Filed:

DOCKETED

187 NOV -2 P2:51

DOCKETING & SERVICE.

NUCLEAR REGULATORY COMMISSION

before the

UNITED STATES OF AMERICA

ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

TEXAS UTILITIES GENERATING COMPANY et al.

(Comanche Peak Steam Electric Station, Units 1 and 2)

Docket Nos. 50-445-OL 50-446-OL

(Application for an Operating License)

ANSWERS TO BOARD'S 14 QUESTIONS (Memo; Proposed Memo of April 14, 1986) Regarding Action Plan Results Report I.a.2

In accordance with the Board's Memorandum; Proposed Memorandum and Order of April 14, 1986, the Applicants submit the answers of the Comanche Peak Response Team ("CPRT") to the 14 questions posed by the Board, with respect to the Results Report published by the CPRT in respect of CPRT Action Plan I.a.2, "Inspection Reports on Butt-Splices."

#### Opening Request:

Produce copies of any CPRT-generated checklists that were used during the conduct of the action plan.

#### Response:

The CPRT-generated checklists used are part of the attached procedure. (See response to Question 2.) Completed copies of these checklists are part of the ISAP files.

#### Question No. 1:

1. Describe the problem areas addressed in the report. Prior to undertaking to address those areas through sampling, what did Applicants do to define the problem areas further? How did it believe the problems arose? What did it discover about the QA/QC documentation for those areas? How extensive did it believe the problems were?

#### Response:

This ISAP was prepared to respond to concerns raised by the TRT resulting from its investigation of three allegations of improper butt-splicing of cables in control panels. The TRT's primary concern was that inspection documentation did not appear in all cases to indicate that QC had witnessed each butt-splice as required.

The CPRT first reviewed the cases identified by the TRT to determine whether the concern was valid. An examination of the QC inspection documentation revealed that the required QC witness had not in all cases been documented.

Sampling was not employed in this ISAP. Once the concern was validated, the next phase of the ISAP included reinspection and documentation review of all splices that could be identified by a review of drawings for control panels. (Later, because of inaccuracies found in these drawings, more extensive searches for undocumented splices were performed.)

A formal root cause analysis was not performed before reinspections and document reviews for the ISAP were initiated. A
detailed root cause analysis of findings from the ISAP is presented in the Results Report.

With respect to the TRT concern about QC witness documentation, the root causes included lack of QC hold points in the craft installation procedure, inadequate QC supervision, and an apparent breakdown in the interface between engineering and construction personnel.

#### Question No. 2:

 Provide any procedures or other internal documents that are necessary to understand how the checklists should be interpreted or applied.

#### Response:

Attached are copies of all revisions to the procedure used to reinspect the butt-splices. The associated documentation review consisted solely of a check to determine whether a record existed that QC had witnessed the butt-splice (though many other discrepancies were identified by the reviewers). Consequently, the former Review Team Leader (Mr. Jones) did not consider a procedure to be necessary. Mr. Mallanda and Mr. Pearson concur with this assessment.

#### Question No. 3:

3. Explain any deviation of Shecklists from the inspection report documents initially used in inspecting the same attributes.

#### Response:

As discussed in the root cause analysis section of the Results Report, neither the craft nor the QC procedure used during the original installation and inspection contained adequate requirements for the installation or inspection of these splices before the TRT investigation took place. The

checklist used by the CPRT was based on AMP installation and inspection instructions. Consequently, the CPRT checklist contains significantly more attributes than the original inspection checklist. (Revisions of the QC inspection procedure (QI-QP-11.3-28) were previously forwarded to the Board with the responses to these questions for the related ISAP I.a.1, "Heat-Shrinkable Cable Insulation Sleeves.")

#### Question No. 4:

4. Explain the extent to which the checklists contain fewer attributes than are required for conformance to codes to which Applicants are committed to conform.

#### Response:

The checklist includes all important attributes except verification of proper conductor insertion depth and a check for strands not inserted into the wire barrel of the splice. These two attributes can only be verified completely by an in-process (i.e., "witness") inspection.

#### Question No. 5:

5. (Answer Question 5 only if the answer to Question 4 is that the checklists do contain fewer attributes.) Explain the engineering basis, if any, for believing that the safety margin for components (and the plant) has not been degraded by using checklists that contain fewer attributes than are required for conformance to codes.

#### Response:

The two attributes discussed in the response to question 4 and the unsatisfactory conditions noted in some cases for the remaining attributes led to the extensive analysis and testing discussed in detail in the Results Report (Section 5.2.6) and the ISAP files. The analysis included a determination of

worst-case pullout force that could be applied to a splice in a seismic event, and the testing consisted of a destructive pull-out test on a randomly-selected sample of splices that had been installed to the original procedures. The conclusion from that analysis and testing was that the installed splices were capable of performing their intended safety function.

#### Question No. 6:

6. Set forth any changes in checklists while they were in use, including the dates of the changes.

#### Response:

No inspection was performed on Revisions 0 or 1 of QI-002, but inspections were performed on Revisions 2, 3, and 4. As documented in the ISAP file, Mr. Mallanda reviewed the changes from Revision 2 to Revision 3 and those from Revision 3 to Revision 4, concluding that either previous inspections had been backfit, or the changes did not have an impact on the previous inspections.

#### Question No. 7:

7. Set forth the duration of training in the use of checklists and a summary of the content of that training, including field training or other practical training. If the training has changed or retraining occurred, explain the reason for the changes or retraining and set forth changes in duration or content.

#### Response:

Among the responsibilities of the QA/QC Review Team Leader (Mr. Hansel) was inspector training for inspections performed by the QA/QC Review Team under this ISAP. Based on information from Mr. Hansel, we understand that training consisted of

familiarizing inspectors with the inspection procedure, check-list(s), and ISAP. No further retraining was considered necessary because of the limited nature of the reinspections, the Level II or III qualification of inspectors, and their previous experience, nor was any further retraining undertaken.

#### Question No. 8:

8. Provide any information in Applicants' possession concerning the accuracy of use of the checklists (or the interobserver reliability in using the checklists). Were there any time periods in which checklists were used with questionable training or QA/QC supervision? If applicable, are problems of inter-observer reliability addressed statistically?

#### Response:

Many splices that were removed from the field were still available for observation when Mr. Mallanda and Mr. Pearson assumed their positions on the Electrical Review Team. Their comparison of some of these specimens with the checklists showed that checklist information accurately reflected the actual condition of the specimens.

Neither Mr. Mallanda nor Mr. Pearson is aware of any information regarding inter-observer reliability of the checklists or of any time period in which checklists were used with questionable training or QA/QC supervision.

#### Question No. 9:

9. Summarize all audits or supervisory reviews (including reviews by employees or consultants) of training or of use of the checklists. Provide the factual basis for believing that the audit and review activity was adequate and that each concern of the audit and review teams has been resolved in a way that is consistent with the validity of conclusions.

#### Response:

Other than the comparison of physical specimens previously mentioned, no audits or supervisory reviews were performed by the Electrical Review Team, or, to their knowledge, by the QA/QC Review Team.

#### Question No. 10:

10. Report any instances in which draft reports were modified in an important substantive way as the result of management action. Be sure to explain any change that was objected to (including by an employee, supervisor, or consultant) in writing or in a meeting in which at least one supervisory or management official or NRC employee was present. Explain what the earlier drafts said and why they were modified. Explain how dissenting views were resolved.

#### Response:

As discussed in the Results Report (pages 22-24), the Electrical Review Team made a preliminary recommendation that all splices installed before a certain time period be replaced. As Result Report "drafts" were often used by the review team to assist in developing thoughts in process, this recommendation may have been included in the "draft" report at one time.

Such a draft was never formally presented to the SRT, other TU Electric management, or the NRC; however, the content of the recommendation was presented in letter form to the SRT. Upon questioning by the SRT, Mr. Mallanda and Mr. Pearson stated that the subject splices were not known to be unacceptable, but proving their acceptability would be particularly difficult and time-consuming, and the conclusion was that the most expeditious action would be to replace the splices.

The SRT requested the Electrical Review Team to consider an alternative approach (e.g., a testing program). The Electrical Review Team did not object to this approach from a technical perspective.

#### Question No. 11:

11. Set forth any unexpected difficulties that were encountered in completing the work of each task force and that would be helpful to the Board in understanding the process by which conclusions were reached. How were each of these unexpected difficulties resolved?

#### Response:

To aid in the Board's understanding of (1) how the issue became so complex and (2) why several tasks were added or changed while the ISAP was being implemented, a discussion follows regarding major problem areas encountered in carrying out the steps of the ISAP.

