft. that it was within the requirements, even though other CMTR's did list lb./ft.</p> <p>Bechtel's comments are acceptable; delete finding.  <span style="float: right;">TJM 4/17/81</span></p>

# CMTR DOCUMENT REVIEW

PURCHASE ORDER # J-258AC

SUPPLIER Fisher Controls

EVALUATOR T. J. Marcella

A.E.O. # 9796

LOCATION Careapolis, Pennsylvania

DATE 4/15/81

COMPONENT Butterfly Valve

ITEM	CHARACTERISTICS	RESULTS	REMARKS								
1.0	Determine if there is linkage between material specification dates indicated on CMTR and the required material specification date and addenda.	OK	<p>CMTR HEAT NUMBERS AND MATERIAL TYPE:</p> <table border="0"> <tr> <td><u>Heat #</u></td> <td><u>Material</u></td> </tr> <tr> <td>8C 032</td> <td>A-351</td> </tr> <tr> <td>A-296-75</td> <td></td> </tr> <tr> <td>25189</td> <td>SA-240</td> </tr> </table> <p>100% of all CMTR's were reviewed for completeness. Material code date was not available. Code data report specified 1974 edition winter addendum. CMTR's were reviewed to above requirements.</p>	<u>Heat #</u>	<u>Material</u>	8C 032	A-351	A-296-75		25189	SA-240
<u>Heat #</u>	<u>Material</u>										
8C 032	A-351										
A-296-75											
25189	SA-240										
2.0	Review CMTR chemicals against applicable material specification.	OK	Reviewed all CMTR's for accuracy and compliance.								
3.0	Review CMTR mechanical requirements and results against applicable material specification.	OK	<p>Reviewed all CMTR's for accuracy and compliance.</p> <p>Note: X-ray's were reviewed at Midland and reader sheets were not available. During re-review of documentation at Ann Arbor, it was observed that technique sheets, but no reader sheets, were in the package.</p>								



# CMTR DOCUMENT REVIEW

 PURCHASE ORDER # M-14-11

 SUPPLIER Bingham Willamette

 EVALUATOR J. R. Orlando

 A.E.O. # 4993

 LOCATION Portland, Oregon

 DATE 4/14/81

 COMPONENT Auxiliary Feedwater Pump

ITEM	CHARACTERISTICS	RESULTS	REMARKS																						
1.0	Determine if there is linkage between material specification dates indicated on CMTR and the required material specification date and addenda.	N/A	CMTR HEAT NUMBERS AND MATERIAL TYPE: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Heat #</th> <th style="text-align: left;">Material</th> </tr> </thead> <tbody> <tr> <td>143976</td> <td>SA-216 , S-74, Gr. WCB</td> </tr> <tr> <td>208L161</td> <td>SA-179</td> </tr> <tr> <td>H80356</td> <td>SA-106, Gr. B</td> </tr> <tr> <td>200389</td> <td>SA-36</td> </tr> <tr> <td>401T671</td> <td>SFA 5.1</td> </tr> <tr> <td>904267</td> <td>SA-36-70A</td> </tr> <tr> <td>D03442</td> <td>ASTM A-106, Gr. B</td> </tr> <tr> <td>662H137</td> <td>SA-105, Gr. 2</td> </tr> <tr> <td>34787</td> <td>A-193, 37</td> </tr> <tr> <td>M40777</td> <td>SA-106, Gr. B</td> </tr> </tbody> </table>	Heat #	Material	143976	SA-216 , S-74, Gr. WCB	208L161	SA-179	H80356	SA-106, Gr. B	200389	SA-36	401T671	SFA 5.1	904267	SA-36-70A	D03442	ASTM A-106, Gr. B	662H137	SA-105, Gr. 2	34787	A-193, 37	M40777	SA-106, Gr. B
Heat #	Material																								
143976	SA-216 , S-74, Gr. WCB																								
208L161	SA-179																								
H80356	SA-106, Gr. B																								
200389	SA-36																								
401T671	SFA 5.1																								
904267	SA-36-70A																								
D03442	ASTM A-106, Gr. B																								
662H137	SA-105, Gr. 2																								
34787	A-193, 37																								
M40777	SA-106, Gr. B																								
2.0	Review CMTR chemicals against applicable material specification.	Satisfactory	All CMTR's checked.																						
3.0	Review CMTR mechanical requirements and results against applicable material specification.	See Comment	CMTR heat number M40777, SA-106, Gr. B yield strength appears to be 30750. Minimum required is 35,000 psi. Due to poor legibility, the material manufacturer was contacted and yield was confirmed to be 39,750. A legible copy of the certification is being forwarded to Bechtel.																						
			Note: Manufacturer's code data report requires compliance to ASME Section III 1974 Edition through Winter 1974																						

