4.3.3-2

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CONTROL NO. OF-001

COMANCHE PEAK RESPONSE TEAM
QUALITY INSTRUCTION
CPRT ACTION ITEM I.b.1 and I.b.2

INSTRUCTION	REVISION	ISSUE DATE	PAGE
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PROCEDURE FOR: CPRT ACTION ITEM I.b.1 - Flexible Conduit to Flexible Conduit Separation
CPRT ACTION ITEM I.b.2 - Flexible Conduit to Cable Separation

PREPARED BY: _____ DATE 3/12/85
Evaluation Research Corp.

APPROVED BY: R. Christnot for J. L. Hansel DATE 3/12/85
Evaluation Research Corp.

APPROVED BY: Jerry D. Tyler for M.B. Jones DATE 3/12/85
R.T.L. Elec/Instrumentation

1.0 REFERENCES

1.1 Office memo, 1/15/85, W. I. Vogelsang to J. L. Hansel - "Inspection Attributes for Action Items I.b.1 and I.b.2" (CPP-17,721)

1.2 Office memo, 2/1/85, W. I. Vogelsang to M. B. Jones (CPP-17,823)

1.3 Office memo, 2/15/85, W. I. Vogelsang to M. B. Jones (CPP-17,854)

1.4 Office memo, 3/05/85, M. B. Jones to J. Hansel

1.5 Office memo, 2/22/85m W. I. Vogelsang to M. B. Jones (CPP-17,914)

2.0 PURPOSE AND SCOPE

2.1 The purpose of this Quality Instruction is to define the inspection activities, methods, and documentation requirements necessary to assure that adequate physical separation of wiring has been maintained, and that required barriers have not been removed without authorization. This effort is in direct support of CPRT Action Items I.b.1 and I.b.2.

2.2 The scope of this procedure is the cabling and wiring within selected control panels and cabinets as identified in the above references. The scope of inspections is any interaction between safety related wiring and components, excluding vendor wireway to vendor wireway (per Ref. 1.5).

NOTE: The scope of this Quality Instruction may be expanded at the direction of the Electrical/Instrumentation Review Team Leader.

3.0 RESPONSIBILITIES

3.1 The third party inspectors (ERC) shall be responsible for conducting inspections and for completion of inspection reports. The Electrical/Instrumentation Review Team Leader is responsible for the review and approval of the inspection reports.

4.0 INSTRUCTION

4.1 The Quality Inspector shall inspect the specific Main Control boards and vertical panels (Ref. 1.1) to verify that:

ACTIVITY 1 -Internal lighting and 120 VAC convenience receptacle wiring not routed in rigid conduit, EMT, or Unistrut P-1000 channel is separated at least 6 inches from safety related wiring and components (Ref. 1.1, para. 3 and Ref. 1.5).

ACTIVITY 2 -Flexible conduit attached to control switch modules does not exceed 3 feet in length without additional support (Ref. 1.1, para. 2 and Ref. 1.3).

ACTIVITY 3 -Verify that wiring is separated in accordance with, Ref 1.1, para. 4, 5, Fig. 1 and Table 1 of Ref. 1.3.

ACTIVITY 4 -Wiring is mounted and supported such that minimum separation will be maintained (Ref. 1.1, para. 2 and Ref. 1.3).

ACTIVITY 5 -The correct type barrier material is installed (Ref. 1.1, Note).

ACTIVITY 6 -Verify that "required" barriers are installed.

Note: "Required" means either required by a design document, or indications that a barrier was installed but has been removed.

The inspector will state the location of missing barriers and whether or not a separation violation has been created by the barrier's absence.

4.2 For Sections C and D only of the inspected control boards, the Quality Inspector shall identify all exposed non-Tefzel wiring (Ref. 1.1, para. 1 and Ref. 1.2).