The original plan for resolving the issue employed the following approach (subsequent to issue validation discussed in the response to question 1):

- 1) Review drawings to determine which panels in the control room and cable spreading room had butt-splices shown and which did not.
- 2) For those that did not, conduct a reinspection on a sampling basis to confirm whether it was reasonable to conclude that these panels indeed had no splices installed.
- 3) For those that did, perform both a reinspection and a QC documentation review.

4) If the actions from step 3 revealed unacceptable splices, extend the investigation to other plant areas.

Early in the reinspection process, it became clear that drawings did not always match conditions found in the field (i.e. some conductors were spliced that were not authorized by engineering to be spliced, and some design documents indicated conductors were spliced when no such splice was found in the field). Because of these discrepancies, two scope expansions were initiated by the CPRT.

First, the sampling approach stated in step 2 above was superseded by a check of all panels. (This check revealed no unauthorized splices.) Second, panels that appeared to have significant mismatches with the drawings were completely reinspected to determine the extent of unauthorized splicing. The results of this activity are discussed in the Results Report.

#### Question No. 12:

12. Explain any ambiguities or open items in the Results Report.

#### Response:

Mr. Mallanda and Mr. Pearson know of no ambiguities in the Results Report. Open items are discussed throughout the Results Report and specifically summarized in Section 7.0, "Ongoing Activities."

#### Question No. 13:

Explain the extent to which there are actual or apparent conflicts of interest, including whether a worker or supervisor was reviewing or evaluating his own work or supervising any aspect of the review or evaluation of his own work or the work of those he previously supervised.

### Response:

As all reinspections and documentation reviews except Phase I (which validated the TRT concern) were performed by thirdparty personnel, no known conflict of interest exists.

### Question No. 14:

the discussion gives rise to ouvious quosition manager 丁曲1 the ambiguities and anticipate and resolve the questions.

#### Response:

In preparing the responses to questions 1-13, Mr. Mallanda and Mr. Pearson have reread the Results Report. Though no ambiguity of the type indicated would have been deliberately left in the report, this rereading (several months after report publication) permitted a check for such ambiguities when the details were not so fresh in the minds of the authors. No such ambigu-1'y was noted.

Respectfully submitted,

Action Plan I.a.2

Issue Coordinator

The CPRT Senior Review Team has reviewed the foregoing responses and conours in them.

# HISTORICAL FILE

COMANCHE PEAK RESPONSE TEAM ONL TOUALITY INSTRUCTION CPRT ACTION ITEM I.a.3

REVISION

ISSUED DATE

PAGE

1/3/85

1 OF 2

Procedure for Class 1E Butt Splice Qualification - CPRT Action Item I.a.3 DATE 1/3/85 PREPARED BY: Albert 5 Hurbanek
Evaluation Research Corporation Evaluation Research Corporation DATE 1. 3. 85.

APPROVED BY:

DATE 1/3/85

- 1.0 References
- Office memo, 12/7/84, M.B. Jones to J.L. Hansel "Action Item T.a.3 Butt 1.1 Splice Qualifications".
- EEI-8, "Class 1E and Non-Class 1E Cable Terminations" 1.2
- 2.0 Purpose and Scope
- 2.1 The purpose of this Quality Instruction is to define the method by which to assure that no splice in a cable bundle is adjacent to and pressing upon another splice. This is in direct support of the CPRT Action Item I.a.3.
- 2.2 The scope of this Quality Instruction is limited to the physical inspection of cable bundle's containing splices to insure that no splice is adjacent to and pressing upon another splice. This inspection will be limited to the Class 1E cabinets in the control room and cable spreading room that are known to have butt-splices in them.
- 3.0 Responsibilities
- The Third Party Inspectors (ERC) shall be responsible for conducting the 3.1 inspections of cable bundles containing splices and documenting the results. The Electrical/Instrumentation Review Team Leader is responsible for the review and approval of the inspection results and responsible for identification of cabinets that contain butt splices.
- 4.0 Instruction
- 4.1 The Quality Inspectors shall inspect the cabinets' cable bundles containing splices to insure that no splice in a bundle is adjacent to and pressing upon another splice (Ref.: EEI-8, Para 3.18 (c)).

- 4.2 Documentation
- 4.2.1 The Quality Inspectors will be furnished with the applicable drawings and documents required to inspect all cable splices in a panel to assure they are staggered within bundles.
- 4.2.2 The Quality Inspectors shall document the results of the inspection on the Inspection Report (IR) provided (Attachment 1). Complete a separate I.R. for each piece of equipment or cabinet.

The I.R. shall be completed in accordance with Attachment 2. The I.R. shall be reviewed for legibility, accuracy and completeness and approved by the ERC Level III. The completed I.R. shall be submitted to the Electrical/ Instrumentation Review Team Leader for review/approval.

#### ATTACHMENT 1 PAGE 1 OF 2

01-002 REV. 0 SHEET 1 OF COMANCHE PEAK RESPONSE TEAM INSPECTION REPORT CPRT ACTION ITEM I.a.3 DRAFT REV ITEM DESCRIPTION: Butt Splice Qualification EQUIPMENT NUMBER: DRAWING NUMBER: REVISION DCA's INSPECTION ATTRIBUTES: Activity 1: Verify that common group splices are staggered as per EEI-8, Para. 3.18 (c) "Splices within the same wire bundle shall be staggered so they are not touching each other". UNSAT. CABLE ID # SPLICE LOCATION SAT. QC SIGNATURE DATE COMMENTS 6 9 10 11 REMARKS: DATE BADGE NO. INSPECTOR 13 REVIEW AND APPROVAL DATE Evaluation Research Corporation

DATE

15

Electrical/Instrumentation R.T.L.

REVIEW AND APPROVAL

#### ATTACHMENT 1 PAGE 2 OF 2

-		000	DEM	-
13	1 .	002	REV.	. 0
~	W	A 20 mm	1.2 mm 4 1	

SHEET	OF	
SHEET	OF	

#### BUTT SPLICE QUALIFICATION CONTINUATION SHEET

Action	Item	I.a.3	DRAFT	(1)
			REV.	

EQUIPMENT NO. 3 DRAWING NO.

4 REV.

CABLE ID #	SPLICE LOCATION	SAT.	UNSAT.	QC SIGNATURE	DATE	COMMENTS
(6)	(7)	(8)		(9)	(10)	(11)
		1	-		-	
A STATE OF THE PROPERTY OF THE		-	TOTAL A NEW COMMISSION OF THE PROPERTY OF	The second secon		maniet versen, en de maniet versen de transporter d
CONTRACTOR	The second secon		MARCHAN AND AND ADDRESS OF THE PERSONS ASSESSED AND ADDRESS ASSESSED ADDRESS ASSESSED AND ADDRESS ASSESSED ADDRESS ASSESSE	And the second s	or and is again to the store or softeen appearable	programmes destination consumeration registration in accommission of the second
Charle the Antibutes are to the first factor of the Antibutes and Antibutes are the Antibutes and Antibutes are the Anti			-		BET SEENING A ANNA AND ARM I THE ARREST THE THE THE THE THE THE THE THE THE TH	
				The Therefore are the content of the "Phillips and the Area Area Area Area Area Area Area Are	and a reservoir to a second section and	on described. Housewers committee of the control of
the second secon	and a second remaining management and the second se	-		0		
		-	-			-
		-	-			
Side that indicate a north fire the agreement of the second		-			STATE AND ADDRESS OF THE PROPERTY OF THE PROPE	
	MAN CONTRACTOR OF THE PARTY OF	-	-			
		-				A STATE OF THE PARTY OF THE PAR
TO BE STREET TO SEE STATE OF THE SECOND SECO					THE PERSON NAMED IN THE PE	
Monteson more deposits an anapole participal and an anapole participal and the second		-				
			MA WAIR			
					**	
# Property and Pro						
An Alberta province of the Control o			-			
	-					

REMARKS: 12

#### ATTACHMENT 2 PAGE 1 OF 1

QI-002	REV	0	

Procedure for Butt Splice Qualification - CPRT Action Item I.a.3

## INSPECTION REPORT (Completion Instruction)

The numbers below correspond to the numbered blocks on the inspection report:

- 1. Enter the Draft and/or Revision number of Action Item I.a.3 as applicable.
- 2. Enter the Equipment or Cabinet number.
- 3. Enter the Drawing number.
- 4. Enter the Revision of the Drawing.
- 5. Enter all DCA's.
- 6. Enter the Identification numb of the cable
- 7. Enter the Specific location of the splice.
- 8. Indicate whether the splice is SATISFACTORY or UNSATISFACTORY per Activity 1.
- 9. Enter the Signature of the Inspector.
- 10. Enter the Date the Inspection was performed.
- 11. Indicate applicable DCA's.
- 12. Identify any discrepancies with Drawing number and applicable DCA's.
- 13. Signature, Date and Badge number of Inspector.
- 14. Approval Signature and Date of ERC Level III.
- 15. Approval Signature and Date of Review Team Leader.

