CONSTRUCTION PROJECT EVALUATION OF CONSUMERS POWER COMPANY MIDLAND ENERGY CENTER PROJECT UNITS 1 AND 2 (OBSERVATIONS)

Evaluation Performed By

Management Analysis Company

Corrective Action Supplied By

Consumers Power Company
With Input From Bechtel Power Company

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ABSTRACT

As part of the Construction Project Evaluation of Midland Plant Units 1 and 2, performance of work in progress was observed. The enclosed results are representative of an extensive number of observations. The Construction Project Evaluation Report also contains pertinent supporting material collected from interviews, document reviews and other methods.

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OBSERVATION OF PIPE FIT-UP

A. SCOPE

Reviewed fit-up of 2-1/2 ccw to RCP "2C". Reference 150:M617-5 weld procedure: PI-AT-LH, Rev. 4.

B. OBSERVATION

1. Activity reviewed with mechanical superintendent, general foreman, foreman and fitter.

2. The job instruction consisted of welding permit and a copy of "the working print". No further procedures were utilized.

3. Welders recertification requirements are maintained by weld test shop which issues a welder certification expiration list showing requalifications needed. Welding engineers and superintendents receive these lists.

4. It was confirmed that the welder certification was appropriate and within the certification period.

5. The weld data sheet and weld rod control were both found to be in order.

6. During the pipe fit-up, a QC inspector was present.

7. First line supervisor seemed well qualified and appropriately trained.

8. Access to area took a long time. The area was congested with scaffold and other construction equipment.

C. CONCLUSION

1. Job instructions were not comprehensive.

2. Access/evacuation was cumbersome.

3. Process control, supervision and workmanship were all in order.

OBSERVATION OF ALIGNING PUMP AND MOTOR

A. SCOPE

Observed work performance records generation, use of procedures and supervision.

B. OBSERVATION

1. Two chilled water pumps were being aligned. The first had been aligned to tolerance without difficulty.

2. Objective of the alignment as stated by the supervisor was to achieve alignment to within .002 inch with no external strain.

3. No procedure was available at the work location. Supervisor stated that this was standard craft procedure.

4. A procedure exists, FPM 2.000, Installation and Alignment of Rotating Equipment (October 2, 1981), which contains necessary instructions for alignments work, including data sheets.

5. Data was being collected on a field data sheet for transfer to permanent data sheets.

6. Pump/motor would not align without further adjustment to pump or motor base.

7. Supervisor called for assistance from field engineering to recommend next step for resolution of alignment difficulties.

8. Millwright crew appears to be experienced in alignment work. However, alignment requirements exceeded motor base adjustment capability.

9. Field engineering recommended cleaning motor base adjustment holes of casting "scabs" or other inclusions.

10. Motor base adjustment holes were cleaned and the pump was aligned within required tolerances.

11. Alignment gauges were within calibration dates.

12. Follow-up with field engineering verified data sheets entered record system.

13. Supervisor had electrical lockout of MCC for the required motors.

C. CONCLUSION

1. Supervisor and crew were experienced and worked to standard procedures. Although alignment procedures were not at work site, they were being followed.

2. Supervisors requested assistance from field engineering when problem arose. field engineering response was timely.

OBSERVATION OF ELECTRICAL CABLE INSTALLATIONS

A. SCOPE

Toured plant areas with Lead Electrical Superintendent. Areas included:

Containment penetration rooms, Unit No. 2
Turbine building, 614 foot electrical rooms
Turbine building, 614 foot level
Steam tunnel turbine building through evaporator building
Electrical cut shop
Cable spreading room under control room
Control room

B. OBSERVATION

1. Wire pulls were underway in cable spreading room and in steam tunnel.

2. It was stated that some 250,000 feet of cable had to be scheduled for pullout primarily because of interferences with others installation work.

3. At 614 foot level of turbine building, a large junction box and incoming raceways were being moved to allow concrete chipping to occur for watertight door installation.

4. A check was made of a number of coiled cables along trays. All had taped on identification tags.

5. It was pointed out that correctness of work is verified by inspections by the foreman, field engineering, then QC.

6. Relationship between Electrical Department and QC was good.

7. Cut shop was generally neat and well organized. Coiled cables ready for the field were tagged and color coded as required by procedures.

