

STONE & WEBSTER ENGINEERING CORPORATION

CALCULATION TITLE PAGE

CLIENT & PROJECT TEXAS UTILITIES GENERATING CO/COMANCHE PEAK SES				PAGE : OF 13 TOTAL NO OF PAGES -21	
CALCULATION TITLE (Indicative of the Objective): Cable Ampacity Derating Factors for Conduits Boxed In With Thermolog (TSI Product)				TE SAFETY CLASSIFICATION <input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Non-Safety	
CALCULATION IDENTIFICATION NUMBER					
J.O. OR W.O. NO.	DIVISION & GROUP	CURRENT CALC. CO.	OPTIONAL TASK CODE	OPTIONAL WORK PACKAGE NO.	
16345/6	EE (B)	004	XXX	13L	
*APPROVALS - SIGNATURE & DATE			REV. NO. OR NEW CALC. NO.	SUPPLEMENTS/ SUPERCEDES CALC./REV NO.	CONFIRMATION REQUIRED (✓)
PREPARER(S)/DATE(S)	REVIEWER(S)/DATE(S)	INDEPENDENT REVIEWER(S)/DATE(S)			YES NO
<i>Keith Petty 2-20-87</i> KEITH A. PETTY	<i>H.V. Redgate 2-24-87</i> H.V. REDGATE	<i>H.V. Redgate 2-24-87</i> H.V. REDGATE	0	N/A	✓
DISTRIBUTION					
GROUP	NAME & LOCATION	GROUP	NAME & LOCATION		
RECORDS MGT. # FILES (OR FIRE FILE IF NONE)	Keith Petty 245/4 H. Redgate 245/4 J. Bernson CAG- Records Ret.				
EDC-CAG	Job Book File 19.- 2				
EDC-ESG	c/o D. Shea				
	Job Book File 19.- 2				
1ICFG	c/o D. Goodman				
	c/o D. Goodman ESG				

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PDR ADOCK 05000446
A PDR

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OBJECTIVE:

In order to meet Appendix R requirements, some conduits are required to be enclosed with Thermal Science Inc.'s Thermolag 330-1 product. Existing cable ampacity test report for enclosed conduit (see Ref. 1,2) tested conduit installed with pre-formed or shell shaped Thermolag. Brown & Root procedure CP-CPM-10.3 permitted the conduits to be boxed out instead.

This calculation will develop the necessary cable ampacity derating factor for cables in conduit, installed in free air, that are enclosed with Thermolag 330-1 in a box shape.

CALCULATION METHOD/ASSUMPTIONS:

1. Existing cable ampacity of cable installed in conduit "in air" are taken from ICEA P-46-426 pg 264 for triplex power cables. The method and equations used to calculate these ampacities are described in the forward of the standard. With few exceptions, approach used by the standard is taken from the Neher-McGrath paper (Ref 4). This approach will be used, except when necessary to properly account for the installation method of Thermolag.

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2. Existing thermal circuit for bare conduits is:

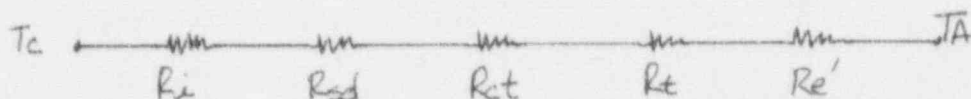


R_i : thermal resistance of the insulation

R_{sd} : thermal resistance between the cable and the conduit.

R_e : thermal resistance between the conduit and the air.

Conduits, boxed out with the Thermolag are modeled as:



R_{ct} : thermal resistance between the conduit and the Thermolag

R_t : thermal resistance of the Thermolag material

$R_{e'}$: thermal resistance between the Thermolag and air

R_{ct} is modeled as a thin air gap between the conduit and the

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<div style="display: flex; flex-direction: row-reverse;"> <div style="width: 20px; text-align: center;">1</div> <div style="width: 20px; text-align: center;">2</div> <div style="width: 20px; text-align: center;">3</div> <div style="width: 20px; text-align: center;">4</div> <div style="width: 20px; text-align: center;">5</div> <div style="width: 20px; text-align: center;">6</div> <div style="width: 20px; text-align: center;">7</div> <div style="width: 20px; text-align: center;">8</div> <div style="width: 20px; text-align: center;">9</div> <div style="width: 20px; text-align: center;">10</div> <div style="width: 20px; text-align: center;">11</div> <div style="width: 20px; text-align: center;">12</div> <div style="width: 20px; text-align: center;">13</div> <div style="width: 20px; text-align: center;">14</div> <div style="width: 20px; text-align: center;">15</div> <div style="width: 20px; text-align: center;">16</div> <div style="width: 20px; text-align: center;">17</div> <div style="width: 20px; text-align: center;">18</div> <div style="width: 20px; text-align: center;">19</div> <div style="width: 20px; text-align: center;">20</div> <div style="width: 20px; text-align: center;">21</div> <div style="width: 20px; text-align: center;">22</div> <div style="width: 20px; text-align: center;">23</div> <div style="width: 20px; text-align: center;">24</div> <div style="width: 20px; text-align: center;">25</div> <div style="width: 20px; text-align: center;">26</div> <div style="width: 20px; text-align: center;">27</div> <div style="width: 20px; text-align: center;">28</div> <div style="width: 20px; text-align: center;">29</div> <div style="width: 20px; text-align: center;">30</div> <div style="width: 20px; text-align: center;">31</div> <div style="width: 20px; text-align: center;">32</div> <div style="width: 20px; text-align: center;">33</div> <div style="width: 20px; text-align: center;">34</div> <div style="width: 20px; text-align: center;">35</div> <div style="width: 20px; text-align: center;">36</div> <div style="width: 20px; text-align: center;">37</div> <div style="width: 20px; text-align: center;">38</div> <div style="width: 20px; text-align: center;">39</div> <div style="width: 20px; text-align: center;">40</div> <div style="width: 20px; text-align: center;">41</div> <div style="width: 20px; text-align: center;">42</div> <div style="width: 20px; text-align: center;">43</div> <div style="width: 20px; text-align: center;">44</div> <div style="width: 20px; text-align: center;">45</div> <div style="width: 20px; text-align: center;">46</div> </div>	<p>Thermolag and will be developed in a similiar fashion as Rsd. The box shape will be equated to a cylinder. Its diameter will produce the same surface area as box shape.</p> <p>3. The ampacity of bare conduit is calculated to comfirm that the proper equations have been used and to use as the basis ampacity in calculating the derating factor. However, actual Comanche Peak cable dimensions will be used. This will produce a difference of less than 1 percent, when compared against the ICEA standard value.</p> <p>4. The insulation/jacket thermal resistivity is taken as 350 C-cm/watt.(see Ref 5) Cable dimensions, ac resistance of the 1/C and triplex 600-V cables are taken from Gibbs & Hill Calculation IV-8- Rev.8. This calculation has been reviewed by the preparer, including its source. Nominal cable diameters were used in the G&H calculation, and will be used here. Only Ri and Rsd use cable dimensions, and since these terms are used in both the bare conduit and the enclosed conduit variation in these terms do not affect the resulting derating factor.</p> <p>5. The conduit size was selected to be the smallest size conduit that the cable could be installed in. Conduit dimensions were taken from Anaconda Handbook (Ref 6). Conduit surface emissivity is taken as 0.82 from Ref 1.</p>			

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6. The thickness of the Thermolag can vary from 0.5 to 0.75 inch. Derating factor will be calculated for the extreme in thickness. Thermal conductivity of Thermolag is 0.1 BTU-FT/HR-SQFT-F and its surface emissivity is 0.9 as taken from Ref 7.

7. The equations and data will be entered in to a LOTUS template, using LOTUS Ver 2.01. This personal computer software is run on a Standard IBM personal computer or compatible. The output of the template is via Cambridge Spreadsheet Analyst Ver 2.0. This will provide total documentation of what the actual equation, data, and results are.

8. Ampacities are based on one conduit under Thermolag. Results and method are not appropriate for multiple conduits under same Thermolag.

9. % Derating factor is calculated:

$$100 \times \left[1 - \left(\frac{\text{CALCULATED AMPACITY WITH THERMOLAG}}{\text{CALCULATED AMP. WITHOUT THERMOLAG}} \right) \right]$$

Calculated ampacity, Not ICEA values, are used in above equation.