5/6

COMANCHE PEAK RESPONSE TEAM **OUALITY INSTRUCTION** PRT ACTION ITEMS I.a.2 &

INSTRUCTION NO

PAGE

a. 2-3.003

01-002

1/8/85

1 OF 3

FOR INFORMATION ONL PROCEDURE FOR: CPRT ACTION ITEM I.a.2, INSPECTION REPORT ON BUTT SPLICES and CPRT ACTION ITEM I.a.3, BUTT SPLICE QUALIFICATIONS

PREPARED	BY	albert 3 Hurbanek	DATE _	1/8/85
		Evaluation Research Corporation		
APPROVED	BY	Evaluation Research Corporation	DATE	1/8/85
				Jale
APPROVED	BY	R.T.L. Mec./Instrumentation	DATE _	1/8/85
		R.T.L. Mec./Instrumentation		

#### 1.0 REFERENCES

- Office Memo, 1/4/85, M.B. Jones to J.L. Hansel "Action Item I.a.2 -1.1 Inspection Reports on Butt Splices"
- Office memo, 12/7/84, M.B. Jones to J.L. Hansel "Action Item I.a.3 -1.2 Butt Splice Qualifications"
- Office memo, 10/10/84, W.I. Vogelsang to M. Warner, "Action Items 1.3 I.a.2 & I.a.3", List of Drawings Showing Class 1E Cabinets in the Control and Spreader Rooms with Butt Splices installed in them.
- 1.4 EEI-8. "Class 1E and Non-Class 1E Cable Terminations"
- AMP Instruction/Maintenance/Inspection Sheet IS 1559, Rev. 5/29/81. 1.5
- Office Memo, 1/7/85, W.I. Vogelsang to J.L. Hansel; List of Class 1E 1.6 Cabinets in the Control and Spreader Rooms that do not have butt splices installed.

#### PURPOSE AND SCOPE 2.0

- 2.1 The purpose of this Quality Instruction is:
  - 1. To assure that no splice in a cable bundle is adjacent to and/or pressing upon another splice. This is in direct support of the CPRT Action Item I.a.3.
  - 2. To assure that drawings correctly reflect the as-built condition and that the installed splices meet the FSAR, Procedural and SER requirements. This is in direct support of the CPRT Action Item I.a.2.
- The scope of the Quality Instruction is limited to the physical inspection 2.2 of Class 1E cabinets in the control room and cable spreading room to determine the acceptability of cable installations containing butt splices. This includes all cabinets known to contain butt splices and all cabinets where butt splices are not supposed to exist.

#### 3.0 RESPONSIBILITIES

The Third Party Inspectors (ERC) shall be responsible for conducting the inspections of cable bundles containing splices and documenting the results. The Electrical/Instrumentation Review Team Leader is responsible for the review and approval of the inspection results and responsible for identification of cabinets that require inspection.

#### 4.0 INSTRUCTION

- 4.1 As this instruction covers inspections for two action items, the sequencing of the inspections shall be as follows: PART A Inspection Attribute shall be inspected, by cabinet, prior to PART B Inspection Attributes in order to establish existing conditions of the butt splices for Action Item I.a.3. The individual butt splices inspected for PART A will be all those identified and documented for PART B inspections.
  - NOTE: The PART A inspection will also necessitate breaking of the cable bundles. The bundles will be reinspected during inplementation of PART B.
- 4.2 The Quality Inspectors shall inspect the Class 1E Cabinets for the following:
- 4.2.1 INSPECTION ATTRIBUTE Part A Action Item I.a.3
  - Activity #1 Verify installation of splices as per EEI-8 Para. 3.18(c), "Splices within the same wire bundle shall be staggered so that they are not touching each other."
- 4.2.2 INSPECTION ATTRIBUTE Part B Action Item I.a.2
  - Activity #1 Verify that the correct butt splice sleeves are installed.

    (Ref. 1.5 figure 5 and Ref. 1.1)
  - Activity #2 Verify that the butt splice sleeve is correctly indented. (Ref. 1.5 figure 5 and Ref. 1.1)
  - Activity #3 Verify that no conductor strands show outside the barrel of the butt splice sleeve. (Ref. 1.1)
  - Activity #4 Verify that the wire on both sides of the splice is the same color and same conductor size. (Ref. 1.4 para. 3.18.b and Ref. 1.1
  - Activity #5 Verify that the splices are documented on the design document. (Ref. 1.4 para. 3.18.a)
  - Activity #6 Verify that the insulation of the butt splice sleeve has not been heat shrunk. (Ref. 1.1)
  - Activity #7 After rebundling, verify that butt splices within the same wire bundle shall be staggered so that they are not touching each other. (Ref. 1.4 para. 3.18.c)
  - NOTE: All unsatisfactory activities shall be described in the Remarks section of the Inspection Report.

#### 4.3 DOCUMENTATION

- 4.3.1 The Quality Inspectors will be furnished with the applicable drawings and documents required to perform inspections required in para. 4.1 and 4.2.
- 4.3.2 The Quality Inspectors shall document the results of the inspection on the Inspection Report (IR) provided (Attachment 1). Complete a separate I.R. for each piece of equipment or cabinet.
- 4.3.3 The I.R. shall be completed in accordance with Attachment 2. The I.R. shall be reviewed for legibility, accuracy and completeness and approved by the ERC Level III. The completed I.R. shall be submitted to the Electrical/Instrumentation Review Team Leader for review/approval.

			INSF		OMANI ON I							-		.2	DR.	AFT _	20 21	- RI	EV
EQUIPMENT #			_										-						
TERMINATION	DRAWING	#	(2)					-17. 400000					R	EVIS	ION _		***************************************		
DCA's 3							19.8887300			-						-			
INSPECTION A	TTRIBUTE	S:	PART	A -	- ACT	IOI	N IT	EM	I.a	.3									
ACTI	VITY #1		SA	Т.	UNS	SAT	·I		IN	ISPE	сто	R S	IGN	. ]		DATE			
			4	2			1		(5	2									
INSPECTION A	TTRIBUTE																		
15 10 4	COND.	ACT				1											er manenensens		T
LE ID #	COLOR	-	-	-	-		-		-		-		_			-51-	IGN.		DATE
(6)	(7)	(8)	1	9)	(10)	-	(11)		(12)	_	(13)		(14)			15)			
Millionia, napa sandannium anno anno angalaga angalaga sanda		++	-	+	-	-	-			_									
		-	+	+	-											***************************************			
	-		_		-										entite annue des	-	- Annual Control		
artos Culadorios en la companya de la companya della companya dell	-		_	-	_														
an fine and a second common and a second commo	-		1	-											************	Made of the Contract of the Co			
			-																
to forestimate about a managery. Proposition have a managery and												1							
REMARKS:(	16)	-				ng, e-po-n si				State of the same						entente vento en gental			
													-						
INSPECTOR	(17)		2												-				*******
REVIEW AND A		Eve	alua	tion	Res	ear	ch	Cor	por	ati	on			enterne en					
REVIEW AND A	PPROVAL .	R.	9) [.L.	Ele	c./I	nst	trum	ent	ati	on				-	DATE				.,

QI-002 REV.1				AC	HMEN	TV 1	1		P	AGE	2	OF	2		SHEET OF	
	CPRT IN			CON	TINU	JAT ]	ON	SHE	ET						0	
EQUIPMENT #	1				and the same of th											
DRAWING #	2	-				RE	EV _									
4	COND.	TACT	.1 AC	Ţ.2	AC	1.3	AC	1.4	AC	1.5	AC	Ţ.6	AC	7.7		
CABLE ID #	COLOR	S	US	U	S	U	S	U	S	U	S	U	S	U	INSP. SIGN.	DATE
<u>(6)</u>	(7)	8	(9	1	10	(	11)	(	12)	(	13)		14		(15)	
THE CONTRACTOR AND THE CONTRACTO																
record accords record records according to the contract and productions are a vision of the participation of the	-														ndalar saya kapita Malan Kulan kirapa di dia Adri a daya kupu KARAPATA, dia Alamban ya bira bari ya kuba di dia	-
			1													
***************************************		1														-
																***************************************
enerologic and entition observed page 12. States of \$1.000 color states application and to \$1.000 color and to																
													-			
tanto tanto del menero															entervide artification da meritariaria caractería (agricada mateira, estado	
										net venues					ун балуун төмүнө дүчин компоничен комун $A$ , $V_{i}^{*}$ $\phi$ . $V_{i}^{*}$ (1) $\phi$ . $V_{i}^{*}$ $\phi$	

REMARKS:				
NAMES OF THE PERSONS ASSESSED.			Therein is a partie with an efficiency against stage capture.	