8. The control room and cable spreading rooms are highly congested areas. HVAC duct installation overhead required that panels and termination in the control room be protected. Grinding and welding within this area and were difficult tasks because of congestion.

9. Humidity and temperature control for installed panels containing electronic components in adjacent rooms and the control room proper had been performed utilizing temporary equipment. A portion of the air conditioning system is now in service.

C. CONCLUSION

Installation of electrical cables is being implemented and inspected by field personnel consistent with procedures. Congestion and rework were making many tasks difficult but achievable.

OBSERVATION OF MATERIAL CONTROL

A. SCOPE

Toured Warehouse No. 1, Class A and B storage area, receiving inspection and hold areas.

B. OBSERVATION

1. Both Q and non-Q material are stored in warehouse.
2. General housekeeping and cleanliness were acceptable.
3. Inventory control is by bin designation number and by P.O. number or serial number on or attached to material.
4. Receiving inspection area was segregated by roped off area. All receiving inspection is done in Warehouse No. 1.
5. Q material is identified by group, rather than individual tags. Valves in a bin may not be individually tagged, as everything in bin is acceptable Q material.
6. Nonconforming or "hold" material is held in roped area, identified as "hold area".
7. Q wire is kept at the Poseyville laydown area.
8. Class A storage had humidity and temperature monitoring to verify control to standards. Area was clean and dust free.
9. Neither Class A nor B storage in Warehouse No. 1 was overcrowded.

C CONCLUSION

The warehouse met conditions of storage for cleanliness, temperature and humidity control. Segregation and control methods are adequate. Identification is not direct but functional.

OBSERVATION OF EQUIPMENT GROUTING

A. SCOPE

Observed grouting operation for installation of reinforcing bolts in Q concrete block walls.

B OBSERVATION

Work being performed was grouting of horizontal reinforcing bolts in Q class concrete block walls in room 31-32, 568 foot elevation, in auxiliary building. Work is described in Concrete Drill Permit C-20, and by drawings C-2051Q, Rev. 6 and C-2076Q, Rev. 4.

1. The foreman, field engineering and QC engineer were present. Field engineering had the drill permit and work prints for the work.

2. Grout was being mixed in an adjacent room according to instructions on the bags. The instructions indicated mixing proportions, temperature allowed and allowable time before use. Ice was available for controlling grout temperatures within limits.

3. The grout used was "Master Builders Grout", No. 814. This is adequate for openings 1 inch up to 8 inches.

4. The mixing buckets are volume calibrated by U.S. testing laboratories. Holes are drilled in the bucket sides at specified volumes.

5. The QC inspector observed the mixing proportions and measured the temperature of the mix.

6. The grouting technique consisted of injecting grout through a copper tube extending from the grout gun to the bottom rear of the area being filled. An air vent in the top portion of the area allowed air to escape as the grout was injected. The copper tube remained in the grout and is subsequently cut off flush with the surface.

7. The QC inspector has a prepared QCIR, No. 178-758.

C. CONCLUSION

Design requirements of the Concrete Drill Permit were met. Grouting procedures were followed and both field engineering and QC inspectors were present providing timely approval of the completed work.

OBSERVATION OF EQUIPMENT MAINTENANCE

A. SCOPE

Reviewed maintenance of in-place mechanical equipment per FPG 5.000.

B. OBSERVATION

1. Requested maintenance requirements and performance records of randomly selected equipment.
2. Equipment selected was the turbine building feed water booster pumps (1500 hp).
3. There are four pumps, two each for Units 1 and 2.
4. Their designation is 1 and 2 PO3 A and B.
5. Information pertains to Byron Jackson pumps only - motors are electrical.
6. Records for instruction for storage and performance of instructions were not set up on the F-10, F-20 forms required by Field Procedures.
7. Records consisted of Field Engineering Report form and record of telephone conversation with vendor.
8. A vendor maintenance recommendation was oil strainer replacement. A request for a new strainer was noted but receipt and installation was not documented.

C. CONCLUSION

Engineering did not follow procedure for inspection and maintanence of installed equipment per FPG 5.000.

OBSERVATION OF CONSTRUCTION FACILITIES AND EQUIPMENT

A. SCOPE

Reviewed both on-site and off-site construction facilities and equipment for support of the project needs.

