

gay

SEP 16 1983

MEMORANDUM FOR: H. Boulden, Chief, Safety and Enforcement Audits  
Branch, OIA

FROM: R. F. Warnick, Director, Office of Special Cases

SUBJECT: OIA INQUIRY CONCERNING THE SPECIAL CASES STAFF  
(OFFICE OF SPECIAL CASES)

During your recent inquiries in Region III, you requested some additional details concerning the Office of Special Cases. The enclosure to this memorandum provides the information you requested.

If I can be of further assistance, please feel free to contact me.

"Original signed by R. F. Warnick"

R. F. Warnick, Director  
Office of Special Cases

cc: RIII File

8408150630 840718  
PDR FOIA  
RICE84-96 PDR

RIII  
Harrison/ls  
09/12/83

RIII  
Warnick  
9/13

RIII  
Notelius

RIII  
Spessard  
9/15

RIII  
Davis  
9/15

## ENCLOSURE I

### BACKGROUND ON U.S.N.R.C. REGION III

#### OFFICE OF SPECIAL CASES

The Midland and Zimmer Nuclear Power Plants had developed a history of problems in attempting to implement their Quality Assurance programs during the construction phases. Both plants were ineffective in determining problem root causes, in determining generic implications, and in taking effective corrective actions. Also, due to the type and magnitude of the problems detected by the licensee and the NRC; increased attention by the Commission, Congress, and public interest groups; and in order to assure that the Region successfully meets these challenges, the Regional Administrator, Mr. James G. Keppler, decided to form the Office of Special Cases (OSC). OSC was formed in July 1982 to focus increased NRC management and inspection attention to the Midland and Zimmer projects.

The current OSC staff is comprised of fifteen positions; of this number, eight are inspection personnel, four are supervisors, and three are secretarial. In addition, the Division of Engineering is currently supplying the equivalent of two man-years of inspection effort. This effort will vary as work activities at the two sites dictate. To augment the inspection effort at Midland and Zimmer in FY 83, Region III entered into a contract agreement with the Department of Energy to supply through Argonne National Laboratory four qualified individuals to provide technical assistance.

The staffing plans for FY 84 include increasing staffing levels of inspection personnel to a total of fifteen; the additional seven technical inspection personnel will be dedicated from other Region III Divisions. Region III also plans to utilize the services of four qualified individuals in FY 84 to provide technical assistance in the inspection effort at Midland and Zimmer. A contract for this effort has not been awarded to date.

In order to staff the Office of Special Cases, the Division of Project and Resident Programs (DPRP) and the Division of Engineering (DE) had to reassign personnel to this effort. The routine inspection effort for other construction sites had to be reduced or delayed. The schedule slippages at these plants made the reallocation of resources acceptable up to this time. However, to assure inspection delays were not too untimely, support for the DE effort for one plant and segments of other inspections at other plants (e.g., inservice and electrical inspections and operating plant modifications) was obtained from another NRC Region and the Office of Nuclear Reactor Regulation.