## COMANCHE PEAK RESPONSE TEAM - ACTION ITEM I.a.2 and I.a.3 INSPECTION REPORT COMPLETION INSTRUCTIONS

THE NUMBERS BELOW CORRESPOND TO THE NUMBERED BLOCKS ON THE INSPECTION RECORD.

- 1. Enter the Equipment or Panel I.D. # being inspected.
- 2. Enter Termination drawing to be used for inspection and it's revision.
- 3. Enter all outstanding DCA's against the drawing.
- 4. Indicate SATISFACTORY or UNSATISFACTORY for Part A, Activity #1.
- Inspector Signature and Date.
- 6. Enter Cable I.D. # being inspected.
- Enter Cable Conductor color being inspected.
- 8. Indicate SATISFACTORY or UNSATISFACTORY for PART B Activity #1
- 9. Indicate SATISFACTORY or UNSATISFACTORY for PART B Activity #2.
- 10. Indicate SATISFACTORY or UNSATISFACTORY for PART B Activity #3.
- 11. Indicate SATISFACTORY or UNSATISFACTORY for PART B Activity #4.
- 12. Indicate SATISFACTORY or UNSATISFACTORY for PART B Activity #5.
- 13. Indicate SATISFACTORY or UNSATISFACTORY for PART B Activity #6.
- 14. Indicate SATISFACTORY or UNSATISFACTORY for PART B Activity #7.
- 15. Inspectors Signature and Date.
- 16. Describe UNSATISFACTORY items, list applicable DCA's and the cable numbers to which they relate, and any other inspection comments.
- 17. Inspector Signature, Date and Badge #.
- 18. Approval Signature and Date of ERC Level III.
- 19. Approval Signature and Date of R.T.L. Elec./Instrumentation.
- 20. Enter Draft and Rev. of Action Item I.a.2.
- 21. Enter Draft and Rev. of Action Item I.a.3.

## COMANCHE PEAK RESPONSE TEAM - ACTION ITEM I.a.2 and I.a.3 INSPECTION REPORT COMPLETION INSTRUCTIONS

THE NUMBERS BELOW CORRESPOND TO THE NUMBERED BLOCKS ON THE INSPECTION RECORD.

- 1. Enter the Equipment or Panel I.D. # being inspected.
- 2. Enter Termination drawing to be used for inspection and it's revision.
- 3. Enter all outstanding DCA's against the drawing.
- 4. Indicate SATISFACTORY or UNSATISFACTORY for Part A, Activity #1.
- Inspector Signature and Date.
- 6. Enter Cable I.D. # being inspected.
- Enter Cable Conductor color being inspected.
- 8. Indicate SATISFACTORY or UNSATISFACTORY for PART B Activity #1
- 9. Indicate SATISFACTORY or UNSATISFACTORY for PART B Activity #2.
- 10. Indicate SATISFACTORY or UNSATISFACTORY for PART B Activity #3.
- 11. Indicate SATISFACTORY or UNSATISFACTORY for PART B Activity #4.
- 12. Indicate SATISFACTORY or UNSATISFACTORY for PART B Activity #5.
- 13. Indicate SATISFACTORY or UNSATISFACTORY for PART B Activity #6.
- 14. Indicate SATISFACTORY or UNSATISFACTORY for PART B Activity #7.
- Inspectors Signature and Date.
- 16. Describe UNSATISFACTORY items, list applicable DCA's and the cable numbers to which they relate, and any other inspection comments.
- 17. Inspector Signature, Date and Badge #.
- 18. Approval Signature and Date of ERC Level III.
- 19. Approval Signature and Date of R.T.L. Elec./Instrumentation.
- 20. Enter Draft and Rev. of Action Item I.a.2.
- 21. Enter Draft and Rev. of Action Item I.a.3.

43.3.3 I.a.2-3.004

FOR INFORMATION CHILY ORICAL FILE COMANCHE PEAK RESPON QUALITY INSTRU CPRT ACTION ITEMS I.

INSTRUCTION NO.

REVISION

ISSUE DATE

PAGE

01-002

1/9/85

1 OF 3

PROCEDURE FOR: CPRT ACTION ITEM I.a.2, INSPECTION REPORT ON BUTT SPLICES and

CPRT ACTION ITEM I.a.3, BUTT SPLICE QUALIFICATIONS

PREPARED	BY	Evaluation Research Corporation	DATE	1/9/85
		Evaluation Research Corporation		
APPROVED	BY	Evaluation Research Corporation	DATE	1.9.85.
		Evaluation Research Corporation		
APPROVED	BY	Manny XX	DATE	1.9.85
		R.T.A. Evec./Instrumentation		

#### 1.0 REFERENCES

- 1.1 Office Memo, 1/4/85, M.B. Jones to J.L. Hansel "Action Item I.a.2 -Inspection Reports on Butt Splices"
- Office memo, 12/7/84, M.B. Jones to J.L. Hansel "Action Item I.a.3 -1.2 Butt Splice Qualifications"
- 1.3 Office memo, 10/10/84, W.I. Vogelsang to M. Warner, "Action Items I.a.2 & I.a.3", List of Drawings Showing Class 1E Cabinets in the Control and Spreader Rooms with Butt Splices installed in them.
- 1.4 EEI-8, "Class 1E and Non-Class 1E Cable Terminations"
- 1.5 AMP Instruction/Maintenance/Inspection Sheet IS - 1559, Rev. 5/29/81.
- 1.6 Office Memo, 1/7/85, W.I. Vogelsang to J.L. Hansel; List of Class 1E Cabinets in the Control and Spreader Rooms that do not have butt splices installed.

#### 2.0 PURPOSE AND SCOPE

- 2.1 The purpose of this Quality Instruction is:
  - 1. To assure that no splice in a cable bundle is adjacent to and/or pressing upon another splice. This is in direct support of the CPRT Action Item I.a.3.
  - 2. To assure that drawings correctly reflect the as-built condition and that the installed splices meet the FSAR, Procedural and SER requirements. This is in direct support of the CPRT Action Item I.a.2.
- The scope of the Quality Instruction is limited to the physical inspection 2.2 of Class 1E cabinets in the control room and cable spreading room to determine the acceptability of cable installations containing butt splices. This includes all cabinets known to contain butt splices and all cabinets where butt splices are not supposed to exist.

## FOR INFORMATION SHILL COMANCHE PEAK RESPONSE TEAM **OUALITY INSTRUCTION** CPRT ACTION ITEMS I a 2 & I.a.3

ISSUE DATE

PAGE

REVISION

1/14/85

1 054

PROCEDURE FOR:

2, INSPECTION REPORT ON BUTT SPLICES and ITEM I.a.3. BUTT SPLICE QUALIFICATIONS

PREPARED BY

APPROVED BY

1.0 REFERENCES

- Office Memo, 1/4/85, M.B. Jones to J.L. Hansel "Action Item I.a.2 -1.1 Inspection Reports on Butt Splices"
- Office memo, 12/7/84, M.B. Jones to J.L. Hansel "Action Item I.a.3 -1.2 Butt Splice Qualifications"
- Office memo, 10/10/84, W.I. Vogelsang to M. Warner, "Action Items 1.3 I.a.2 & I.a.3", List of Drawings Showing Class 1E Cabinets in the Control and Spreader Rooms with Butt Splices installed in them.
- EEI-8, "Class 1E and Non-Class 1E Cable Terminations" 1.4
- AMP Instruction/Maintenance/Inspection Sheet IS 1559, Rev. 5/29/81. 1.5
- Office Memo, 1/7/85, W.I. Vogelsang to J.L. Hansel; List of Class 1E 1.6 Cabinets in the Control and Spreader Rooms that do not have butt splices installed.
- Office memo, 1/9/85, M.B. Jones to A.S. Hurbanek; "Sampling Plan Action 1.7 Item I.a.2"
- Office memo, 1/11/85, W.I. Vogelsang to A.S. Hurbanek; Action Items I.a.2 1.8 and I.a.3 - Minimum Bending Radius for Permanent Conductor Training
- Office memo, 1/13/85, A.S. Hurbanek to M.B. Jones; Action Item I.a.2 -1.9 Sample Selection.
- OI-OP-11.3-28 REV. 22 "Class 1E Cable Terminations" 1.10
- 2.0 PURPOSE AND SCOPE
- 2.1 The purpose of this Quality Instruction is:
  - 1. To assure that no splice in a cable bundle is adjacent to and/or pressing upon another splice. This is in direct support of the CPRT Action Item I.a.3.