10. As additional check, calculated ampacity will be checked against test results (preformed) and ICEA P46-426 - when possible.

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<p>REFERENCES:</p> <ol style="list-style-type: none"> 1. TSI No. 111781, Thermal Sciences Inc. 2. U.L.R6802 ,Letter Report Jan 21,1987 From Underwriter's Laboratories Northbrook, Ill. to Thermal Sciences 3. ICEA P-46-426 Power Cable Ampacities, 1962, IEEE, New York 4. "The Calculation of the Temperature Rise and Load Capability of Cable System" J.H. Neher, M.H. McGrath. AIEE Transactions, pt. III PAS, vol 76, Oct. 1957, pp. 752-72. 5. Telephone conversation between L Ly (SWEC) and Bart Bartolucci (Okonite), ATTACHMENT C 6. ANACONDA CABLE INSTALLATION MANUAL PC-7600-3, 1981 7. Telephone conversation between K Petty (SWEC) and R Lohman (TSI), ATTACHMENT D 8. G & H CALCULATION "CABLE IMPEDANCES" IV-B, REV 3 				

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CONCLUSION:

Computer calculated cable ampacity derating factor for cable installed in conduit "in air" with either 0.5 or 0.75 inch Thermolag - in Box shape. Highest derating factor was 19% for 4" conduit with 0.75 in Thermolag.

When using the derating factor, it is applied against ICEA P-46-926 "in air" ampacities

Calculated ampacities of unwrapped or bare conduits compare very well with those in ICEA standards.

Calculated ampacities of conduits with pre-formed Thermolag compare very well with tests in Ref 1 & 2. Ref 1 & 2 show a derating factor = 0% for 4" conduit & 7.5% for 2" conduit. Variations in test results considered to be from difference in conformity or fit of Thermolag to conduit surface - Ref 7. Calculated values for 0.5" Thermolag varied from 3 to 5%

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BODY OF CALCULATION

$$\text{Cable ampacity} \cdot I - \text{amps} = 1000 \sqrt{\frac{T_c - T_a}{R_{ac} \cdot R_{th}}}$$

↑ OR R_{th}'

T_c : Conductor temp = 90°C

T_a : ambient temp = 40°C { for use in developing derating factor only }

R_{ac} : conductor a-c resistance @ $T_c = 90^\circ\text{C}$ - taken from ref B
 $\mu\text{-}\Omega/\text{ft}$

For Bare Conduits:

$$R_{th} = R_i + R_{sd} + R_e \quad \text{thermal-}\Omega\text{-ft}$$

For Enclosed Conduit - Box

$$R_{th}' = R_i + R_{sd} + R_{ct} + R_t + R_e' \quad \text{thermal-}\Omega\text{-ft}$$

For Enclosed Conduit - Shell shape

$$R_{th}' \approx R_{th}' \{ \text{Box} \} - R_{ct} \quad \text{thermal-}\Omega\text{-ft}$$

R_{th} & R_{th}' : total thermal resistance between conductor and air.

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Tripex cables will be used to develop derating factor

$$R_i = 0.012 * p_i \log\left(\frac{D_i}{D_c}\right) \quad \text{thermal ohm-ft (Ref 4)}$$

p_i : thermal resistivity of insulation/jacket = 350 °C-cm/watt
(taken as average of insulation & jacket - ref 5)

D_i : diameter of 1/c portion of cable, inch (Ref 8)

D_c : conductor diameter, inch.

$$R_{sd} = \frac{3 * 17}{(1 + D_{ca}(3.6 + 0.029 * T_m))} \quad \text{thermal ohm-ft}$$

{ Eq 41 - Ref 4, with
A = 17, B = 3.6, C = 0.029
T_m = 60°C, n' = 3 }

D_{ca} : overall diameter of cable, in - for
3-1/c IN conduit this is also taken from Ref 8

$$R_e = \frac{3 * 9.5}{(1 + 1.7 * D_{cd} * (\epsilon + 0.41))} \quad \text{thermal ohm-ft}$$