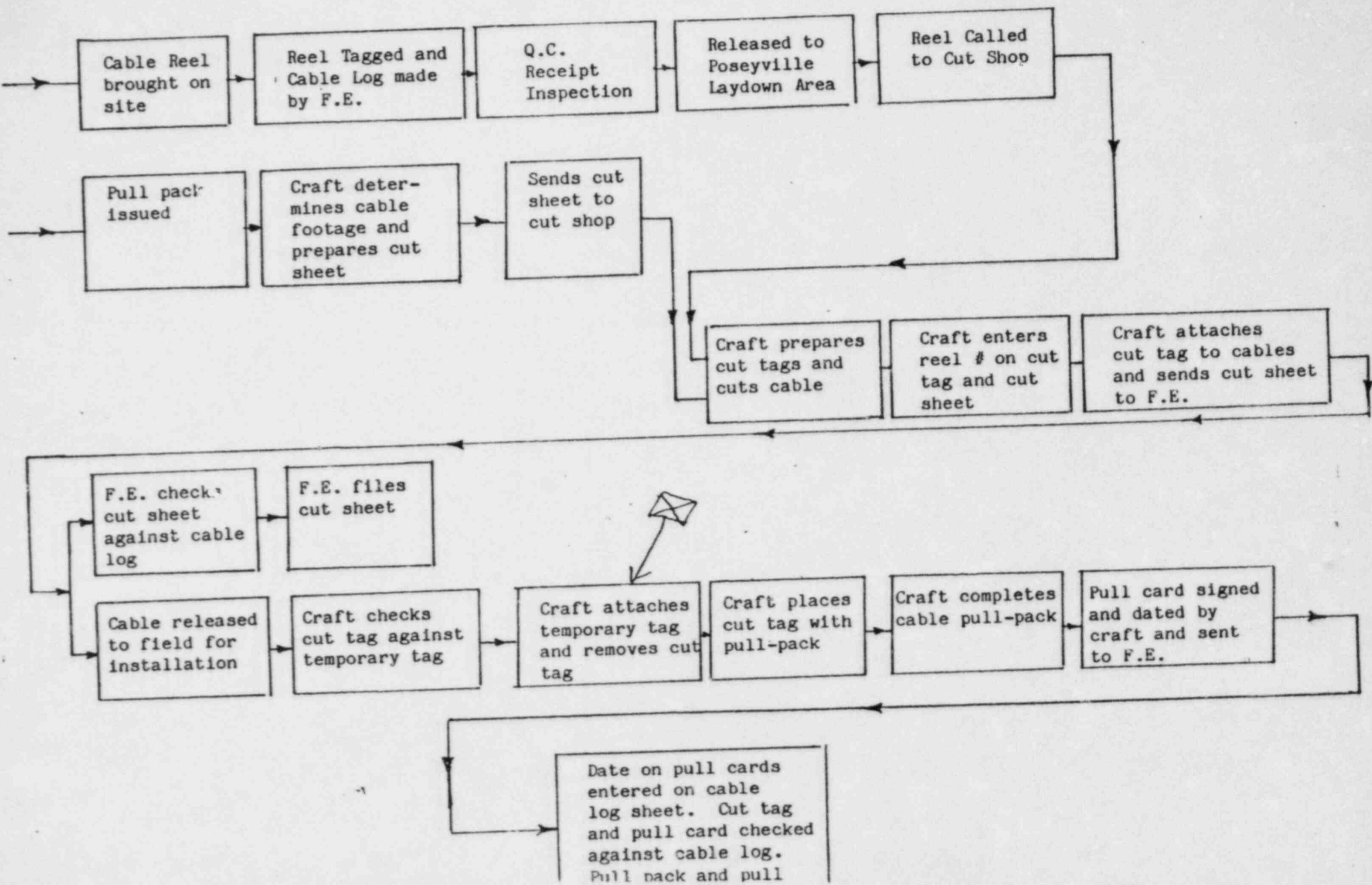
### Cable Pulling Evolution

1. A cable reel is brought on site and flagged for Q.C. receiving inspection.
2. The reel is tagged (see Attachment #1 for tag) and a cable log (see Attachment #2) is prepared, by Field Engineering.
3. The cable is receipt inspected and released to the Poseyville Laydown Area.
4. Field Engineering releases a pull pack to the craft.
5. The craft requisitions the pull cards (see Attachment #3 for requisition and Attachment #4 for cards) and walks the pull vias down for approximate length.
6. The craft prepares a cut sheet and sends it to the cut shop (see Attachment #5).
7. The craft in the cut shop locates the proper type of cable and prepares cut tags (see Attachment #6).
8. The cable is cut and the reel number is entered on the cut sheet (see Attachment #5) and the cut tag (see Attachment #6).
9. The craft attaches the cut tag (see Attachment #6) to the cable and sends the cut sheet (see Attachment #5) to Field Engineering.
10. The cable is then released to the field for installation.
11. Field Engineering, upon receipt of the cut sheet (see Attachment #5), checks the reel number(s) against his cable log (see Attachment #2), checks the cable code against the applicable cable log sheet, then adds the cable scheme number and approximate footage to the sheet.
12. The Field Engineer then files the cut sheet.
13. The craft in the field checks the cut tag (see Attachment #6) against the temporary tag found with the pull card (see Attachment #4).
14. The craft attaches the temporary tag to the cable and removes the cut tag. The cut tag is then placed with the pull-pack.
15. The craft completes the pull then signs and dates the pull card (see Attachment #4). The pull cards are placed with the pull-pack and sent to Field Engineering.
16. The dates on the pull cards are entered on the cable log sheets (see Attachment #2). The cut tags (see Attachment #6) and the pull card is checked against the cable log.
17. After check, the cable pull-pack is filed by Field Engineering.