# CMTR DOCUMENT REVIEW

PURCHASE ORDER # M-18

SUPPLIER Delaval

EVALUATOR J. R. Orlando

A.E.O. # 11960

LOCATION Oakland, California

DATE 4/15/81

COMPONENT D Engine Supports

ITEM	CHARACTERISTICS	RESULTS	REMARKS								
1.0	Determine if there is linkage between material specification dates indicated on CMTR and the required material specification date and addenda.	N/A	<p>CMTR HEAT NUMBERS AND MATERIAL TYPE:</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Heat #</th> <th>Material</th> </tr> </thead> <tbody> <tr> <td>L45603</td> <td>SA-106, Gr. B</td> </tr> <tr> <td>L01707</td> <td>SA-106, Gr. B</td> </tr> <tr> <td>GBK0</td> <td>SA-105</td> </tr> </tbody> </table> <p>No linkage.</p>	Heat #	Material	L45603	SA-106, Gr. B	L01707	SA-106, Gr. B	GBK0	SA-105
Heat #	Material										
L45603	SA-106, Gr. B										
L01707	SA-106, Gr. B										
GBK0	SA-105										
2.0	Review CMTR chemicals against applicable material specification.	Satisfactory	All CMTR's noted were checked and found satisfactory.								
3.0	Review CMTR mechanical requirements and results against applicable material specification.	Satisfactory	<p>All CMTR's noted were checked and found satisfactory.</p> <p>Note: MFG's NPT reports for component supports indicate compliance to ASME Section 5 1974 through summer 1976 addenda.</p>								

## CMTR DOCUMENT REVIEW

PURCHASE ORDER # M-93AC

SUPPLIER Ederer

EVALUATOR J. R. Orlando

A.E.O. # 13030

LOCATION Seattle, Washington

DATE 4/15/81

COMPONENT 12 ST X SAM Crane Trolley

ITEM	CHARACTERISTICS	RESULTS	REMARKS														
1.0	Determine if there is linkage between material specification dates indicated on CMTR and the required material specification date and addenda.	N/A	CMTR HEAT NUMBERS AND MATERIAL TYPE: <table border="1" data-bbox="1073 541 1526 778"> <thead> <tr> <th>Heat #</th> <th>Material</th> </tr> </thead> <tbody> <tr> <td>52915</td> <td>A-36</td> </tr> <tr> <td>568022</td> <td>ASTM A-514, Gr. F</td> </tr> <tr> <td>204784</td> <td>ASTM A-678, A-370</td> </tr> <tr> <td>18339</td> <td>ASTM A-668, Cl. MH</td> </tr> <tr> <td>54628</td> <td>A-290-67, Cl. H</td> </tr> <tr> <td>90365A-70</td> <td>SFA 5.9-69</td> </tr> </tbody> </table> No linkage - no dates on most CMTR's.	Heat #	Material	52915	A-36	568022	ASTM A-514, Gr. F	204784	ASTM A-678, A-370	18339	ASTM A-668, Cl. MH	54628	A-290-67, Cl. H	90365A-70	SFA 5.9-69
Heat #	Material																
52915	A-36																
568022	ASTM A-514, Gr. F																
204784	ASTM A-678, A-370																
18339	ASTM A-668, Cl. MH																
54628	A-290-67, Cl. H																
90365A-70	SFA 5.9-69																
2.0	Review CMTR chemicals against applicable material specification.	Satisfactory	All CMTR's checked.														
3.0	Review CMTR mechanical requirements and results against applicable material specification.	Satisfactory	<table border="1" data-bbox="1073 1146 1970 1339"> <thead> <tr> <th>Heat number</th> <th>Material</th> </tr> </thead> <tbody> <tr> <td>54628</td> <td>A-290-67, Cl. H</td> </tr> </tbody> </table> a) CMTR states Brinell of 255, the ASTM requires Brinell of 262-311. (Note: this requirement has been concurrent through several editions of ASTM.) b) No tensile results on CMTR, nor could it be located in package. This is requirement of ASTM.	Heat number	Material	54628	A-290-67, Cl. H										
Heat number	Material																
54628	A-290-67, Cl. H																
			<table border="1" data-bbox="1073 1361 1604 1422"> <thead> <tr> <th>Heat number</th> <th>Material</th> </tr> </thead> <tbody> <tr> <td>18339</td> <td>A-668, Cl. MH</td> </tr> </tbody> </table> a) No tensile results on CMTR.	Heat number	Material	18339	A-668, Cl. MH										
Heat number	Material																
18339	A-668, Cl. MH																
			Note: 1974 Editions of Codes and Standards were utilized as required by purchase order.														