4.3 DOCUMENTATION

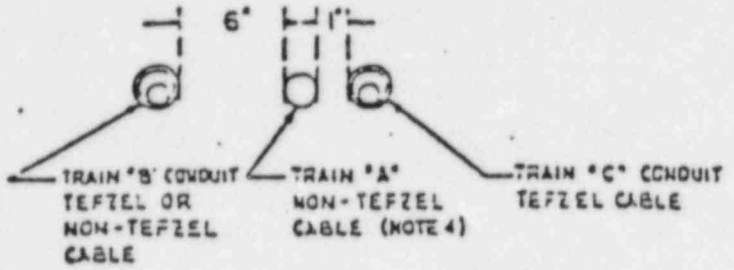
4.3.1 The Quality Inspectors will be furnished with the applicable drawings and documents required to perform activities in paragraphs 4.1 and 4.2.

4.3.2 The Quality Inspectors shall document the results and inspections for para. 4.1 on the IR (Attachments 2 and 3, as applicable). For para. 4.2, the Quality Inspectors shall identify exposed non-Tefzel wiring on Attachment 4 (Supplement Sheet) and attach the form to the appropriate IR.

4.3 DOCUMENTATION (Cont'd)

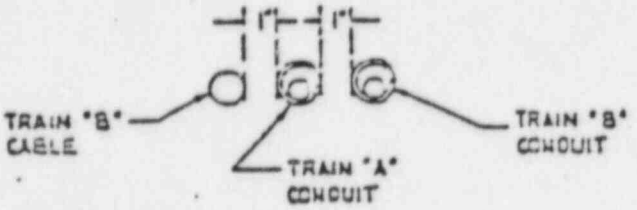
4.3.3 The inspection documents (Attachments 2, 3 and 4) shall be completed in accordance with their respective completion instructions, as applicable. The inspector completing the report shall indicate that all applicable inspections have been completed and documented correctly by entering signature, date and badge number. The IR's shall be reviewed for legibility, accuracy, and completeness and approved by the ERC Level III. The completed IR shall be submitted to the Electrical/Instrumentation Review Team Leader for review and approval.

4.3.4 Per Reference 1.1, Para. 5, the inspection results of panels XCV-01 and XCV-03 will indicate that Section A/B criteria and inspections are not applicable. All sections of panels 1CB-10 and 11 will be inspected to C/D criteria and documented accordingly. 4



DETAIL 1A

TEFZEL & NON-TEFZEL CABLES



DETAIL 1B

ALL TEFZEL CABLES

FIGURE 1 (NOTE 2)

TYPICAL SEPARATION DETAILS FOR -

1) ALL WIRING IN 1-CB-10 & 1-CB-11, AND CIRCUITS LISTED IN TABLE 1.

2) NON-TEFZEL WIRING IN ALL CONTROL BOARDS AND VERTICAL PNLS.

3) WIRING IN SECTIONS C AND D OF ANY CONTROL BOARD.

NOTES

1) FOR GENERAL NOTES, SEE DWG 2323-E1-1702-02 NOTES 1, 2 & 4.

2) NOT APPLICABLE TO ANNUNCIATOR LAMP BOX CABLES AND COAXIAL CRT CABLES.

3) CONDUITS ARE RIGID OR FLEXIBLE.

4) ENCLOSING THIS CABLE IN FLEXIBLE CONDUIT WILL NOT REDUCE SEPARATION SHOWN.

5) SEPARATION DISTANCES SHOWN APPLY IN ALL DIRECTIONS (IE, HORIZONTAL AND VERTICAL)

6) ADDITIONAL DETAILS ARE SHOWN ON DWG 2323-E1-1702-02, DETAIL 6 A THRU 6 C.

TABLE 1
CIRCUITS WITH PROTECTION RATED MORE THAN 10 AMPS

1-CB-01 -

Control Bd. Device	Train	Cable Number	Cable Type	Volts	Protective Device Rating & Location
X-ES-3264	C	NK139053	036	125Vdc	30A, SWGR XA1
1-ES-3450	C	NK139045	036	125Vdc	30A, SWGR 1A3
1-HS-4250A	A	EG138987	137	125Vdc	30A, SWGR 1EA1
1-HS-4251A	B	EG139021	237	125Vdc	30A, SWGR 1EA2

1-CB-02 -

1/1 - APSI1	A	EG136998	137	125Vdc	30A, SWGR 1EA1
1/1 - APSI2	B	EG139032	237	125Vdc	30A, SWGR 1EA2
Handset Station	C	1PA-CR30	075		
Handset Station	C	1PA-CR29	075		