### Root Cause

1. Craft person in the cut shop inadvertently cut a B01 cable instead of a B03.
2. The reel number used was actually the footage number taken from the reel tag (see Attachment #7).
3. The field engineer who received the cut sheet from the cut shop could not locate a cable log sheet. He made a cable log sheet up based on the reel number found on the cut sheet.

CABLE PULLING EVOLUTION



TYPE 8/6#16 LF 3752  
CODE 121  
REEL SN E60-00005408

**CABLE LOG**  
ATTACHMENT 2

Cl 3/17 E' 9/11

REEL #	CABLE CODE DESCRIPTION	QUANTITY RECEIVED	REC'D DATE	REEL STATUS
E26- 00080006	B03 3/c#10	5250		
CIRCUIT	DATE	SCHEDULED LENGTH	REMAINING BALANCE	REMARKS
1EB018B	7-28-81	220		
C	↓	25		SCRAP
19B	↓	215		
C	↓	25		SCRAP
2AB5516A	7-30-81	100		
15A	↓	100		
ONBP5313B	9-25-81	155		
JNB2512B	9-23-81	168	4242	
2AB4310 A	8-7-81	87	4155	

U/M-0194-0



# CABLE/RACEWAY CARD REQUISITION

BECHTEL POWER CORP.  
MIDLAND, MICHIGAN

Req No B1893

From 11 Area \_\_\_\_\_

Date 7-9-81

To E. Bare

JOB 07220

Issue Cards For:

- Installation
- Installation Revision
- Completed Installation

- Raceway
- Cable Pulling
- Cable Termination

3088'

IDENT NO	IDENT NO	IDENT NO	IDENT NO
2AR2316 A			
✓ B			
2AC5515 A			
✓ 16 A			
2AMU065A			
7 B			
✓ C			
✓ D	Notify	QC 48 HRS	
2AD396 P			
✓ Y	Before	Pulling	
2AY005 A			



ATTACHMENT 4

SCHEME CABLE NO.	CABLE CODE	SYSTEM	SCHEME DWG. NO.	REV.	FROM	TO
AC	1A85301 M	VEAA	194	57-C	1853	1C468
	FROM 10	NO. OF CABLES	SCHED. LENGTH		1A85301 M	B27
	1853		1	547	SCHEME CABLE NO.	CODE
	1C468				FROM	TO
ROUTED THROUGH THE FOLLOWING VIAS:						
ASL944	ADB01	ADA02	ADA01	AJ424	AA010	1853 1C468
AKF01	AKP03	AJB01	AJA01	AJN01	AJU01	1A85301 M B27
AJA10	AJA11	AJA12	AJA13	AJA20	AJA21	SCHEME CABLE NO. CODE
E-401	DCP618					FROM TO
						1853 1C468
						1A85301 M B27
						SCHEME CABLE NO. CODE
						FROM TO
						1853 1C468
						1A85301 M B27
						SCHEME CABLE NO. CODE
						FROM TO
						1853 1C468
						1A85301 M B27
						SCHEME CABLE NO. CODE

CABLE PULLED

BY:

DATE:

CIRCUIT ACTUAL LENGTH

SCHEME CABLE NO.	CABLE CODE	SYSTEM	SCHEME DWG. NO.	REV.	FROM	TO
AC	1B1071 B		J312	56-M	1C31	1C46
	FROM 10	NO. OF CABLES	SCHED. LENGTH		1B1071 B	107
	1C31		1	175	SCHEME CABLE NO.	CODE
	1C46				FROM	TO
ROUTED THROUGH THE FOLLOWING VIAS:						
BJ122	BGA10	BGB16	BGB15	BGB14	BGB13	1C31 1C46
BGB12	BGB11	BGB10	BGB09	BGB08	BGB07	1B1071 B 107
BGB06	BGB05	BGB04	BGB03	BGB02	BGB01	SCHEME CABLE NO. CODE
BTA05	BGC12	BGC11	BGD01			FROM TO
						1C31 1C46
						1B1071 B 107
						SCHEME CABLE NO. CODE
						FROM TO
						1C31 1C46
						1B1071 B 107
						SCHEME CABLE NO. CODE
						FROM TO
						1C31 1C46
						1B1071 B 107
						SCHEME CABLE NO. CODE

CABLE PULLED

BY:

DATE:

CIRCUIT ACTUAL LENGTH



3

2AB5516 A

B03

100'



REEL E26-000B0006

FABER

B1893

2AB5515 A

B03

100'



REEL E26-000B 0006

FABER

B1893



TYPE: 3414-XLPE-600VLF: 5300

CODE: B01

REEL SN: 7220-E26AC-2-7C-402 A →  
T5314-30006 →

REEL NUMBER

FOOTAGE NUMBER



**Consumers  
Power  
Company**

**James W Cook**  
*Vice President - Projects, Engineering  
and Construction*

General Offices: 1945 West Parnall Road, Jackson, MI 49201 • (517) 788-0453

December 1, 1982

82-11 #1

Mr J G Keppler, Regional Administrator  
US Nuclear Regulatory Commission  
Region III  
799 Roosevelt Road  
Glen Ellyn, IL 60137

MIDLAND NUCLEAR COGENERATION PLANT -  
DOCKET NOS 50-329 AND 50-330  
CABLE SUBSTITUTIONS  
FILE: 0.4.9.67 SERIAL: 19102

On October 28, M J Schaeffer notified R N Gardner of your staff of a potential 50.55(e) concerning cable substitutions on four Class 1E cables which were not sized in accordance with the design requirements. This letter is the final 50.55(e) report on this subject.

The Midland Project Quality Assurance Department (MPQAD) initiated the cable routing reinspection program on October 20, 1982 for all cables that had not been reinspected but which were installed prior to March 15, 1982. The subject substitution of four cables was identified during the first week of these reinspections. At the time of the writing of this letter, approximately 2,000 cables have been reinspected with no additional cables having been identified as being the incorrect cable. Thus, this condition is considered to be an isolated event.

The attached Management Corrective Action Report provides the complete description of the specific deficiencies and the corrective actions taken. As noted in the report, the MPQAD reinspection program as well as the Project Quality Control Instruction (PQCI E-4.0) which covers installation of cables has been revised to contain a specific attribute to verify from the cable markings and the cable physical attributes that each cable meets the design requirements. If this condition would reoccur in new work, the PQCI attribute would find it. Further instances of this condition, if any, in old work (prior to November 12, 1982) will be inspected for by MPQAD.

JWC/WRB/lr

*James W. Cook*

OC1182-0024A-MP01

DEC 8 1982

~~8212100237~~

Attachments: (1) Management Corrective Action Report MCAR-1, Report No 62,  
dated 11/16/82

(2) MCAR-62, Final Report, dated November 16, 1982

CC: Document Control Desk, NRC  
Washington, DC

RJCook, NRC Resident Inspector  
Midland Nuclear Plant

CBechhoefer, ASLB Panel  
RSDecker, ASLB Panel  
FPCowan, ASLB Panel  
JHarbour, ASLB Panel  
AS&L Appeal Panel  
MMCherry, Esq  
MSinclair  
BStamiris  
CRStephens, USNRC  
WDPaton, Esq, USNRC  
FJKelley, Esq, Attorney General  
SHFreeman, Esq, Asst Attorney General  
WHMarshall  
GJMerritt, Esq, TNK&J  
Great Lakes QA Managers

QUALITY ASSURANCE PROGRAM  
MANAGEMENT CORRECTIVE ACTION REPORT  
MCAR-1

JOB NO.: 093783 7220 Q NO.: 094655 REPORT NO.: 62  
DATE: 11/08/82

I DESCRIPTION\* (Including References):

Four Class 1E power cables (2AB5515A, 2AB5516A, 1EB018B, and 1EB019B) were identified on NCR M01-9-2-145. These cables were pulled and installed as AWG #14/3 instead of AWG #10/3. Drawing 7220-E37 Rev. 58 specifies that the cables be installed as AWG #10/3.