# GMTR DOCUMENT REVIEW continued

PURCHASE ORDER # M-93AC

SUPPLIER Ederer

EVALUATOR J. R. Orlando

A.E.O. # 13030

LOCATION Seattle, Washington

DATE 4/15/81

COMPONENT 12 ST X SAM Crane Trolley

ITEM	CHARACTERISTICS	RESULTS	REMARKS
			<p><u>Bechtel Comments:</u></p> <p>Reference 3a: CMTR heat number 54628 is for A-290-67 Class H material utilized on drum gear. Per telephone conversation with M&amp;QS department on 4/17/81, concurrence that para. 6.2 of A-290 allows a permissible variation of hardness of 30 for class H. CMTR lists hardness as 262-311 BHN, which according to the specification is actually 262±30. CMTR lists 255 BHN, acceptable.</p> <p>Tensile results not required for AISI 4340 material. Material meets chemicals of A-290 and AISI 4340 and normalized per ASTM A-290.</p> <p>Reference 3b: CMTR heat number 18339 is for A-668, Class MH material for a drum pinion. Material is 4340 and therefore tensile is not required. Reference para. 7.3 of A-668 which states: "If so specified by the purchaser, forgings may be supplied on the basis of hardness tests alone. If this option is exercised, the class shall be identified with the letter "H"; i.e. AH, CH, BH, etc."</p> <p>Material on CMTR is A-668 MH; based on the above data, no tensiles are required; hardness test is used in lieu of.</p> <p>Acceptable - delete from report. TJM 4/17/81</p>

## CMTR DOCUMENT REVIEW

 PURCHASE ORDER # M-104A-3

 SUPPLIER ITT Grinnell

 EVALUATOR T. J. Marcella

 A.E.O. # 8957/13026

 LOCATION Kernersville, North Carolina

 DATE 4/14/81

 COMPONENT Pipe Spool

ITEM	CHARACTERISTICS	RESULTS	REMARKS										
1.0	Determine if there is linkage between material specification dates indicated on CMTR and the required material specification date and addenda.	OK	CMTR HEAT NUMBERS AND MATERIAL TYPE: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Heat #</th> <th>Material</th> </tr> </thead> <tbody> <tr> <td>III611</td> <td>SA-182</td> </tr> <tr> <td>192103</td> <td>SA403, WP-316</td> </tr> <tr> <td>II01597</td> <td>SA-182, F-316</td> </tr> <tr> <td>III129</td> <td>SA-182</td> </tr> </tbody> </table> Reviewed all CMTR's in both AEO packages. Material specification SA-182-71 specified '71 code. '71 code was not available in the library. Code data report specified 1971 edition, summer 1973 addendum.	Heat #	Material	III611	SA-182	192103	SA403, WP-316	II01597	SA-182, F-316	III129	SA-182
Heat #	Material												
III611	SA-182												
192103	SA403, WP-316												
II01597	SA-182, F-316												
III129	SA-182												
2.0	Review CMTR chemicals against applicable material specification.	OK *	CMTR's listed above were reviewed 100% for accuracy. *III611 revealed discrepancies in the chemical requirements; however, this was previously identified by Bechtel who is attempting to correct the situation with the supplier.										
3.0	Review CMTR mechanical requirements and results against applicable material specification.	OK	CMTR's listed above were reviewed 100% for accuracy.  Note: X-ray technique sheets were in the data package; they were also in the X-ray packages at Midland.										

# CMTR DOCUMENT REVIEW

PURCHASE ORDER # M-111-3      SUPPLIER Tube Turns      EVALUATOR T. J. Marcella  
 A.E.O. # 3886      LOCATION Houston, Texas      DATE 4/15/81  
 COMPONENT Fluid Head Fittings      C/N's 24/33