#### 2.1 (cont.)

- To assure that drawings correctly reflect the as-built condition and that the installed splices meet the FSAR, Procedural and SER requirements. This is in direct support of the CPRT Action Item I.a.2.
- 2.2 The scope of the Quality Instruction is limited to the documentation review for and physical inspection of cable installations in Class 1E cabinets in the control and cable spreading room to verify the following:
  - That randomly selected panels where butt splices are not supposed to exist do not have conductor butt splices installed.
  - 2. Acceptability of cable installations that contain butt splices.

#### 3.0 RESPONSIBILITIES

3.1 The Third Party Inspectors (ERC) shall be responsible for conducting inspections to determine the existence of unidentified butt splices in panels, the inspection of cable bundles containing splices and the review of related documentation.

The Electrical/Instrumentation Review Team Leader is responsible for the review and approval of the inspection results and responsible for identification of cabinets that require inspection.

#### 4.0 INSTRUCTION

- 4.1 As the instruction covers inspections for two action items, the summary of activities shall be as follows:
  - 1) PART A Inspect by cabinet to identify existence of butt splices. Any cabinets found to be unsatisfactory (i.e. cabinets that have butt splices where none should exist) during this inspection will be inspected in accordance with Parts B and C. If inspections necessitate breaking of cable bundles, rebundling will be inspected per Part C, Activity 7.
  - PART B Inspect, by cabinet, to verify existing staggered condition of butt splice installations.
  - 3) PART C Inspect butt splice installations.
  - NOTE: If Part B inspections necessitate breaking of the cable bundles, the bundles will be reinspected during implementation of Part C.
  - 4) PART D Review the inspection reports associated with the cables inspected in Part C to determine if splices had (previously) been witnessed. Acceptable documentation may be used, by Third Party Inspectors, to determine that the Quality Attributes of a splice have been met.

- 4.2 The Quality Inspectors shall inspect the Class 1E Cabinets for the following:
- 4.2.1 INSPECTION ATTRIBUTES PART A Action Item I.a.2
  - Activity #1 Verify that randomly selected Class IE panels (ref. 1.9) do not contain butt spliced conductors.
- 4.2.2 INSPECTION ATTRIBUTES PART B Action Item I.a.3
  - Activity #1 Verify installation of splices as per EEI-8 para. 3.18(c), "Splices within the same wire bundle shall be staggered so that they are not touching each other."
- 4.2.3 INSPECTION ATTRIBUTES Part C Action Item I.a.2
  - Activity #1 Verify that the correct butt splice sleeves are installed. (Ref. 1.5 figure 5 and Ref. 1.1)
  - Activity #2 Verify that the butt splice sleeve is correctly indented. (Ref. 1.5 figure 5 and Ref. 1.1)
  - Activity #3 Verify that no conductor strands show outside the barrel of the butt splice sleeve. (Ref. 1.1)
  - Activity #4 Verify that the wire on both sides of the splice is the same color and same conductor size. (Ref. 1.4 para. 3.18.b and Ref. 1.1)
  - Activity #5 Verify that the splices are documented on the design document. (Ref. 1.4 para 3.18.a)
  - Activity #6 Verify that the insulation of the butt splice sleeve has not been heat shrunk. (Ref. 1.1)
  - Activity #7 Verify satisfactory rebundling of conductors. Rebundling will be considered satisfactory if:
    - 1. Butt splices within the same bundle are staggered so that they are not touching each other. (Ref. 1.4 para. 3.18c)
    - 2. Permanent conductor training bend radius meets the minimum bend radius requirements. (Ref. 1.8).
    - Cable separation meets requirements of reference 1.10 para.
       3.2.14a.
  - NOTE: All unsatisfactory activities shall be described in the Remarks section of the Inspection Report.
- 4.2.4 DOCUMENT REVIEW ATTRIBUTES Part D- Action Item I.a.2
  - Activity #1 Review the inspection reports associated with cables inspected in Part C to determine if splices had previously been witnessed.

#### 4.3 DOCUMENTATION

- 4.3.1 The Quality Inspectors will be furnished with the applicable drawings and documents required to perform inspections required in para. 4.1 and 4.2.
- 4.3.2 The Quality Inspectors shall document the results of inspections and document reviews as follows:

PART A (Inspections) - Attachment 3

PART B & C (Inspections) - Attachment 1

PART D (Review) - Memorandum to Electrical/Instrumentation Review Team Leader.

NOTE: If part C inspections necessitate the use of previous inspection results to determine the acceptability of an attribute, the inspector shall note the activity number and the previous I.R. number in the remarks section of the I.R.

4.3.3 The I.R.'s shall be completed in accordance with Attachments 2 and 3, as applicable. The I.R.'s shall be reviewed for legibility, accuracy and completeness and approved by the ERC Level III. The completed I.R. shall be submitted to the Electrical/Instrumentation Review Team Leader for review/approval.

# COMANCHE PEAK RESPONSE TEAM INSPECTION REPORT - ACTION ITEMS I.a.2 I.a.3

DRAFT 20 REV.

EQUIPMENT #	1					ADSONIERS	**********					renta appress							
TERMINATION DE	RAWING #			(2	)			-						RE	VISIO	ч			ALADA LA VIEN ANTENNA
DCA's (3)	curates automo se			_			******				***************************************								
INSPECTION ATT	RIBUTES	S: F	AR	ТВ	- 4	CTIC	ON	ITE	MI	.a.	3								
ACTIVI	TY #1		S	AT.	U	NSA'	T.			INS	PEC	TOR	SI	GN.	<b>T</b>	2	ATE		
			1	4)						(	5)								
INSPECTION ATT	TRIBUTES	S: F	PAR	T C	- A	CTIO	ON	ITE	MI	.a.	2								
	COND.	TACT	. 1	LACT	- 2	act	2	LACT	F 4	TAC	T E	AC	T 6	I AC	7 7				
E ID#	COND.	S	U	S	U	S	U	S	U	S	U	S	U	S	U	IN	SP. SIGN	1.	DATE
6	(7)			9		0		(11)		12)		13)			TT		(15)		
neste e communida guidante communica que mom							-												
			**********			1													
eringulag den stande er en gelinden vitargen endigt gelik endigt och 1997 fullendanger						T											TOTAL STATE OF THE	****************	
						1	Malesta, min										CONTROL OF THE PROPERTY OF THE PARTY OF THE		
ettere i il vi asuom metraporativas saprino indusero investettis sõduvilus a						1											ANTO MESS. SQUE OF SAME A SAME TOWN		
		$\dagger \dagger$				寸											THE CO. LANSING MICHIGAN PROPERTY OF		
	-		*****			1	-							-		and if also associate constant	-	***************************************	
AND TO SECURE THE RESERVE SHEET OF THE SECURE SHEET			THE OTHER DESIGNATION OF THE OTHER DESIGNATION				-								-	-			
REMARKS:	16)		distance of the			****	estation :	avellered season	CZAW SAMB	TOTAL PROTECTION	-		ACCOUNT AN ARCHOO			NA TRANSPORTE		MARINE MERCHANISTS	NAME AND PERSONS ASSESSED.
TO SERVICE PROPERTY OF THE PRO	CANADA CONTRACTOR AND			*	otto personal relican		***************************************		***************************************	-			***************************************						NEW YORK OF STREET, ST
							All Regions de la				NEWS TRANS						THE AND A THOUSAND	E-TOOM-SETTINGSON C- S	
AND RESIDENCE AND RESIDENCE AND RESIDENCE ASSESSMENT ASSESSMENT AND RESIDENCE AND RESIDENCE ASSESSMENT ASSESSM	NAMES OF TAXABLE PARTY.		******		-				MARLICON,	THE PERSON NAMED IN COLUMN					ALIAN SPRINSIN SE AFFERN		***************************************		Northwest Management
MAC STATES THE PARTY OF THE PAR		3								_							DADCE #		ACT OF THE PARTY O
INSPECTOR																			
REVIEW AND AP	PROVAL	Ev	ali	(18	on F	Rese	ear	ch	Cor	por	atio	on				DATE		***************************************	
REVIEW AND AP	PROVAL			(19												ATE	****	and the same of th	
		R.	T.I	E	l ec	./Ir	nst	rum	ent	ati	on								1