RECOMMENDED ACTION\* (Optional):

- 1) Project engineering to document their evaluation of the condition for impact on safety for inclusion in the final report.
- 2) MPQAD has included in the cable routing reinspection plan an attribute for determining correct cable being installed.
- 3) Quality Control to include a clarified inspection point in the cable installation inspection plan (PQCI) to minimize recurrence.

REFERRED TO:  Engineering  Construction  QA Management  MPQAD (Site)  
 Procurement  QC

ISSUED BY: B. Reia 11/08/82  
for Project QA Engineer Date

II REPORTABLE DEFICIENCY:

NO

Potentially reportable  
 YES

NOTIFIED CLIENT: 10/29/82

[Signature] 11/16/82  
Project Manager Date

III CAUSE:

CORRECTIVE ACTION TAKEN:

See Final Report.

CLOSED

AUTHORIZED BY: \_\_\_\_\_  
Date

AAPD DISTRIBUTION	PROJ DISTRIBUTION	OTHER DISTRIBUTION
MGR OF CONSTRUCTION	CHIEF CONSTR QC ENGR	MGR OF QA - TPC
MGR OF ENGINEERING	CLIENT	OPD - QA MGR
MGR OF PROCUREMENT	PFOCE	LAPD - QA MGR
MGR OF PROJ OPERATIONS	PROJECT CONSTR MGR	SFPD - QA MGR
MGR OF QUALITY ASSURANCE	PROJECT ENGINEER	
CONSTRUCTION MGR	PROJECT MGR	
ENGINEERING MGR	PROJ PROCUREMENT MGR	
SUPPLIER QUALITY MGR	SITE MGR	
QE SUPERVISOR		

FORMAL REPORT TO CLIENT \_\_\_\_\_  
(If Section II Applies) Date

CORRECTIVE ACTION IMPLEMENTED

VERIFIED BY B. Reia 11/16/82  
for Project QA Engineer Date

\* Describe in space provided and attach reference document.

## Bechtel Associates Professional Corporation

094655

SUBJECT: . . . MCAR 62 (Issued 10/29/82)

Four Class 1E Power Cable Installed as 3/C#14 AWG instead  
of 3/C#10 AWG

## FINAL REPORT:

DATE: November 16, 1982

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

This report provides an evaluation of the condition for impact on safety and the course of corrective action requested pursuant to MCAR 62.

Description of Deficiency

Four (4) Class 1E power cables (2AB5515A, 2AB5516A, 1EB018B, and 1EB019B) were pulled and installed as 3/C#14 AWG instead of 3/C#10 AWG. Circuit and raceway schedule 7220-E-37 Rev 58 specifies that the cables be installed as 3/C#10 AWG.

Summary of Investigation and Historical Background

This deficiency was identified and documented in Consumers Power Company NCR MO1-9-2-145. These cables are installed in the power circuit of Decay Heat Return Letdown Bypass Valves 2MO-1158, 2MO-1159, 1MO-1058, and 1MO-1059.

Analysis of Safety Implication

In accordance with FSAR Subsection 8.3.1.1.8 Class 1E valve motors are specified with accelerating capability at 80% nominal voltage at their terminals. Based on this requirement, the predicted voltage at the motor control centers (MCC) and the circuit voltage drop that would be present with the #14 AWG cables in the circuit was calculated. An analysis of calculation results was performed to determine the voltage that would be available at the motor terminals. The results indicate that a voltage potentially below the limits for operation of valves 1MO-1058 and 1MO-1059 could result. Valves 2MO-1158 and 2MO-1159 would have sufficient voltage to operate. Failure of valve 1MO-1058 and 1MO-1059 to operate could adversely affect the safety of the plant.