ITEM	CHARACTERISTICS	RESULTS	REMARKS								
			<p>CMTR HEAT NUMBERS AND MATERIAL TYPE:</p> <table border="0"> <tr> <td><u>Heat #</u></td> <td><u>Material</u></td> </tr> <tr> <td>73002</td> <td>A-182-F-304SS</td> </tr> <tr> <td>12628</td> <td>A-182-F-304SS</td> </tr> <tr> <td>824428</td> <td>A-182-F-304SS</td> </tr> </table>	<u>Heat #</u>	<u>Material</u>	73002	A-182-F-304SS	12628	A-182-F-304SS	824428	A-182-F-304SS
<u>Heat #</u>	<u>Material</u>										
73002	A-182-F-304SS										
12628	A-182-F-304SS										
824428	A-182-F-304SS										
1.0	Determine if there is linkage between material specification dates indicated on CMTR and the required material specification date and addenda.	OK	Reviewed CMTR's 100% (4) for completeness and compliance. No code data was available on CMTR's. Utilized purchase order/specification date. 1974 edition; summer 1975 addenda.								
2.0	Review CMTR chemicals against applicable material specification.	OK	CMTR's reviewed met specification requirements.								
3.0	Review CMTR mechanical requirements and results against applicable material specification.	OK	CMTR's met specification requirements.								

# CMTR DOCUMENT REVIEW

PURCHASE ORDER # M-118A      SUPPLIER Energy Products Group      EVALUATOR J. R. Orlando  
 A.E.O. # 8743      LOCATION Warwick, Rhode Island      DATE 4/14/81  
 COMPONENT Main Steam Isolation Valve

ITEM	CHARACTERISTICS	RESULTS	REMARKS												
			<p>CMTR HEAT NUMBERS AND MATERIAL TYPE:</p> <table style="margin-left: 20px;"> <tr> <td style="text-align: left;"><u>Heat #</u></td> <td style="text-align: left;"><u>Material</u></td> </tr> <tr> <td>215246</td> <td>SA-350, Gr. LF-2 body</td> </tr> <tr> <td>5M27B</td> <td>SFA-5.5</td> </tr> <tr> <td>214480</td> <td>SA-350, Gr. LF-2 bonnet</td> </tr> <tr> <td>7958</td> <td>SFA-5.4</td> </tr> <tr> <td>2288</td> <td>SA-351 CF8M</td> </tr> </table>	<u>Heat #</u>	<u>Material</u>	215246	SA-350, Gr. LF-2 body	5M27B	SFA-5.5	214480	SA-350, Gr. LF-2 bonnet	7958	SFA-5.4	2288	SA-351 CF8M
<u>Heat #</u>	<u>Material</u>														
215246	SA-350, Gr. LF-2 body														
5M27B	SFA-5.5														
214480	SA-350, Gr. LF-2 bonnet														
7958	SFA-5.4														
2288	SA-351 CF8M														
1.0	Determine if there is linkage between material specification dates indicated on CMTR and the required material specification date and addenda.	N/A	No linkage.												
2.0	Review CMTR chemicals against applicable material specification.	Satisfactory													
3.0	Review CMTR mechanical requirements and results against applicable material specification.	Satisfactory	<p><u>Bechtel Comments:</u></p> <p>Reference item 3: CMTR heat number 215246 for SA-350 grade LF-2 material specifies impact test temperature of +30°F. As specified in specification M-221 Rev. 2 appendix A1 paragraph A 1.3, "impact test temperature shall be 30°F for main steam isolation valves.</p> <p>Comments acceptable; delete finding.</p> <p style="text-align: right;">TJM 4/17/81</p>												

# CMTR DOCUMENT REVIEW

 PURCHASE ORDER # M-127AC

 SUPPLIER Kerotest Manufacturing Corp.

 EVALUATOR T. J. Marcella

 A.E.O. # 13496

 LOCATION Pittsburgh, Pennsylvania

 DATE 4/15/81

 COMPONENT Globe Valves

ITEM	CHARACTERISTICS	RESULTS	REMARKS										
1.0	Determine if there is linkage between material specification dates indicated on CMTR and the required material specification date and addenda.	OK	CMTR HEAT NUMBERS AND MATERIAL TYPE: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Heat #</th> <th>Material</th> </tr> </thead> <tbody> <tr> <td>6011724</td> <td>SA-105</td> </tr> <tr> <td>H650</td> <td>CB6 AMS 5387</td> </tr> <tr> <td>4419730</td> <td>SA-105</td> </tr> <tr> <td>651B151</td> <td>SFA 5.18</td> </tr> </tbody> </table> Reviewed all CMTR's in package (4) 100% for completeness and compliance. No dates were utilized on material specifications. Code data report referenced 1974 edition N/A addendum. This criteria was utilized in reviewing CMTR's.	Heat #	Material	6011724	SA-105	H650	CB6 AMS 5387	4419730	SA-105	651B151	SFA 5.18
Heat #	Material												
6011724	SA-105												
H650	CB6 AMS 5387												
4419730	SA-105												
651B151	SFA 5.18												
2.0	Review CMTR chemicals against applicable material specification.	OK	No deficiencies.										
3.0	Review CMTR mechanical requirements and results against applicable material specification.	OK	No deficiencies.										