	Q1-002 KEV.	,				A	OTH-15	-111	1			TAC	46 6	. Ur	2		Sn	LEI UF	
		CPRT I				CO	NTI	NUA"	LIOU	1 SI	HEET						0	REV REV	
	EQUIPMENT #	1																	
	DRAWING #	2						_ 1	REV							. Di	CA'S	3	
14016	7.5. 4	LUMU.	1								4		1	1		T.7		THE RESERVE OF THE PERSON OF T	T
ABLE	ID#	COLOR	-		-	U	S	U	1-	U	7	1	1	7		T	INSP. S	IGN.	DATE
	6	0	8	9	9)		10		11)		12		13	_	14	_	15		
																			1
***************************************	оны ушийства, эций тучко-сполнуя дануудай РСА чеодерлен				7	-								1					
	walka walia akao mana akao ka mana akao ka walia akao ka				1										-		1		1
***************************************			-	-	-		-	***************************************					-	-	-	-			-
-				-	-						_				-		-	Name of Street and Street Street Street	-
***************************************																			1
																		Barbara Andrea (de constante a reportante de la constante de manya	
										-	-	- Etasessa						PER PROPERTY AND ADDRESS OF THE PERSON OF TH	1
****************		***************************************				America de									-				
			-		-						-	-	-	-	-	-			
***************************************		The state of the s	-			-		******			-				-	-			
	to trape interroperation has because of the early because inventor even																		
																		NAME OF THE OWNER, OF THE OWNER, OF THE OWNER,	
																	1	MET SAN THE STATE OF THE SAN T	
															OK THERE			MINISTA ATTOMOST, OF THE PROPERTY OF THE PROPE	
						-						-				-		Minimal and the Section Sectio	
- Charlest Control of the last	A STREET OF THE PARTY OF THE PA	THE PERSON NAMED IN COLUMN	AND PERSONAL PROPERTY.	BERTHARDSON D.	STATE STATE SALES	NEEDS WITCHARD	distribute annue	Seinen consumption	donstrance	diogramma	demonstrate	Survenanyus	after consumer or	Accessor	A servere				

REMARKS:	(16)		AND THE RESIDENCE OF THE PROPERTY OF THE PROPE	
AND DESCRIPTION OF THE PROPERTY AND DESCRIPTION OF THE PROPERT				

## CHE PEAK RESPONSE TEAM - ACTION ITEM I.a.2 and I.a.3 INSPECTION REPORT COMPLETION INSTRUCTIONS

#### THE NUMBERS BELOW CORRESPOND TO THE NUMBERED BLOCKS ON THE INSPECTION RECORD.

- 1. Enter the Equipment or Panel I.D. # being inspected.
- 2. Enter Termination drawing to be used for inspection and it's revision.
- 3. Enter all outstanding DCA's against the drawing.
- 4. Indicate SATISFACTORY or UNSATISFACTORY for Part B, Activity #1.
- 5. Inspector Signature and Date.
- 6. Enter Cable I.D. # being inspected.
- Enter Cable Conductor color being inspected.
- 8. Indicate SATISFACTORY or UNSATISFACTORY for PART C Activity #1
- 9. Indicate SATISFACTORY or UNSATISFACTORY for PART C Activity #2.
- 10. Indicate SATISFACTORY or UNSATISFACTORY for PART C Activity #3.
- 11. Indicate SATISFACTORY or UNSATISFACTORY for PART C Activity #4.
- 12. Indicate SATISFACTORY or UNSATISFACTORY for PART C Activity #5.
- Indicate SATISFACTORY or UNSATISFACTORY for PART C Activity #6.
- 14. Indicate SATISFACTORY or UNSATISFACTORY for PART C Activity #7.
- 15. Inspectors Signature and Date.
- 16. Describe UNSATISFACTORY items, list applicable DCA's and the cable numbers to which they relate, and any other inspection comments.
- 17. Inspector Signature, Date and Badge #.
- 18. Approval Signature and Date of ERC Level III.
- 19. Approval Signature and Date of R.T.L. Elec./Instrumentation.
- 20. Enter Draft and/or Rev. of Action Item I.a.2.
- 21. Enter Draft and/or Rev. of Action Item I.a.3.

SHEET 1 OF \_\_\_

#### COMANCHE PEAK RESPONSE TEAM INSPECTION REPORT - ACTION ITEM I.a.2

DRAFT	1	REV.	
	CONTRACTOR OF THE PROPERTY OF THE PARTY OF T		CONTRACTOR AND CONTRACTOR CONTRAC

Inspection Attribute - Part A - Action Item I.a.2

			ACTIVI	TY #1 [	INSPECTOR	
QUIPMENT #	DRAWING #/REV.	DCA's	SAT	UNSAT	SIGNATURE	DATE
2	3	4	5		6	0
-						
op interneterment garyeerd ook som oproper vinendown			-	-		
			entercounterprise to complete			
				-	омент на при температи на при температи на поста по при при потра на при при потра и потра и потра и потра и п При при при при при при при при при при п	
CONTRACTOR AND					ganderindusser in anticonservation of training who explanation of the section of	48-00-00-00-00-00-00-00-00-00-00-00-00-00
AND THE RESERVE OF THE PERSON		-			ti ali ni si sala di Propinsi (Malayan Propinsi Propinsi Assanta ang an ang ang ang ang	
					anteriorium armining der dage, françois en l'arminina aque te australius aque des	
***************************************	2-30-30-00-00-00-00-00-00-00-00-00-00-00-					***************************************
des essentialment section and residence						
					gament, confirmation integrating. Despressioned as both in grand on	
CORPORATE TO A ANGEST CONTRACTOR OF THE PARTY OF THE PART					CAMPINETE DE RENE PORTO ANGENTO (ORA BOTO PER PORTO ALLA RAPE PARA DI PRESE	***************************************
	*				COLUMN TARREST CONTRACTOR OF THE STATE OF TH	
ant are assessment and the second Algorithms and Algorithms and the second and th			*****************		aanad tii dhaa aa maan ahaa ahaa ahaa tii dhaa ahaa ahaa ahaa ahaa ahaa ahaa ah	
PRINCES ON THE PROPERTY OF THE					ossaparatra paratri di mular frago umarri de majamet unua del prese del dese que rocada	
EMARKS: (	8)	THE PARTY OF THE P				Control Spring Control Street Control Spring Contro
- ACCURATION OF THE PARTY OF TH		PRESIDENTE SE A ASSES PORTES SE SENSE SERVICIOS PRESIDENTES SE S	40 A Long 177 Sec 1077 A Long 1874 A Long			
			THE STREET STREET STREET STREET STREET STREET	a er talmakter nyr oggerenn ett i Fråg som en ekkentigangen med	and standards controlling the standard standards and standards and standards and standards and standards and st	
				***************************************		
NSPECTOR	9		DATE		BADGE #	
EVIEW AND APP	ROVAL Evaluation	10		-	DATE	
					0.175	
EVIEW AND APP	ROVAL Review Team	Leader Elec	c./Instru	mentation	DATE	G

## COMANCHE PEAK RESPONSE TEAM ACTION ITEM I.a.2 INSPECTION REPORT COMPLETION INSTRUCTIONS

- 1) Enter Draft and/or Revision of Action Item I.a.2.
- 2) Enter Equipment number of panel inspected.
- 3) Enter Drawing used for inspection and current revision.
- 4) Enter all outstanding DCA's.
- 5) Indicate SATISFACTORY or UNSATISFACTORY for Activity #1.
- 6) Enter Inspector Signature.
- 7) Enter Date of Inspection.
- 8) Describe UNSATISFACTORY items, list applicable DCA's and the cable numbers to which they relate, and any other inspection comments.
- 9) Inspector Signature, Date and Badge Number.
- 10) Signature and Date of ERC Level III review.
- 11) Signature and Date of Review Team Leader Elec./Instrumentation.