B. OBSERVATION

Areas reviewed:

- Combination fab shop
- Poseyville laydown area
- Main warehouses
- Trailer complex
- Rigging tool room
- Tool rooms
- Standish fab shop

1. The main craft tool rooms are adequately organized and controlled to support the project. Several smaller tool cribs are located in key areas of the plant.

2. Because of the number of personnel on site and the multiple organizations, there appears to be insufficient bulk laydown near the plant. The bulk laydown area is well removed from the plant proper, generating smaller isolated areas at the plant site to control. Added to this, subcontractor's laydown areas are scattered.

3. Motor vehicles (trucks) used on site appear to be near retirement, but adequate.

4. The motor vehicle maintenance shop is adequate for supporting all equipment on site.

5. CP Co construction personnel approve the purchase and lease of all equipment and location of temporary facilities. A good key plan of the facilities is maintained.

6. The main warehouse is centrally located, well organized and controlled.

7. The majority of the rigging is controlled in one location, called the "rigging loft". Daily visual inspections are performed - good system.

8. Temporary plant gases are well distributed throughout the plant.

9. Excess material storage located in the Poseyville laydown area is evidence of the number of engineering and construction changes. In one case, the lack of segregation control of Q and non-Q excess material resulted in scrapping the entire lot.

B. OBSERVATION OF CONSTRUCTION FACILITIES AND EQUIPMENT (Continued)

10. The Standish fabrication facility is adequate to meet project needs for support of their hanger/restraint program. Presently, the facility works under a "metal trades" agreement which is more economical than a "building trades" agreement.

C. CONCLUSION

Both on-site and off-site construction facilities are adequate to meet the needs of the project. There is a weakness in that there is no adequate bulk laydown area on site; however, at the present, there is no area available.

OBSERVATION OF INPUT PREPARATION FOR LARGE BORE PIPE STRESS CALCULATIONS

A. SCOPE

Observed engineering check for possible interaction between small bore and large bore piping systems in preparation for input of stress calculation.

B. OBSERVATION

1. A single central file of small bore pipe, isometric drawings is maintained for the plant design stress group.

2. The file is readily accessible to all engineers performing calculations.

3. The engineer found the system he needed for reference and was able to extract the required information without removing the drawing file.

C. CONCLUSION

A system is available and easily accessed to provide information to the stress analyst on system interaction between small and large bore piping systems.

OBSERVATION OF TEST EQUIPMENT CONTROL

A. SCOPE

Observed Bechtel's test equipment identification, control, tracking, maintenance and calibration.

B. OBSERVATION

1. Reviewed procedures covering each type of instrument and tool. All were adequately covered.
2. Approximately 3,000 pieces of equipment are well identified, controlled and tracked.
3. Reviewed documentation tracking out-of-tolerance equipment. All seemed very organized.
4. Reviewed retest procedure and recall system all were in order.
5. All certified to national standards.
6. Temperature and humidity is controlled and audited by strip chart.
7. Reviewed test equipment list, calibration certificates and record cards for checkout. All were in good order.
8. Personnel were competent and trained.
9. Routine checks in field of tools were within calibration.

C. CONCLUSION

The test control system was found to be excellent.

OBSERVATION OF START-UP/TEST PLANNING AND SCHEDULING MEETING

A. SCOPE

Attended one of the CP Co Technical Groups Daily Test Planning, Scheduling and Status Meetings.

B. OBSERVATION

1. The meetings are held on the Daily Working Schedule to provide the review and status of test procedure preparation, system turnover, testing/turnover exception work progress and completion.

2. The "Daily Working Schedule" is a two-week look-ahead schedule which is statused daily and formally updated and reissued weekly.

3. Also covered are the plan and schedule for system/equipment outages to support testing temporary field modifications, rework and turnover exception work.

4. Attendees include test planning, test scheduling, test turnover scoping, affected test engineers, BPCo construction support, B&W construction, operations and maintenance.

5. The summary of significant testing activities is issued daily as the overview of the results of the daily meeting.

C. CONCLUSION

The meeting provides a single, daily focal point for system test work, control and status. It appears to be effective in integrating efforts of the various groups involved in the test program.

OBSERVATION OF RAIL ALIGNMENT AND WELDING

A. SCOPE

Reviewed/observed alignment and welding of camera track to R. V. No. 2 support ring used for remote viewing of R.V. support bolts. Work performed using CP Co CWR#582, welding check list log #QCIR, #CW-1.00-699, SWRI drawing #D-6224081, Rev. B.