{ Eq 42A - Ref 4 with
n' = 3 }

D_{cd} = outside diameter of conduit, in - Ref 6

ϵ = surface-emissivity = 0.82 for conduit - Ref 3

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$R_{et} = \frac{3 + 17}{(1 + 1.7 + D_{cd} + (3.6 + 0.029 + T_m))}$ <p style="text-align: right;">thermal-chm-ft</p> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-top: 10px;"> Developed from Eq 41 Ref 4 with $A = 0.17$, $B = 3.6$ $C = 0.029$ $T_m = 55$, $h' = 3$ </div>				
$D_{cd} =$ outer diameter of conduit, inch.				
$R_t = 0.012 + \rho_t + \log \left(\frac{D_t}{D_t'} \right)$ <p style="text-align: right;">thermal-chm-ft</p> <p style="text-align: right;">{ Developed from Eq 38-Ref 4 }</p>				
$\rho_t =$ thermal resistivity of Thermolag, 2-cm/watt $\text{Thermal Conductivity}^{(K)} - \text{Ref 7} = 0.1 \text{ BTU-FT/HR-FT}^2 \text{ } ^\circ\text{F}$				
$\rho = \frac{1}{K}$ $^{\circ}\text{C-cm/watt} = \left(\frac{\text{HR}}{\text{BTU}} \right) \text{ft-}^{\circ}\text{F}$ $= \frac{(30.48 \text{ cm/ft})}{0.2931 \left(\frac{\text{watts}}{\text{BTU/HR}} \right)} \quad 5/9 \left(^{\circ}\text{C}/^{\circ}\text{F} \right)$ $= 57.77$				
$\rho_t = \frac{57.77}{0.1} = 577.7 ^{\circ}\text{C-cm/watt}$				
$D_t =$ equivalent diameter over thermolag, in $D_t' =$ equivalent diameter under thermolag, in				
D_t & D_t' are developed on following page				

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outside dimension of box = $D_{CD} + 2 * T_t$

T_t : thickness of Thermalag in.

D_{CD} : outside diameter of conduit, in.

surface area box = $4 * [D_{CD} + 2 * T_t] * \text{conduit length}$

surface area cylinder = $\pi D_t * \text{conduit length}$

let surface area box = surface area cylinder

$$D_t = \frac{4}{\pi} [D_{CD} + 2 * T_t]$$

$$= 1.27 [D_{CD} + 2 * T_t]$$

$$D_t' = D_t - (2 * T_t)$$

Re' is identical to Re except D_t replaces D_{CD} .

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Expanded Explanation of Computer Printout

Expanded Text

45 AMPACITY-AMPS:

46

47 BARE(CALC.)

Cable Ampacity - to follow -
amperes. Based on conductor TEMP = 90°C;
ambient air = 40°C.
Ampacity - calculated by LOTUS -
for conduit without Thermolag.

48 BARE(ICEA)

49 BOXED-THERMOLAG

Ampacity of Conduit installation -
taken from ICEA P-46-P-26 T_c=90°C, T_a=40°C

Cable Ampacity - in Conduit - Calculated
By LOTUS - Conduit ENCLOSED IN BOX
SHAPE - THERMOLAG 330-1.

50 PRE-FORMED-THERMO(APP)

Cable Ampacity - in Conduit - Calculated
By LOTUS - Conduit ENCLOSED using
preformed shapes of thermolag.

51

52 % AMPACITY DERATING

53

Ampacity Derating due to Thermolag
in %.

54 BOXED THERMOLAG

% derating - Box style Thermolag

55 PRE-FORMED THERMOLAG

% derating - Preform shape
thermolag.

	-A-	-B-	-C-	-D-	-E-	-F-	-G-
1							
2							
3	CABLE AMPACITY ANALYSIS						
4	CONANCHO PEAK						
5	CONDUIT "BOXED" WITH THERMOLAG						
6							
7							
8	TEMPERATURE INPUT:						
9							
10	TC- COND. TEMP C	{90}					
11	TA- AMBIENT AIR C	{40}					
12							
13	CABLE DIMEN. INPUT:						
14							
15	DESC:	{3-1/C 750}	{3-1/C 500}	{3-1/C 350}	{TRI- 4/0}	{TRI-2/0}	{TRI-2}
16	D COND. IN.	{0.998}	{0.813}	{0.681}	{0.528}	{0.419}	{0.292}
17	1/C OD. IN.	{1.283}	{1.073}	{0.944}	{0.731}	{0.624}	{0.447}
18	CABLE O.D. IN.	{2.76}	{2.31}	{2.03}	{1.579}	{1.348}	{0.966}
19	RAC MICRO OHM/FT	{22.39}	{31.36}	{43.2}	{68.91}	{108.54}	{213.36}
20	THERM. RESIST. C-IN/WAT	{350}	{350}	{350}	{350}	{350}	{350}
21							
22	CONDUIT SIZE INPUT:						
23							
24	NOMINAL SIZE IN.	{4}	{3.5}	{3}	{2}	{1.5}	{1.5}
25	OUTER DIAM. IN	{4.5}	{4}	{3.5}	{2.4}	{1.9}	{1.9}