1-CB-03 -

1-HS-4518A	A	EG139466	137	125Vdc	30A, SWGR 1EA1
1-ES-4519A	B	EG139503	237	125Vdc	30A, SWGR 1EA2

1-CB-04 - (Note 4)

1/1 - APRE1	A	EG135550	137	125Vdc	30A, SWGR 1EA1
1/1 - APRE2	B	EG139586	237	125Vdc	30A, SWGR 1EA2
Handset Station	C	1PA-CR29	075		
Handset Station	C	1PA-CR28	075		
Handset Station	C	1PA-CR20A	051		

1-CB-05 - (Note 4)

1/1 - 1PCPX1	C	NK139458	036	125Vdc	30A, SWGR 1A1
1/1 - 1PCPX2	C	NK139459	036	125Vdc	30A, SWGR 1A2
1/1 - 1PCPX3	C	NK139460	036	125Vdc	30A, SWGR 1A3
1/1 - 1PCPX4	C	NK139461	036	125Vdc	30A, SWGR 1A4

TABLE 1 (Continued)

1-CB-06 -

Control Rd Device	Train	Cable Number	Cable Type	Volts	Protective Device Rating & Location
1/1 - AHCU	C	NK139535	036	120Vac	30A, Starter Cab, TBX-TRAHCU-01
1/1 - APCH1	A	EØ139308	137	125Vdc	30A, SWGR 1EA1
1/1 - APCH2	B	EG139338	237	125Vdc	30A, SWGR 1EA2

1-CB-07 -

See Note 3					
Handset Station	C	1PA-CR35	075		
Handset Station	C	1PA-CR36	075		

1-CB-08 -

1-HS-2111A/B	C	NKI39357	035	15Vdc	(2) FWP 1A Control Box "ER"
1-HS-2112A/B	C	NK139367	035	15Vdc	(2) FWP 1B Control Box "ER"
1-HS-2111C	C	NK139358	035	125Vdc	20A Ckt. Bkr. 1D1
1-HS-2112C	C	NK139368	035	125Vdc	20A Ckt. Bkr. 1D1
1-HS-2111D/E	C	NKI39359	036	125Vdc	20A Ckt. Bkr. 1D1
1-HS-2112D/E	C	NK139369	036	125Vdc	20A Ckt. Bkr. 1D1
1-HS-3302	C	NK139366	037	125Vdc	20A Ckt. Bkr. 1D1
1-HS-3299	C	NK139620	036	125Vdc	10A Ckt. Bkr. 1D1

1-CB-09 - (Note 5)

1-HS-2225	C	NK139651	037	125Vdc	30A, SWGR 1A3
1-HS-2229	C	NK139654	037	125Vdc	30A, SWGR 1A4
1-HS-2450A	A	EØI38895	140	125Vdc	30A, SWGR 1EA1
1-HS-2451A	B	EG138949	238	125Vdc	30A, SWGR 1EA2
1-HS-2452F	AA	AØ138623	735	125Vdc	20A Ckt Bkr. 1ED1
1-HS-2452G/H	AA	AØ138622	737	125Vdc	20A Ckt Bkr. 1ED1
1-CB-10					
Handset Station	C	1PA-CR36	075		
Handset Station	C	1PA-CR36A	051		
Handset Station	C	1PA-CR37	075		
1-CB-11					
Handset Station	C	1PA-CR37	075		
X-CV-01					
Handset Station	C	1PA-CR31	075		

TABLE 1 (Continued)

Notes:

(1) Unless otherwise noted, all protective device ratings are fuse ratings

(2) There are two power supplies to the feedwater pumps control panel:

a) 120Vac, 15A circuit breaker in panelboard 1C2, Ckt. #7

b) 125Vdc, 20A circuit breaker in panelboard 1D2-1, Ckt. #12

Detailed information for 15Vdc power supply (See GE drawing #125D443BE, P.O. #CP-0005) not available.

(3) SPDS Touchpad, CRT Control Panel, and 1-HS-SPDS/P2500 Wiring have not been reviewed. This wiring should be separated in accordance with Figure 1 of the inspection criteria.