2

PAGE

## COMANCHE PEAK RESPONSE TEAM QUALITY INSTRUCTION

CPRT ACTION ITEMS I.a.2 & I.a.3

INSTRUCTION NO. REVISION ISSUE DATE 2/5/85 1 OF 4 21-002 PROCEDURE FOR: CPRT ACTION ITEM I.a.2, INSPECTION REPORT ON BUTT SPLICES and CPRT ACTION ITEM I.a.3, BUTT SPLICE QUALIFICATIONS DATE 2/5/85 PREPARED BY Evaluation Exaluation Research Corporation APPROVED BY Jaul & LOW MARTIN B. JONES APPROVED BY ~ Elec//Instrumentation Ref. CPRT-726 1.0 REFERENCES Office Memo, 1/4/85, M.B. Jones to J.L. Hansel "Action Item I.a.2 -1.1 Inspection Reports on Butt Splices" Office memo, 12/7/84, M.B. Jones to J.L. Hansel "Action Item I.a.3 -1.2 Butt Splice Qualifications" Office memo, 10/10/84, W.I. Vogelsang to M. Warner, "Action Items 1.3 I.a.2 & I.a.3", List of Drawings Showing Class 1E Cabinets in the Control and Spreader Rooms with Butt Splices installed in them. EEI-8, "Class 1E and Non-Class 1E Cable Terminations" 1.4 AMP Instruction/Maintenance/Inspection Sheet IS - 1559, Rev. 5/29/81. 1.5 Office Memo, 1/7/85, W.I. Vogelsang to J.L. Hansel; List of Class 1E 1.6 Cabinets in the Control and Spreader Rooms that do not have butt splices installed. Office memo, 1/9/85, M.B. Jones to A.S. Hurbanek; "Sampling Plan - Action 1.7 Item I.a.2" Office memo, 1/11/85, W.I. Vogelsang to A.S. Hurbanek; Action Items I.a.2 1.8 and I.a.3 - Minimum Bending Radius for Permanent Conductor Training Office memo, 1/13/85, A.S. Hurbanek to M.B. Jones; Action Item I.a.2 -1.9 Sample Selection. QI-QP-11.3-28 REV. 22 "Class 1E Cable Terminations" 1.10

Office memo, 1/31/85/ M.B. Jones to A.S. Hurbanek, "Action Plans I.a.2 and 1.11 I.a.3 - Additional Butt-Splices Inspection"

#### 2.0 PURPOSE AND SCOPE

- 2.1 The purpose of this Quality Instruction is:
  - To assure that no splice in a cable bundle is adjacent to and/or pressing upon another splice. This is in direct support of the CPRT Action Item I.a.3.
  - To assure that drawings correctly reflect the as-built condition and that installed splices meet the FSAR, Procedural and SER requirements. This is in direct support of the CPRT Action Item I.a.2.
- 2.2 The scope of the Quality Instruction is limited to the documentation review for and physical inspection of cable installations in Class 1E cabinets in the control and cable spreading room to verify the following:
  - That randomly selected panels where butt splices are not supposed to exist do not have conductor butt splices installed.
  - 2. Acceptability of cable installations that contain butt splices.

NOTE: At the direction of the Electrical/Instrumentation Review Team Leader the scope of this Quality Instruction may be expanded to include Class 1E cabinets in areas other than the control and spreading room.

#### 3.0 RESPONSIBILITIES

3.1 The Third Part Inspectors (ERC) shall be responsible for conducting inspections to determine the existence of unidentified butt splices in panels, the inspection of cable bundles containing splices and the review of related documentation.

The Electrical/Instrumentation Review Team Leader is responsible for the review and approval of the inspection results and responsible for identification of cabinets that require inspection.

### 4.0 INSTRUCTION

- 4.1 As the instruction covers inspections for two action items, the summary of activities shall be as follows:
  - 1) PART A Inspect by cabinets to identify existence of butt splices. Any cabinets found to be unsatisfactory (i.e. Cabinets that have butt splices where none should exist) during this inspection will be inspected in accordance with Parts "B" and "C". If inspections necessitate breaking of cable bundles, rebundling will be inspected per Part C, Activity 7.
  - PART B Inspect, by cabinet, to verify existing staggered condition of butt splice installations.
  - 3) PART C Inspect butt splice installations.

NOTE: If Part B inspections necessitate breaking of the cable bundles, the bundles will be reinspected during implementation of Part C.

4

- 4.1 (cont.)
  - 4) PART D Review of the inspection reports associated with the cables inspected in Part C to determine if splices had (previously) been witnessed. Acceptable documentation may be used, by Third Party Inspectors, to determine that the quality attributes of a splice have been met.
- 4.2 The Quality Inspectors shall inspect the Class 1E Cabinets for the following:
- 4.2.1 INSPECTION ATTRIBUTES PART A Action Item I.a.2

Activity #1 - Verify that randomly selected Class 1E panels (ref. 1.9) do not contain butt spliced conductors.

- 4.2.2 INSPECTION ATTRIBUTES PART B Action Item I.a.3
  - Activity #1 Verify installation of splices as per EEI-8 para. 3.18(c), "Splices within the same wire bundle shall be staggered so that they are not touching each other."
- 4.2.3 INSPECTION ATTRIBUTES Part C Action Item I.a.2
  - Activity #1 Verify that the correct butt splice sleeves are installed. (Ref. 1.5 figure 5 and Ref. 1.1)
  - Activity #2 Verify that the butt splice sleeve is correctly indented. (Ref. 1.5 figure 5 and Ref. 1.1)
  - Activity #3 Verify that no conductor strands show outside the barrel of the butt splice sleeve. (Ref. 1.1)
  - Activity #4 Verify that the wire on both sides of the splice is the same color and same conductor size. (Ref. 1.4 para. 3.18.b and Ref. 1.1)
  - Activity #5 Verify that the splices are documented on the design document. (Ref. 1.4 para 3.18.a)
  - Activity #6 Verify that the insulation of the butt splice sleeve has not been heat shrunk. (Ref. 1.1)
  - Activity #7 Verify satisfactory rebundling of conductors. Rebundling will be considered satisfactory if:
    - Butt splices within the same bundle are staggered so that they are not touching each other. (Ref. 1.4 para. 3.18c)
    - Permanent conductor training bend radius meets the minimum bend radius requirements. (Ref. 1.8).
    - Cable separation meets requirements of reference 1.10 para.
       3.2.14a.

NOTE: All unsatisfactory activities shall be described in the Remarks section of the Inspection Report.

4.2.4 DOCUMENT REVIEW ATTRIBUTES - Part D - Action Item I.a.2

Activity #1 - Review the inspection reports associated with cables inspected in Part C to determine if splices had previously been witnessed.

#### 4.3 DOCUMENTATION

- 4.3.1 The Quality Inspectors will be furnished with the applicable drawings and documents required to perform inspections required in para. 4.1 and 4.2.
- 4.3.2 The Quality Inspectors shall document the results of inspections and document reviews as follows:

PART A (Inspections) - Attachment 3.

PART B & C (Inspections) - Attachment 1

PART D (Review) - Memorandum to Electrical/Instrumentation Review Team Leader.

NOTE: If Part C inspections necessitate the use of previous inspection results to determine the acceptability of an attribute, the inspector shall note the activity number and the previous I.R. number in the remarks section of the I.R.

4.3.3 The I.R.'s shall be completed in accorrdance with Attachments 2 and 3, as applicable. The I.R.'s shall be reviewed for legibility, accuracy and completeness and approved by the ERC Level III. The completed I.R. shall be submitted to the Electrical/Instrumentation Review Team Leader for review/approval.

(17

ATTACHMENT 1 PAGE 1 OF 2 SHEET 1 OF \_\_\_\_

COMANCHE PEAK	RESPONSE TEAM	1		
INSPECTION REPORT -		I	8	2

DRAFT (20) REV. \_\_\_\_

EQUIPMENT 0			-			ens. It is a set of column	and the second s		-		
TERMINATION DE	RAWING #		2				-	_ P	EVISIO	N	MARTIN COLUMN THE WASHINGTON
										SECONOMICS CONTRACTOR	
INSPECTION ATT	RIBUTES	PART	B - /	ACTION	N ITEM	1.a.3					
ACTIV	ITY #1	SA	AT.   1	UNSAT		INSPE	CTOR	SIGN	1.	DATE	
		10	4)			(5)	)			BLASSAGOTO MEDICONO PERE ESPORADO POR ESE SANDO MEDICO.	
INSPECTION AT	TRIBUTES	: PAR	r C - 1	ACTIO	N ITEM	I.a.2					
4.	COND.	ACT.1	ACT.2	ACT.	3 ACT.	A ACT.					
CAGLE ID #	COLOR	SU	SU	SU	SU	SIL	5	U	SU	INSP. SIGN.	DATE
6)	100	8	9	10	11)	12	(13)	(1	4)	(15)	
									1	Management of the Control of the Con	
dende obseller i Weller M empresident et excessive program per per established program per			.						1		
						11					
						T					
								П			
		-		11		Ti	T				
The same and the s				+	+	++	+	1			
						11		Ш.		A CONTRACTOR OF THE PROPERTY O	
REMARKS:	(16)	***		proposed mone			and the second s		-		
				AND ADDRESS OF THE PARTY OF THE		Marie Marie Marie VI					
					and the second second				ALESSAN CONTRACTOR		Margaret Special Control of Contr
olipa hadarin - sina dapatan kuntapan alikulukan sa erabigan se sasa kun				THE PARTY AND PARTY OF THE PART	*****	-			A lice of a state of the same	AND AND COMMISSION OF COMMISSION OF COMMISSION OF COMMISSION COMMI	erandelikasi ataupak Perinapa
***											The state of the s
INSPECTOR	(1	7)				DA	TE _			BADGE #	The second of th
REVIEW AND A											
										DATE	
REVIEW AND A	APPROVAL	R.T	L. El	ec./Ir	nstrume	ntatio	n				6