# CMTR DOCUMENT REVIEW

PURCHASE ORDER # M-131AC      SUPPLIER ITT Grinnell      EVALUATOR J. R. Orlando  
 A.E.O. # 14013      LOCATION Lancaster, Pennsylvania      DATE 4/15/81  
 COMPONENT One inch valves

ITEM	CHARACTERISTICS	RESULTS	REMARKS								
1.0	Determine if there is linkage between material specification dates indicated on CMTR and the required material specification date and addenda.	N/A	CMTR HEAT NUMBERS AND MATERIAL TYPE: <table style="margin-left: 20px; border: none;"> <tr> <td style="border: none;"><u>Heat #</u></td> <td style="border: none;"><u>Material</u></td> </tr> <tr> <td style="border: none;">D741</td> <td style="border: none;">SA-351, Gr. CF8</td> </tr> <tr> <td style="border: none;">4</td> <td style="border: none;">SFA-5.9, ER-308</td> </tr> <tr> <td style="border: none;">E385</td> <td style="border: none;">SA-351, Gr. CF8</td> </tr> </table> No linkage.	<u>Heat #</u>	<u>Material</u>	D741	SA-351, Gr. CF8	4	SFA-5.9, ER-308	E385	SA-351, Gr. CF8
<u>Heat #</u>	<u>Material</u>										
D741	SA-351, Gr. CF8										
4	SFA-5.9, ER-308										
E385	SA-351, Gr. CF8										
2.0	Review CMTR chemicals against applicable material specification.	Satisfactory	All CMTR's were checked. Heat number 4, SFA-5.9, ER-308: CMTR indicates CR 19.28. ASME Section II Part C 1977 requires CR 19.5-22.0 (Note '74 edition same requirements.)  <u>Bechtel Comments:</u> Reference SFA-5.9, 1977 Edition (alternate): In Table 1 of specification (chemical requirements) chromium referenced footnote 2A which stipulates actual chromium content is determined by the following formula: $1.9 \times 10.06$ (actual nickel content) = min. chromium content, min. is 19.114 (utilizing allowables).  Comment is acceptable - delete concern. <div style="text-align: right;">TJM 4/17/81</div>								
3.0	Review CMTR mechanical requirements and results against applicable material specification.	Satisfactory	All CMTR's were checked.  Note: NPV-1 data reports require compliance to ASME 1977, Winter 1977 addendum.								

# CMTR DOCUMENT REVIEW

 PURCHASE ORDER # M-140

 SUPPLIER Crosby

 EVALUATOR J. R. Orlando

 A.E.O. # 13271/10271

 LOCATION Wrentham, Massachusetts

 DATE 4/14/81

 COMPONENT Relief Valves

ITEM	CHARACTERISTICS	RESULTS	REMARKS														
1.0	Determine if there is linkage between material specification dates indicated on CMTR and the required material specification date and addenda.	N/A	CMTR HEAT NUMBERS AND MATERIAL TYPE: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Heat #</th> <th>Material</th> </tr> </thead> <tbody> <tr> <td>L1947</td> <td>SFA-5.4 (E-316)</td> </tr> <tr> <td>10978</td> <td>SA-351, Gr. CF3M</td> </tr> <tr> <td>02826</td> <td>SA-479, Type 316L</td> </tr> <tr> <td>72210</td> <td>SA-479, Type 316L</td> </tr> <tr> <td>F2969-1,2</td> <td>SA-351, Gr. CF3M</td> </tr> <tr> <td>52524</td> <td>SA-193, Gr. B6</td> </tr> </tbody> </table> No date on CMTR material.	Heat #	Material	L1947	SFA-5.4 (E-316)	10978	SA-351, Gr. CF3M	02826	SA-479, Type 316L	72210	SA-479, Type 316L	F2969-1,2	SA-351, Gr. CF3M	52524	SA-193, Gr. B6
Heat #	Material																
L1947	SFA-5.4 (E-316)																
10978	SA-351, Gr. CF3M																
02826	SA-479, Type 316L																
72210	SA-479, Type 316L																
F2969-1,2	SA-351, Gr. CF3M																
52524	SA-193, Gr. B6																
2.0	Review CMTR chemicals against applicable material specification.	Satisfactory	All CMTR's checked.														
3.0	Review CMTR mechanical requirements and results against applicable material specification.	Satisfactory	All CMTR's checked.														
			Note: The applicable year of code is ASME 1974 edition, Summer 1976 addenda, as noted in the NV-1 MFG's data report.														