B. OBSERVATION

1. Millwrights were working in a very confined area under reactor vessel.

2. Area required 0_2 meters and safety permit to enter. 0_2 meters were calibrated but continued to alarm from time to time.

3. No fire extinguishers were in the area where weld preheat was to begin.

4. Welding of track to soleplate was halted by mechanical supervisor twice because of improperly documented weld procedure (no preheat specified). Work was delayed two weeks.

5. QCIR #CW-100-699 welding checklist was in place and properly documented. The checklist was prepared the day work was to begin.

6. Bechtel drawing #C-376-Q, Rev. 13, "Soleplate", was stamped "controlled".

7. Southwest research drawing #D-6224081, Rev. B, "Track Assy", stamped "controlled".

C. CONCLUSION

1. Safety concerns were noted and corrected immediately.

2. Work instruction package was incomplete and resulted in considerable delay.

OBSERVATION OF PNEUMATIC TEST

A. SCOPE

Performed integrity test on line #4" - IHBD-112, Pneumatic test #GS-CT-6-1, Rev. 0 being performed on approximately 1'-0" lg. 4" c.s. non. cat. pipe (H_2 vent system).

B. OBSERVATION

1. Test drawing was superimposed on iso drawing #m-512-sh3, Rev. 10 & P & ID M-453 (Q), Rev. 9. No weld numbers marked on drawing or listed on hydro sheet. Boundary not clearly identified.

2. TI/PI had current cal. stickers.

3. Pipe test was between MOV and blind flange which did not permit valves to be tagged during test.

4. Valves leaked through seats; pressure had to be maintained by setting regulator on air bottle.

5. No radio communication from pressure source to hydro point. Due to close proximity of personnel, this was not a problem.

6. Bechtel test engineer was present to witness test and sign-off documents. All documents were in order.

7. All checklists were in order.

C. CONCLUSION

1. Test was conducted and documented according to procedure.

2. Test instruction package could have been improved by having weld and boundary identifications included.

OBSERVATION OF HYDROSTATIC TEST

A. SCOPE

Performed integrity test of line #1/2" - 2HGB-119 Boron recovery line. System: OHEA

B. OBSERVATION

Observed Hydro #BT-CT-16-PT4.

1. The line was filled with demin water (Approximately 60' of 1/2" pipe).
2. Good communications existed between hydro boundaries.
3. Gauges (P1 and T1) and RV were calibrated.
4. The change in RV setting and test pressure was done to account for head differential pressure.
5. The hydro data sheet, FPB-1.000, Rev. 2 was completed per procedure.
6. The checklist for hydro release was in order (arc strikes, cleanliness, walk-down).
7. The following eight people were directly involved for approximately three hours with the hydro:
   a. Kemper ins. rep. (1)
   b. CP Co inspectors (2)
   c. Bechtel QC insp. (2)
   d. Bechtel hydro tech. (1)
   e. Pipefitters (2)
8. Observed four more similar lines at same location that could have been completed simultaneously.

C. CONCLUSION

1. The hydro was conducted by procedure correctly.
2. The hydro process was performed inefficiently (item #7 and 8).

OBSERVATION OF POST WELD STRESS RELIEF

A. SCOPE

Observed stress relief of hanger attachment to Unit #2 crossover pipe, 42" - 2GEP-HI, reference drawing FSK-MPT-2-75 and 2-632-13-1 sheet 3 of 3, Rev. 2.

B. OBSERVATION

1. Reviewed subject stress relief operation with a Bechtel welding technician and pipefitter general foreman. Both were knowledgeable with the operation and seemed qualified.

2. Observed the following good practices:

   a. Welding data sheets were at location and properly documented.

   b. Thermocouples were correctly placed.

   c. Coils and mats and properly placed.

   d. Recorders were calibrated, properly connected and monitored. Strip charts were signed off.

   e. Temperature increase, hold time, cool-down were verified correctly.

   f. The field sketch used "red line" process and was properly signed.

3. The lack of fire protection was noted. No requirement exists but good construction practices should require this since temperature was 1150 ^{o}F and combustibles existed near the "wrap".