094655

MCAR 62  
Final Report

Page 2

In addition, the full load current of each of the four valves (16 amps) is greater than the continuous current allowed by design calculation 7220-QPE-8(Q) for 3/C#14 AWG cable routed in cable tray (9 amps). This, however, could not result in conductor overheating or degradation as valve operation is intermittent and of short duration.

#### Probable Cause

The cause of this deficiency was:

- 1) That the cable reel tag carried both the reel serial numbers and the vendor's footage markings. The cable cut shop misinterpreted these numbers and identified the subject cables by the footage number rather than by the reel number. Since the footage number was the same for both 3/C#14 AWG and 3/C#10 AWG cables, the cable log sheet was in error as to the correct cable identity. Field procedure FIE 4.100(Q) was revised and reissued on June 29, 1982 to define and clarify which number should appear on the tag,
- 2) Project Quality Control Instruction E-4.0 did not require verification of correct cable type by means of cable jacket markings or physical characteristics.

#### Corrective Action

The corrective actions to resolve this MCAR are as follows:

1. MPQAD has included verification of correct cable type as part of the cable routing reinspection plan.
2. QC has revised Project Quality Control Instruction (PQCI E-4.0 Rev 11) to require verification of correct cable type by means of cable jacket markings or physical characteristics as opposed to by cable identification tag.
3. The four Cables 2AB5515A, 2AB5516A, 1EB018B and 1EB019B have been replaced with 3/C#10AWG.

Bechtel Associates Professional Corporation

094655

MCAR 62  
Final Report

094576

Page 3

Reportability

Based on the safety implications, this deficiency is considered reportable in accordance with Title 10 of the code of the Federal Regulation Part 50.55(e)

Submitted by:

*J.G. Kovach*

J.G. Kovach  
Electrical Group Supervisor

Approved by:

*E.M. Hughes*  
E.M. Hughes  
Project Engineer

Concurrence by:

*R.L. Castleberry*

R.L. Castleberry  
Electrical Chief

Concurrence by:

*E.H. Smith*

E.H. Smith  
Engineering Manager

Concurrence by:

*M.A. Dietrich*

M.A. Dietrich  
Project Quality Assurance  
Engineer

LK  
JGK/LK/se(E)  
11/9/1-2

Consultants  
Power  
Company  
9A27-0

# NONCONFORMANCE REPORT

CTS. ENGINEERING AND CONSTRUCTION -  
QUALITY ASSURANCE DEPARTMENT

NTS000

Priority: 1 Trend: B-3 AI: S-684 Start Up: Indeterminate Page 1 of 4

PROJECT NAME: Midland 1 & 2	7. NONCONFORMING PART NO: See attached list	8. NONCONFORMING PART NAME: Conduits
SERIAL NUMBER: N/A	10. ORG. COMMITTING NC: Bechtel Const/QC/Engr	11. AREA/LOC. OF NC: Auxiliary Building

1. NCR SERIAL NO: M-01-8-1-012
2. DATE: 02/26/81
3. DATE OF REV: 03/25/81 6/16/82
4. FILE NO: 16.3.4; 16.3.5
5. DISTRIBUTION ACTION COPY: LHCurtis LEDavis MJSchaeffer ALAB (2) REMcCue WRBird RCBauman JWCook PCooke(2) MADietrich JESchultz GCKealey BWMarguglio DBMiller JARutgers RGHoltzer JEBrunner MLCurland BJJohnson DAXaggart JLWood RAWells

AS IS" NONCONFORMING CONDITION REASONS "AS REQUIRED" CONDITION WITH REFS:  
In reply to a Request for Information, CPCo Design Production confirmed the need to follow requirements of Item 10.4.4, Sheet 10A Drawing E42, which states in part, "Under no circumstances shall the minimum separation between any contact surface of field routed conduits or attachment hardware and any of the electrical/mechanical items tabulated in Items 10.4.2 and 10.4.3 above be less than one (1) inch without approval from Project Engineering."  
Contrary to the above, conduits listed below are installed with less than one (1) inch separation from other items as indicated.  
(CONTINUED ON PAGE 3)

CA RECOMMENDATION FOR PART CA:  
~~Recommend that Project Engineering evaluate the conditions reported and determine corrective action.~~ Construction to correct nonconforming conditions as recommended by Project Engineering (Attach. #1).