# CMTR DOCUMENT REVIEW

PURCHASE ORDER # M-150      SUPPLIER Mine Safety Appliance      EVALUATOR I. J. Marcella  
 A.E.O. # 4448/4453      LOCATION Evans City, Pennsylvania      DATE 4/14/81  
 COMPONENT Air Filtering Units

ITEM	CHARACTERISTICS	RESULTS	REMARKS																										
			<p>CMTR HEAT NUMBERS AND MATERIAL TYPE:</p> <table style="margin-left: 20px;"> <thead> <tr> <th style="text-align: left;">Heat #</th> <th style="text-align: left;">Material</th> </tr> </thead> <tbody> <tr><td>772406</td><td>SFA-5.14</td></tr> <tr><td>G3037</td><td>SFA-5.9</td></tr> <tr><td>L11-552-</td><td></td></tr> <tr><td style="padding-left: 20px;">M-6</td><td>A-5.18, CLE-70S-3</td></tr> <tr><td>71742</td><td>SA-240, Type 304</td></tr> <tr><td></td><td>SA-276, Type 63T</td></tr> <tr><td>53934</td><td>A-276</td></tr> <tr><td>251047</td><td>A-240</td></tr> <tr><td>0115987</td><td>A-500, Gr. B</td></tr> <tr><td>800667</td><td>A-36</td></tr> <tr><td>55805</td><td>A-554</td></tr> <tr><td>21774</td><td>SA-479</td></tr> </tbody> </table>	Heat #	Material	772406	SFA-5.14	G3037	SFA-5.9	L11-552-		M-6	A-5.18, CLE-70S-3	71742	SA-240, Type 304		SA-276, Type 63T	53934	A-276	251047	A-240	0115987	A-500, Gr. B	800667	A-36	55805	A-554	21774	SA-479
Heat #	Material																												
772406	SFA-5.14																												
G3037	SFA-5.9																												
L11-552-																													
M-6	A-5.18, CLE-70S-3																												
71742	SA-240, Type 304																												
	SA-276, Type 63T																												
53934	A-276																												
251047	A-240																												
0115987	A-500, Gr. B																												
800667	A-36																												
55805	A-554																												
21774	SA-479																												
1.0	Determine if there is linkage between material specification dates indicated on CMTR and the required material specification date and addenda.	OK	Selected 15 CMTR's from 35 CMTR's which included all material used but a cross-section of suppliers. No dates of material specifications were on CMTR's. Utilized 1974 edition, Summer 1975 addendum.																										
2.0	Review CMTR chemicals against applicable material specification.	OK	Reviewed the above 15 CMTR's, 100% for completeness and compliance.																										
3.0	Review CMTR mechanical requirements and results against applicable material specification.	Refer to Bechtel Comment	Same as above except CMTR heat number 251047 (A-240) hardness was documented as 30T61. Specification requirement is RB 88 maximum.																										

# CMTR DOCUMENT REVIEW continued

PURCHASE ORDER # M-150

SUPPLIER Mine Safety Appliance

EVALUATOR T. J. Marcella

A.E.O. # 4448/4453

LOCATION Evans City, Pennsylvania

DATE 4/14/81

COMPONENT Air Filtering Units

ITEM	CHARACTERISTICS	RESULTS	REMARKS
			<p><u>Bechtel Comments:</u></p> <ul style="list-style-type: none"> <li>*a) CMTR F60828 is in error, should be 251047.</li> <li>b) CMTR listed material ASTM SA-240, 304 type stainless steel, .018 24 x CL. Chemical/physical data was to ASTM A-240, 304 type except hardness was listed as 30T61, which appeared questionable. CMTR requirement was RC 88 maximum.</li> <li>c) Further investigation lead to the ASTM Book Part 10, Section E-140, Standard Hardness Conversion Tables for Metals. Utilizing type of material and reference to 30T61, conversion table indicated hardness to be comparable to 72/73 RC which met SA-240 requirement of 88 RC maximum.</li> <li>d) Based on the above, this concern has been corrected. TJM 4/17/81</li> </ul> <p>*HT 17960, A-580 65C028, A-36 B35909, A-588 852749, A-312</p>

TASK C-41.0 Statement of Task

The MAC task was to select a sample of components presently in checkout or preoperational test status and to review checkout procedures, test results, nonconformances identified, and to further evaluate the discipline with which nonconformances were dispositioned.

2.0 Method

The status of checkout and preoperational tests was ascertained to determine the appropriate time at which to accomplish the task.