C. CONCLUSION

The post weld stress relief operation was performed properly.

OBSERVATION OF CABLE TERMINATION

A. SCOPE

Observed termination in transformer panel OX124, EL. 695, fuel handling building. Work initiated by CPCO CAR-x02-#-024, (CAT. II work).

B. OBSERVATION

1. The CP Co test engineer was supervising two electricians changing bolted termination lugs to a larger size.

2. The crimping tool was calibrated. Electricians appeared to be well qualified and produced good workmanship. Double tagging (Bechtel/CP Co) at breakers was noted as a good practice.

3. The termination (3 way, in-line, bolted lug) used straight lengths of heat shrink which the electricians were not familiar with. When the engineer rechecked the specifications, a change was made requiring the splice to be repeated using "a set of pants" on the double wire before final heat shrink coverage.

C. CONCLUSION

1. There was a lack of specific instructions for the electricians.

2. Good workmanship was observed.

OBSERVATION OF TRAINING SESSION

A. SCOPE

Attended training session for orientation of new non-manual employees.

B. OBSERVATION

1. Attendance - 40 personnel and 9 members of INPO team.
2. Subjects covered were:
   - Quality Improvement Program
   - Safety - General Work Rules
   - Security
   - Affirmative Action
   - Labor Agreement
   - Tag-out Procedure
3. Emphasis was placed on quality and safety, including violations resulting in termination.
4. Employees were required to sign a statement that they would read "Safe Practices Bulletin" (Bechtel).
5. Facilities and equipment were adequate.
6. Content and presentation were excellent.

C. CONCLUSION

The training and indoctrination session was excellent and above average for the industry.

OBSERVATION OF CONTROL ROD DRIVE MECHANISM STATOR PREINSTALLATION CHECK

A. SCOPE

Checked the Control Rod Drive (CRD) stators for stator phase resistance, stator winding insulation and thermocouple resistance prior to installation of the reactor vessel head.

B. OBSERVATION

1. The Specific Test Procedure, 1SP-CRD.03, was reviewed and approved in a timely fashion prior to the test.

2. The test procedure meets the requirements of the appropriate administrative procedure, TPM-11-2 and clearly describes objective, special test equipment required and acceptance criteria.

3. B&W personnel assemble the CRD system on the reactor vessel head, prior to turnover of that section of the NSSS. A preinstallation check was performed to detect problems prior to final installation and avoid disassembly later. None were observed during this check.

4. CP Co inspection and control technicians conduct the tests but no turnover takes place. B&W technicians connect the test leads for the CP Co personnel.

5. A TPM Procedure (Temporary Turnover) was prepared for situations where CP Co activities are required before a functional turnover. However, CP Co test personnel indicate the simplicity of this test does not justify a temporary turnover. A review of this test confirmed this point.

6. Clean room conditions are required to prepare the CRD stators and conduct the check. Clean room procedures are followed. The room is cleaned prior to unpacking the units, B&W QC personnel make an inspection, clean room clothing is required in the area and a log is maintained of all persons entering and leaving the area.

7. Instruments were calibrated and appropriately labeled.

C. CONCLUSION

The Control Rod Drive Stator Preinstallation Check Procedure is carried out in a professional manner under the supervision of the test engineer. The stators are placed in a clean room erected on Level 1 of Unit 1 containment and tested by CP Co I&C personnel.

OBSERVATION OF DECAY HEAT REMOVAL PUMP INITIAL RUN

A. SCOPE

The Decay Heat Removal Pumps (DHR) are operated initially for two hours with monitors measuring pressures, differential pressure, motor temperature and vibration. A screen, installed in the flow path, protects the pump from damage due to debris still in the lines after flushing.

B. OBSERVATION

1. The Specific Test Procedure, 2SP-DHR.01, was reviewed and approved six months in advance of the test. Procedure changes, primarily necessary due to incomplete related systems, were submitted and approved in a timely fashion.

2. The test procedure meets the requirements of the appropriate administrative procedure, TPM-11-2, and clearly describes objective, prerequisite system boundaries and acceptance criteria.

3. Measurements of system pressures, motor temperatures and vibrations were taken by I&C personnel.

4. Prior to the test, two flushing runs had been made, both terminated by a differential pressure limit across a screen which collects debris in the system.