3. HOLD TAGS APPLIED: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	4. IS PART CA REQUIRED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	17. IS NC REPORTABLE PER 90.55(*): YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
16. DOES NC AFFECT Q-LIST ITEM: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	18. IS NC REPORTABLE PER PART 21: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	19. IF YES, DATE & TIME OF REPORT TO NRC: N/A
20. IF YES, WHO MADE REPORT TO NRC: N/A	21. IF YES, NAME OF NRC OFFICIAL TO WHOM REPORTED: N/A	22. NCR ORIGINATED BY: [Signature] 6/17/82
23. WRITTEN REPLY REQUIRED BY: 7/7/82	24. SUPERVISOR'S SIGNATURE/DATE: [Signature] 6/17/82	25. PART CA DISPOSITION, JUSTIFICATION & COMPLETION DATE:
26. DESIGN/PROJECT SIG. AUTH. DISP.: [Signature]	27. PMO SIG. AUTH. DISP.: NA	28. PROCUREMENT SIG. CONC. DISP.: NA
29. PAR/CONST. SIG. AUTH. DISP.: [Signature]	30. SIG. OF TEST GROUP AGENOV. CONDITION: NA	31. FOR MAJOR MOD - FLT. SUPT. SIG. AUTH. DISP.: NA
32. METHOD OF PART CA VERIFICATION:	33. QA AUTH. SIG. TO IMPLEMENT DISP.: [Signature]	34. NCR CLOSING BY/DATE: [Signature] 3-26-81
35. SIG. OF ORG. RESP. FOR PART C/A	36. SIG. VERIFYING PART C/A & HOLD TAG REMOVAL/DATE:	37. NCR CLOSING BY/DATE: (PART & PROCESS CA COMPLETE)

# NONCONFORMANCE REPORT

## PROCESS CORRECTIVE ACTION

9. CA ASSESSMENT OF ROOT CAUSE(S):

SEE ATTACHMENT

FORM 100

10. ACTUAL ROOT CAUSE(S), IF DIFFERENT FROM ABOVE (TO BE COMPLETED BY ORG. RESPONSIBLE FOR PROCESS CA):

11. PROCESS CA REQUIRED FROM:

DESIGN  FABRICATION  CONSTRUCTION  PROCUREMENT  INSPECTION

OTHER Project Engineering

12. QA RECOMMENDATION FOR PROCESS CA:

It is recommended that Project Engineering revise Drawing E-42 to clearly indicate that both Construction Field Engineering and Construction Quality Control will observe the requirements of Item 10.4.4, Sheet 10A, Drawing E-42(Q).

13. PROCESS CA TO BE TAKEN BY ORG(S) CHECKED IN BLOCK 11 & DATE OF COMPLETION:

14. METHOD OF PROCESS CA VERIFICATION:

15. SIG. OF ORG. RESPONSIBLE FOR PROCESS CA SIGNIFYING COMPLETION:

16. PROCESS CA COMPLETION VERIFIED BY/DATE:

NCR SERIAL NO: M-01-9-1-012  
DATE: 2/26/81  
DATE OF REV: 3/23/81  
FILE NO: 16.3.1, 16.3.4, 16.3.6  
AI S-684

"AS IS" NONCONFORMING CONDITION VERSUS "AS REQUIRED" CONDITION WITH REFS:

(Continued from Page 1)

53' 6" Elevation in the Auxiliary Building

Conduit 1AJBO44 has 0" clearance with support for cable tray 1NJM14.  
Conduit 1AJBO43 has 0" clearance with support for conduit 1NTG005.

34' 6" Elevation in the Auxiliary Building

Conduit 2BEO99 has 1/4" clearance with lighting circuit conduit.