3.0 Assessment

It was determined that as of late February, 1981, 186 systems had been turned over to CPCo for test purposes, including 31 Q-listed systems. At that time there were no completed Q-system or component test procedures available for review. Therefore, further performance of subtask 4 cannot be accomplished at this time. The test program should start in August 1981 and be completed by January 1983, assuming no further delays.

On this basis, an appropriate time for completing subtask 4 would be July 1982. At that time, approximately 10-15 percent of system testing should be complete.

As a part of its assessment of the program, MAC did review the following test procedures. In general, these procedures were well organized with adequate technical content.

Generic Test Procedures

- GPE.03.1 - AC Motor Checkout
- GPE.06.0 - DC Motor Checkout
- GPE.07.1 - Insulation Resistance
- GPI.02.0 - Control Valve Testing
- GPI.05.0 - Local Annunciator Checkout

GPM.06.1 - Equipment Vibration Tests  
GPM.12.0 - Fan Tests  
GPM.15.0 - Water Chiller Initial Run and Test

Specific Test Procedures

2TP.ANN.01.0 - Main Control Annunciator, Unit 2  
2TP.EBB.01.0 - 480 volt Load Centers, Unit 2 and Common

Attachment C-4.1 is a listing of test procedure status as of 2/26/81.  
Attachment C-4.2 is a list of Q-system tests which are recommended for review and component selection when subtask 4 is resumed.

Test Procedure Status (2/26/81)

	<u>Total</u>	<u>Approved</u>	<u>Percentage</u>
<u>Generics</u>			
Mechanical	17	3	18
I & C	5	4	8
Electrical	<u>22</u>	<u>19</u>	<u>86</u>
	44	26	59
<u>Specifics</u>			
Mechanical - Primary	26	2	7
Mechanical - Secondary	20	3	15
I & C	16	4	25
Electrical	1	1	100
Process Steam	<u>1</u>	<u>0</u>	<u>0</u>
	64	10	15
<u>Pre-Ops</u>			
Mechanical - Primary	132	1	7
Mechanical - Secondary	108	6	5
I & C	54	4	7
Electrical	22	6	27
Reactor Engineering	10	0	0
Process Steam	<u>1</u>	<u>0</u>	<u>0</u>
	327	17	5

<u>Procedure</u>	<u>Description</u>	<u>Scheduled Completion</u>
2TP-ESA.02	ECCAS Logic System Pre-Op, #2 Plant	6/82
2TP-DF0.01	Emergency Diesel Fuel Storage Pre-Op #2 Plant	6/82
0TP-MHV.02	Evaporator Bldg. HVAC Pre-Op	6/82
1SP-CRD.01	Initial Startup of CRD MG Set, #1 Plant	7/82
1SP-CRD.02	Initial Energization of CRD Power Supply and Calibration of Rod Drive, #1 Plant	7/82
0TP-RWS.02	Waste Solidification Pre-Op	7/82
1TP-FPC.01	Spent Fuel Pool Cooling & Purification, #1 Plant	7/82
2TP-MUP.01	Makeup Purification and Rx Chemical Addition, #2 Plant	3/82
2TP-FPC.01	Spent Fuel Pool Cooling and Purification, #2 Plant	4/82
2SP-CRD.01	Initial Startup of CRD MG Set, #2 Plant	5/82
2TP-ESA.01	ESFAS Logic System Pre-Op, #2 Plant	5/82



ATTACHMENT C-4.2  
(continued)

<u>Procedure</u>	<u>Description</u>	<u>Scheduled Completion</u>
2SP-CRD.02	Initial Energization of CRD Power Supply and Calibration of Rod Drive System, #2 Plant	5/82
1TP-MUP.01	Makeup Purification & Rx Chemical Addition, #1 Plant	5/82
1TP-ESA.01	ESFAS Logic System, Pre-Op, #1 Plant	6/82

TASK C-51.0 Statement of Task

The MAC task was to assess Bechtel and CPCo personnel qualifications in accordance with the following project requirements:

AWS D.1.1	Welding
SNT-TC-1a	NDE
ASNI N45.2-6	Inspection
Reg. Guide 1.58	(Not evaluated)
ASNI N45.2.23	Auditors

2.0 Method

- 2.1 Welding Personnel A review of the Bechtel Welder's Listing Record identified 250 pipe welders. It was further determined that a total of 30 pipefitters had been qualified in accordance with AWS D.1.1. A random sample of 13 was taken by selecting every other welder as his name appeared in the file. The assessment was performed utilizing AWS D.1.1 and Bechtel Welder Qualification Procedures as the bases.
- 2.2 NDT Personnel A review of the Bechtel NDT qualification records found 5 individuals presently certified. A 100% sample was selected assessment by MAC. SNT-TC-1A and Bechtel Procedure SF/PSP-G-81 were utilized as the bases for this assessment.
- 2.3 Bechtel Quality Control Personnel A review of QC Engineer qualification files identified a total of 88 QCEs presently certified. A random sample of every fourth QCE record was used for selecting a representative sample of 18. ANSI N45.2.6 and Bechtel procedure SF/PSP G-81 Rev. 3 were utilized as the bases for the MAC assessment.