5. Calibration of test instruments and installed instrumentation was documented in the working procedure. All necessary maintenance, such as bearing lubrication, was specified in the procedure and signed off by the test engineer prior to the test.

6. The test was terminated after one-half hour by the differential pressure limit across the screen. Another run will be made after the screen is cleaned.

7. One technician did not wear safety glasses as required by CP Co safety regulations. It was later determined the technician was a Bechtel employee. Their safety glasses policy is not compulsory.

9. The DHP is located in a relatively small shielded room with many large and small pipes, criss-crossing the work space. During the test, three Bechtel personnel were visually evaluating piping layouts for proximity requirements in the same work space.

C. CONCLUSION

1. DHR No. 2P64B, located on Elev. 568 feet in the Auxiliary building, was operated according to a procedure which meets all criteria of TC.5.

2. The test was performed in a professional manner, under the supervision of the test engineer.

OBSERVATION OF REACTOR BUILDING FUEL HANDLING BRIDGE DRY PREOP AND INDEXING

A. SCOPE

The reactor building fuel handling bridge contains the necessary hoist, traversing drive systems, position indicators and interlocks to transfer fuel assemblies to and from the reactor vessel. The mechanical and electrical systems are tested for proper operation with a dummy fuel assembly prior to fuel load.

B. OBSERVATION

1. The procedure, 1TP-FHS.05, was approved November 3, 1982, a few days before testing was initiated.

2. The test procedure meets the requirements of the appropriate administrative procedure, TPM-11-2, describing clearly the objective, prerequisite system boundaries and acceptance criteria.

3. The turnover package in the working file was reviewed with the test engineer and appeared to be in good order.

4. Traversing and mast position interlocks were under test during the actual observation.

5. The test procedure utilizes plant operations personnel as required by FSAR. The bridge was operated by an RO trainee, under the direction of the test engineer.

6. Data was recorded on the appropriate test data sheets and signed off by the test engineer.

7. The section of the test procedure which was observed was conducted over the open reactor vessel. Contrary to Step 4.2.7, Loose Objects, a flashlight, clipboard and pen were not tied off on the bridge.

C. CONCLUSION

1. Tests of the reactor building fuel handling bridge, located in Unit 1 containment, are being conducted under the direction of the test engineer.

2. The test package was in good order and the test program conducted in a professional manner.

3. Procedural requirement for tie-off of loose objects was not followed. Due to construction status, this was not considered serious but should be enforced as construction completion approaches.

OBSERVATION OF SYSTEM FLUSH

A. SCOPE

The Component Cooling Water system (CCW) provides cooling to a number of NSSS components. The flushing observed was a selected portion of the CCW system, a flow path which included the Reactor Coolant Pump (RCP) motor coolers.

B. OBSERVATION

1. Flushing Procedure No. OFP-EG.01 was prepared for use in conjunction with initial CCW pump runs, Specific Procedure No. OSP-CCW.01.

2. The system encompasses two units with two trains in each unit and crossover supplies and returns. The procedure permits varying the order of flushing steps to accommodate the turnover schedule.

3. The flushing steps underway involve 25 to 30 percent of one loop of the CCW system and piping into the Unit 2 containment.

4. Procedure preparation, review and approval was completed in a timely fashion.

5. Acceptance criteria for the system is a Class C Cleanliness Level, which generally requires several flushings.

6. The test engineer is experienced and is conducting the test in a professional manner.

C. CONCLUSION

The flushing operation observed was conducted in a professional manner and in compliance with specified procedures.

OBSERVATION OF PROJECT ENGINEERING MEETING

A. SCOPE

The purpose of the meeting was to review the program for analysis and testing of steel embedments that use tension bars and shear lugs and are subject to a combined loading of shear and tension. The problem concerns the ACI-349 Standard regarding this type of embedment.

B. OBSERVATION

1. The meeting was attended by members of the Bechtel Project Engineering staff, the Chief of Civil Engineering and his staff, the CP Co Manager of Design Production and his staff.

2. The meeting was chaired by Bechtel Project Engineering and followed a published agenda.

3. Hand-outs were provided and discussed outlining the proposed test program and analysis.

4. The proposed test program was discussed at length. There was a difference of opinion as to whether to proceed initially with a non-Q pilot program or whether to launch immediately into a full-Q program.