(4) All auto/manual control stations in Section B of CB-4, 5 and 6 have 26Vdc lamp circuits fused at 15 to 20 amps.

(5) The following auto/manual control stations in CB-08 and CB-09 have 26Vdc lamp circuits fused at 15 amps.

CB-08	CB-09
1-PK-507	1-FK-510
1-SK-509A	1-FK-520
1-SK-509B	1-FK-530
1-SK-509C	1-FK-540
	1-FK-550

COMANCHE PEAK RESPONSE TEAM
INSPECTION REPORT - ACTION ITEMS I.b.1 REV. (1) and I.b.2 REV. (1)

ITEM DESCRIPTION: FLEXIBLE CONDUIT TO FLEXIBLE CONDUIT/CABLE SEPARATION

EQUIPMENT ID (2) DRAWING (2) REV. (2)

DCA's (2)

INSPECTION CRITERIA

PANEL SECTIONS A & B (3)

DCA's (3)

PANEL SECTIONS C & D (3)

DCA's (3)

INSPECTION RESULTS (4)

AC	A & B		C & D	
	SAT	UNSAT	SAT	UNSAT
1				
2				
3				
4				
5				
6				

REMARKS: (5)

INSPECTOR SIGNATURE (6) DATE (6) BADGE NO. (6)

REVIEW AND APPROVAL (7) DATE (7)
ERC Level III

REVIEW AND APPROVAL (8) DATE (8)
Elec/Instrumentation R.T.L.

COMANCHE PEAK RESPONSE TEAM - ACTION ITEMS I.b.1 and I.b.2

INSPECTION REPORT COMPLETION INSTRUCTIONS

BLOCKS:	INSTRUCTION

1. Enter current revision level.

2. Enter equipment ID, drawing number and current revision number, and DCA's as required.

3. Enter all applicable inspection criteria, including revision levels, specific details as appropriate, and DCA's in each criteria block of the inspection report heading.

4. A. Sign and date the appropriate block (SAT/UNSAT) of each Panel Section column for each inspection activity performed in that Panel Section.

   B. If an inspection activity does not apply to a given panel section, enter N/A in the SAT block of the appropriate Panel Section.

5. A. Document all deficiencies (UNSATS) in a brief, clear manner and organized in outline form.

   Ex. Activity 1, Item 1 - (Deficiency description)
   Item 2 - (Deficiency description)

   B. Enter applicable DCA's and any additional information necessary to clarify the inspection results. Attachment 3 may be used if more space is required.

6. Inspection signature, date and badge number.

7. Approval signature and date of ERC Level III.

8. Approval signature and date of Electrical/Instrumentation Review Team Leader.

COMANCHE PEAK RESPONSE TEAM

INSPECTION REPORT - CONTINUATION SHEET

FLEXIBLE CONDUIT TO FLEXIBLE CONDUIT/CABLE SEPARATION - ACTION ITEM I.b.1 REV. (1)
ACTION ITEM I.b.2 REV. (1)

EQUIPMENT ID (2) DRAWING (2) REV. (2)

REMARKS (cont'd): (5)

CPRT INSPECTION REPORT - ACTION ITEM I.b.1 REV. (1)
ACTION ITEM I.b.2 REV. (1)

SUPPLEMENT SHEET

INSPECTION ATTRIBUTE - 4.2

EQUIPMENT # (2) SECTION (2)

DRAWING # (3) REV. (3) DCA's (4)

NON-TEFZEL WIRING IS IDENTIFIED BELOW.

(6)

REMARKS: (7)

COMANCHE PEAK RESPONSE TEAM - ACTION ITEMS I.b.1 and I.b.2

SUPPLEMENT SHEET COMPLETION INSTRUCTIONS

THE NUMBERS BELOW CORRESPOND TO THE NUMBERED BLOCKS ON THE SUPPLEMENT SHEET.

1. Enter the current revision level.
2. Enter the equipment ID number and appropriate equipment section number.
3. Enter the drawing number and it's current revision number.
4. Enter all outstanding DCA's.
6. List all non-Tefzel wiring in the equipment section.
7. Note any inspection comments.