## 2.4 Audit Personnel

2.4.1 CPCo Quality Assurance A total of 12 CPCo Quality Assurance personnel are certified as audit team leaders. A random sample of 5 certification files were selected for assessment. CPCo Quality Assurance Department Procedure B-5, Rev. 1 and ANSI N45.2.23 were utilized as the bases for the assessment.

2.4.2 Bechtel Quality Assurance Bechtel qualification records at Midland indicated 8 qualified auditors. A random sample of every other certification file totaling 4 was selected. ANSI N45.2.23 and Bechtel Procedure Section B No. 8, Rev. 2 were used as the bases for this assessment.

## 3.0 Results

3.1 Welding Personnel Assessment of welder qualification records for welders listed below found them to be qualified in accordance with AWS D.1.1 and Bechtel procedures.

<u>Welding Personnel</u>	<u>Qualification Number</u>
R. Hovey	P-478
D. Hanel	P-685
L. Griffen	None
R. Sanchez	P-1052
M. Morey	P-244
B. Grecheski	P-1040
J. Kim	P-329
T. Ratajczak	P-431
B. McAlpine	P-462
V. Liebrock	P-480
S. Brown	P-905
R. Craft	P-999
B.B. Schultz	P-0130

As a result of the assessment, minor administrative deficiencies were noted in 2 qualification records. Records for welders D. Hanel and R. Hovey show minimum qualified thickness of 0.0625. The Listing Record shows a minimum of "none". It is suggested that qualification records be revised from 0.0625 to "none" in accordance with AWS D.1.1.

In general, the Bechtel qualification files were well organized, accessible, legible and up-to-date.

3.2 NDT Personnel All Bechtel NDT personnel qualifications for the personnel listed below were assessed and found in compliance with Bechtel procedures and SNT-TC-1A practices.

NDT Personnel Checked

R. T. Redler  
M. L. Meeks  
L. A. Harrison  
J. Cabral  
D. L. Vandorne

3.3 Bechtel Quality Control Personnel Training and certification records for QC personnel listed below were assessed and were found acceptable to the requirements of ANSI N45.2.6 and Bechtel Procedure SF/PSP G-81. All records were found to be properly maintained, organized and accessible.

QC Personnel

Level Qualified

W. L. Allen	I
R. C. Bennett	II
W. J. Creel	II
W. A. DeArmond	II
J. W. Durham	I
D. L. Fredianelli	II
T. J. Gelnett	I
K. J. Gunser	I

<u>QC Personnel</u>	<u>Level Qualified</u>
C. Hill	I
F. Kanchwala	I
R. A. Kramer	II
T. R. Lieb	II
H. L. May	I
J. C. Miller	II
N. V. Plante	II
L. R. Rosemayer	I
E. J. Shipreck	I
H. J. Smith	II

3.4 Bechtel Quality Assurance Auditing Personnel Training and certification records for the personnel listed below were assessed and were found acceptable in accordance with the requirements of ANSI N45.2.23 and Bechtel Procedure Section B, Number 8, Rev. 2 entitled "Qualification of Auditors".

<u>QA Auditing Personnel</u>	<u>Level Qualified</u>
R. Sevo	Auditor
T. K. Subramanian	Auditor Team Leader
M. A. Deitrich	Auditor
A. C. McClure	Auditor

3.5 CPCo Quality Assurance Auditing Personnel Training and certification records for the QA personnel listed below were assessed and were found acceptable to the requirements of ANSI N45.2.23 and CPCo Quality Assurance Department Procedure B-5 Rev. 1 entitled "Qualification and Certification of Quality Assurance Audit Team Leaders".

QA Auditing Personnel

D. E. Horn  
L. R. Howell  
R. E. Whitaker  
M. J. Schaeffer  
D. R. Keating

An observation was noted that the "Auditor/Audit Team Leader Qualification Questionnaire" was not included in D. E. Horn's certification records. Mr. Horn was originally certified prior to implementation of this procedure in February 1978. It is recommended that D. E. Horn's records be updated to include latest requirements of the questionnaire.