5. Note was made that to date the NRC had not adopted a position on ACI-349 but was working to do so. The Midland embedment design was not based on ACI-349.

6. Although the outcome of this test/analysis program could have a significant impact on the schedule for fuel loading, little attention at the meeting was given to assessing alternative approaches. Perhaps the schedule impact will be the subject of further discussion after additional information is obtained.

C. CONCLUSION

There were open and constructive interactions between the project engineering staff, the client engineer and his staff and CP Co personnel.

OBSERVATION OF QUALITY MEETING

A. SCOPE

Attended management meeting on corrective action.

B. OBSERVATION

1. The meeting was attended by 30 people including personnel from Ann Arbor, Jackson and the job site. The meeting was presided over by the Vice President, Projects, Engineering and Construction.

2. Subjects covered included the following:

   - MPQAD - certification of QC personnel
   - NRC - inspection results
   - Old action items

3. The attendance included Bechtel Project Manager and CP Co Project Manager. The discussions were open and very detailed. Each participant was prepared to answer and presented information pertinent to the subject. The meeting was very constructive and professionally handled. It started at 1:00 p.m. and adjourned at 6:10 p.m. Four areas were discussed that concerned this observer.

   - Drawing Control - Latest drawings should be available at the Document Control Center. Redlines are acceptable for use if the design is not changed similar to FSK sketches. If redlines change the design, they should be approved by the Design Group and issued formally through the Document Control Center.

   - Field Change Requests (FCR) - FCRs cannot be used in lieu of NCRs. This is an abuse of a QC principle. FCRs are written before the fact. NCRs are written after the fact.

   - Final Inspection - Final inspection must be performed to design drawings, not to FSK sketches. FSKs are construction aids and should not be used for final inspection.

   - Work Requests/Work Orders - QA or QC should sign off on all work requests and work orders.

C. CONCLUSION

1. There was evidence that in some cases corrective action could have been resolved at lower levels instead of being escalated to upper management.

2. The participation of upper management in these quality meetings indicated a direct involvement and commitment to quality.

OBSERVATION
OF
CORRECTIVE ACTION MEETING

A. SCOPE

Corrective Action Meeting is held to discuss resolution to nonconformance report NCR-M01-9-1-075.

B. OBSERVATION

1. Attendance: The meeting was held in the Midland Outage Building, conference room #1. There were four Project Engineering, three Bechtel jobsite, three CP Co personnel, an RTE Delta representative and two INPO team members.

2. The meeting was chaired by a member of Project Engineering.

3. The discussion centered around the type and method of modifications to the subject control panels to meet separation requirements of IEEE-384, 1977. The panels in question were the Emergency Diesel Generator Control Panels 1C-231, 1C-232, 2C-231 and 2C-232.

4. The meeting was conducted in a professional manner. It was short, concise and held to the issues. All participated in the discussion and shared information.

5. It was decided to reinspect the panels with the vendor's representative present.

6. After the inspection, the RTE will issue the appropriate procedure and drawings for Bechtel Construction to perform the necessary work to have the panels coincide with the purchase specification.

C. CONCLUSION

The meeting was very productive. Participants worked together to resolve a quality problem.

OBSERVATION OF NRC EXIT MEETING

A. SCOPE

The NRC Exit Meeting was attended to observe the attitude of the client, the communication process and the client's reaction to corrective action.

B. OBSERVATION

1. Thirty-five people attended: 14 from CP Co, 12 from Bechtel, 7 from NRC and 2 were INPO team members.

2. NRC inspectors group their collective findings into several categories, i.e., Material Traceability, Design Drawing Conflicts, QC Documentation Errors, Design Document Control Inadequate, Field Inspections Inadequate and Design Controls Inadequate (Q versus non-Q).

3. The utility received or accepted the findings in a constructive way.

4. The utility requested the findings to be in writing so they could investigate, respond to the finding and initiate corrective action as necessary.

5. The NRC inspectors stated that they needed additional time to assess the findings in detail and that they had no comments on enforcement action. They also stated that many of the items were preliminary in nature.

6. The client stated that CP Co personnel would be contacting NRC inspectors prior to the finalization of their report to provide additional information pertinent to the specific findings.

C. CONCLUSION

The meeting was conducted in a professional manner. Utility and construction personnel gave proper constructive attention to NRC's report of quality deficiencies.