14' Elevation in the Auxiliary Building

Conduit 1BJBO15 has 0" clearance with support foundation #457 over load center 1B18.  
Conduit 2BKMO10 has 1/2" clearance with cable tray support in the penetration area.  
Conduit 1AKCO44 has 3/16" clearance with conduits 1ABBO01 and 2AJBO03.

599' Elevation in the Auxiliary Building

Conduit 2AJDO02 has 1/4" clearance with HVAC line.  
Conduit 1ATE006 has 1/8" clearance with conduit support for conduits 1NJA011 & 1NJCO04.

Upper Cable Spreading Room in the Auxiliary Building

Conduit 2BJHOS4 has 3/16" clearance with cable tray 2BFJO4 support.  
Conduit 2DTA007 has 1/4" clearance with conduit 2DHO23, 1/4" with conduit 2DHO24,  
9/16" with cable tray 2NFG09, and 5/8" with cable tray 2NFHO9.

NCR NO. M-01-9-1-012

DATE: 02/26/81

REVISED: 03/25/81

FILE NO: 16.3.1; 16.3.4;  
16.3.6

AI: S-684

38. QA ASSESSMENT OF ROOT CAUSE(S):

QC interpretation of E-42, Section 10.2, which is headed "Guidelines", is that they need not identify violations when they see them. This results in three specific concerns to MPQAD:

1. That crafts and subcontractors will get the impression that the criteria don't matter and will discontinue attempts to comply with them when compliance is inconvenient.
2. That leaving disposition of violations until area walkdown, when the conduit is full of cable and changes will be costly or impossible, will result in the temptation to accept violations we really don't want to accept.
3. That leaving violations unidentified until area walkdowns means there is only one 100% inspection of these criteria which, if tradition holds, will be only 85% effective. If QC were to identify violations and walkdown crews had only to look for those missed by QC, the two inspections together should be 98% effective.  $(100(1 - .15^2))$

Our request to Project Engineering is to clarify E-42 to describe why these concerns are not concerns, and that they issue interim instructions to QC to identify violations until such time as it is decided whether to revise E-42 or not.

023526

Partial response  
M01-9-1-012

Attachment #1

Page 1

PROXIMITY CRITERIA NONCONFORMING -  
CONDITION RESOLUTIONS

1. Conduit 1AJB044, Drawing 7220-E-624-(Q) Sheet 2, el. 634'-6".

Nonconforming

Condition: 0-inch clearance with support for cable tray 1NJM14.

Resolution: Relocate conduit to obtain 1-inch clearance from support.

2. Conduit 1BJB015, Drawing 7220-E-616(Q) Sheet 2, el. 614'-0".

Nonconforming

Condition: 0-inch clearance with conduit support 457 above load center 1B18.

Resolution: Shorten support member P1001 to obtain 1-inch clearance from conduit.

3. Conduit 1ATE006

Nonconforming

Condition: 1/8-inch clearance with conduit support for conduits 1NJA011 and 1NJC004.

Resolution: Relocate conduit to obtain 1-inch clearance from support.

4. Conduit BJH054

Nonconforming

Condition: 3/16-inch clearance with cable tray support for tray 2BFJ04.

Resolution: Shorten 3 x 3 x .025 tube steel member to obtain 1-inch clearance from conduit.

Note: Support is not installed per Drawing 7220-E-743(Q), Sheet 2, Detail 12, please submit FCN showing as built support.

5. Conduit 2AJD002

Nonconforming

Condition/Resolution: Rework H&V Exhaust Grill to obtain 1-inch clearance from conduit.

0.2.35.3/p

Partial Response  
NCR M01-9-1-012

Attachment #1  
Page 2

6. Conduit 2BKMO10

Nonconfirming

Condition: 1/2" clearance with cable tray support in the penetration area.

Resolution: Relocate conduit to obtain 1-inch clearance from support.

7. Conduit 1AJB043 - has already been reworked by construction and is no longer a proximity problem.

8. Conduit 2BE099, 1AKC044, 2DTA007 - involve conduit to conduit clearance which does not constitute a proximity criteria violation. Proximity criteria does not address conduit to conduit separation.