ATTACHMENT 1 PAGE 2 OF 2 SHEET OF

EQUIPMENT #																	
DRAWING #																A'S3	
E 10 #	COND.	8 1						8						1	L.7.	INSP. SIGN.	DATE
6	7	8		9		10		11)		(12)	-	13		14)		15	
maaan maas - saar - saar - maaa daa ah saar ah	-																
	1		-													AND GARAGO AND	0.00,00 00.00
													-				
un independuntak diabatak terpakan prokana diabatak diabatak di																	CHICAGO AND AN
																SHEARE TARRESONNESS AND SECURITIES A	
THE RESERVE OF THE PROPERTY OF			-	-	-												
																AND THE STATE OF T	
												-					
mentalistications are one throughout appropriate the court		-	_	_		_			_	_						programmer Resident and residence of the Transport and Tra	
		***********	_	-	_		-	<u> </u>	-	-				-			
	and a second sec	et de l'accessité des		-					-							personal residence residence and security of the residence and a finisher conjugate, where the residence at	
r medimicar timer to project street, up on a great partie of																	
REMARKS:			16	)		terrene and the											

## COMANCHE PEAK RESPONSE TEAM - ACTION ITEM I.a.2 and I.a.3 INSPECTION REPORT COMPLETION INSTRUCTIONS

THE NUMBERS BELOW CORRESPOND TO THE NUMBERED BLOCKS ON THE INSPECTION RECORD.

- 1. Enter the Equipment or Panel I.D. # being inspected.
- 2. Enter Termination drawing to be used for inspection and it's revision.
- 3. Enter all outstanding DCA's against the drawing.
- 4. Indicate SATISFACTORY or UNSATISFACTORY for Part B. Activity #1.
- 5. Inspector Signature and Date.
- 6. Enter Cable I.D. # being inspected.
- Enter Cable Conductor color being inspected.
- 8. Indicate SATISFACTORY or UNSATISFACTORY for PART C Activity #1
- 9. Indicate SATISFACTORY or UNSATISFACTORY for PART C Activity #2.
- 10. Indicate SATISFACTORY or UNSATISFACTORY for PART C Activity #3.
- 11. Indicate SATISFACTORY or UNSATISFACTORY for PART C Activity #4.
- 12. Indicate SATISFACTORY or UNSATISFACTORY for PART C Activity #5.
- 13. Indicate SATISFACTORY or UNSATISFACTORY for PART C Activity #6.
- Indicate SATISFACTORY or UNSATISFACTORY for PART C Activity #7.
- 15. Inspectors Signature and Date.
- 16. Describe UNSATISFACTORY items, list applicable DCA's and the cable numbers to which they relate, and any other inspection comments.
- 17. Inspector Signature, Date and Badge #.
- 18. Approval Signature and Date of ERC Level III.
- 19. Approval Signature and Date of R.T.L. Elec./Instrumentation.
- 20. Enter Draft and/or Rev. of Action Item I.a.2.
- 21. Enter Draft and/or Rev. of Action Item I.a.3.

ACTIVITY #1

SAT JUNSAT

EQUIPMENT #

SHI	EET	1	UE	
2111	ha ha A	4	VI	

#### COMANCHE PEAK RESPONSE TEAM INSPECTION REPORT - ACTION ITEM I.a.2

DRAFT	1	REV.	
-------	---	------	--

DATE

INSPECTOR

SIGNATURE

Inspection Attribute - Part A - Action Item I.a.2

DRAWING #/REV.

(2)	(3)	(4)	(5)	(6)	10
The second secon					
ANTON TOUR DESCRIPTION OF THE PROPERTY OF THE					
		MATERIAL ST. ACCOUNTS OF MATERIAL STREET, ST.	ORGANIZATION AND AND AND AND AND AND AND AND AND AN		
ambas, it varearithings paliperaus orbital in orbital		DE-SENERAL AND SERVICE SERVICES AND SERVICES		THE RESIDENCE OF THE PROPERTY	1
and the second s	The second secon				-
					-
		The same of the sa		anage arms danage system (specific as the second right states are not second states and as the second states and a second state	
***************************************		THE RESIDENCE OF THE PROPERTY			
A CONTROL OF THE PARTY OF THE P	DOTO OF A CAMERO AND AN OWN PROPERTY OF A CAMERO AND A CA	Manager of Landson and Landson		and the second s	1
ARKS:	3)			EDICITORIO BANCO E PROGRESSA A APPROVA PLATE PROGRAMINO CONTRAPOLO APPROCATA APPROVA	***************************************
	ag (kur, uniny diri dunasyu (kurani) arang dirikh nahini Akkananin Sulayi na garabi.	AND AND THE SECOND CONTRACTOR AND THE SECOND			
DECTOR	9		DATE	BADGE #	**************************************
IEW AND APPR	Evaluat	ion Research Co	rporation	DATE	
IFW AND APPE		_		DATE	
TEN MID MILL	10146			The state of the s	

## COMANCHE PEAK RESPONSE TEAM ACTION ITEM I.a.2 INSPECTION REPORT COMPLETION INSTRUCTIONS

- 1) Enter Draft and/or Revision of Action Item I.a.2.
- 2) Enter Equipment number of panel inspected.
- 3) Enter Drawing used for inspection and current revision.
- 4) Enter all outstanding DCA's.
- 5) Indicate SATISFACTORY or UNSATISFACTORY for Activity #1.
- 6) Enter Inspector Signature.
- 7) Enter Date of Inspection.
- Describe UNSATISFACTORY items, list applicable DCA's and the cable numbers to which they relate, and any other inspection comments.
- 9) Inspector Signature, Date and Badge Number.
- 10) Signature and Date of ERC Level III review.
- 11) Signature and Date of Review Team Leader Elec./Instrumentation.

I, R. K. Gad III, hereby certify that on October 29, 1987, I DOCKETING & SERVICE made service of "Answers to Board's 14 Questions (Memora Proposed Memo of April 14, 1986) Regarding Action Plan Results Report

I.a.2" by mailing copies thereof, postage prepaid, to:

Peter B. Bloch, Esquire
Chairman
Administrative Judge
Atomic Safety and Licensing
Board
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Dr. Walter H. Jordan Administrative Judge 881 W. Outer Drive Oak Ridge, Tennessee 37830

Chairman
Atomic Safety and Licensing
Appeal Panel
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Janice E. Moore
Office of the General Counsel
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Renea Hicks, Esquire
Assistant Attorney General
Environmental Protection Division
P. O. Box 12548
Capitol Station
Austin, Texas 78711

Asst. Director for Inspection
Programs
Comanche Peak Project Division
U.S. Nuclear Regulatory
Commission
P. O. Box 1029
Granbury, Texas 76048

Ms. Billie Pirner Garde GAP-Midwest Office 104 E. Isconsin Ave. - B Appleton, WI 54911-4897

Chairman
Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Mrs. Juanita Ellis President, CASE 1426 S. Polk Street Dallas, Texas 75224

Ellen Ginsburg, Esquire
Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Anthony Roisman, Esquire Suite 600 1401 New York Avenue, N.W. Washington, D.C. 20005

Dr. Kenneth A. McCollom Administrative Judge 1107 West Knapp Stillwater, Oklahoma 74075

Elizabeth B. Johnson Administrative Judge Oak Ridge National Laboratory P. O. Box X, Building 3500 Oak Ridge, Tennessee 37830

Nancy H. Williams 2121 N. California Blvd. Suite 390 Walnut Creek, CA 94596 Mr. Lanny A. Sinkin Christic Institute 1324 North Capitol Street Washington, D.C. 20002

Mr. Robert D. Martin
Regional Administrator
Region IV
U.S. Nuclear Regulatory
Commission
Suite 1000
611 Ryan Plaza Drive
Arlington, Texas 76011

Geary S. Mizuno, Esquire
Office of the Executive
Legal Director
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

R. K. Gad III