[illegible]

[illegible]

Page 1/3

	-A-	-B-	-C-	-D-	-E-	-F-	-G-
1							
2							
3	'CABLE AMPACITY ANALYSIS						
4	'COMANCHE PEAK						
5	'CONDUIT "BOXED" WITH THERMOLAG						
6							
7							
8	'TEMPERATURE INPUT:						
9							
10	'TC- COND. TEMP C	{[90]}					
11	'TA- AMBIENT AIR C	{[40]}					
12							
13	'CABLE DIMEN. INPUT:						
14							
15	'DESC:	{^3-1/C 750}	{^3-1/C 500}	{^3-1/C 350}	{^TRI- 4/0}	{^TRI-2/0}	{^TRI-2}
16	'D COND. IN.	{[0.990]}	{[0.813]}	{[0.681]}	{[0.528]}	{[0.419]}	{[0.292]}
17	'1/C CD. IN.	{[1.283]}	{[1.073]}	{[0.944]}	{[0.731]}	{[0.624]}	{[0.447]}
18	'CABLE O.D. IN.	{[2.76]}	{[2.31]}	{[2.03]}	{[1.579]}	{[1.348]}	{[0.966]}
19	'RAC MICRO OHM/FT	{[22.39]}	{[31.36]}	{[43.2]}	{[68.91]}	{[108.54]}	{[213.36]}
20	'THERM. RESIS. C-CH/WAT	{[350]}	{[350]}	{[350]}	{[350]}	{[350]}	{[350]}
21							
22	'CONDUIT SIZE INPUT:						
23							
24	'NOMINAL SIZE IN.	{[4]}	{[3.5]}	{[3]}	{[2]}	{[1.5]}	{[1.5]}
25	'OUTER DIAM. IN	{[4.5]}	{[4]}	{[3.5]}	{[2.4]}	{[1.9]}	{[1.9]}

The Cambridge Spreadsheet Analyst

16345/16346
 J.O. No. 16004-01

Date 2/13/87

STONE & WEBSTER ENGINEERING CORPORATION
 TEXAS UTILITIES GEN. CO.
 COMANCHE PEAK

SUBJECT THERMAL CHARACTERISTICS - THERMOLAG

BETWEEN K PETTY OF S.W.E.R.

R LOHMAN OF THERMAL SCIENCE INC.

CONVERSATION R. LOHMAN INDICATED THAT THE THERMAL CONDUCTIVITY
 OF THERMOLAG 330-1 IS 0.1 BTU-FT/HR FT²°F - BEFORE A FIRE.
 HE CONFIRMED THAT HIS LETTER OF 11/25/85 TO MR. HUSSAIN - TUGCO
 WAS INCORRECT.

SURFACE EMISSIVITY IS 0.9.

PRE-FORMED CONDUCTS ^{FOR} ^{FOR} THERMOLAG DOES FIT AS

TIGHT ON SMALLER CONDUCT SIZES AS FOR LARGER SIZES, THIS

MAY EXPLAIN DIFFERENCE IN AIRCAPACITY DERATING RESULTS

OF 2" VS 4" CONDUCTS, [7.5% AND 0% RESPECTIVELY]

-- Rackley	-- LShea	-- RMiller	-- WSchultz	-- GDean
-- NEskinazi	-- JMurphy	-- JSteere	-- RHogenmiller	-- RLong/Job Book CP-C-2
-- JCarty	-- EHenneberry	-- WKennedy	-- JLamarca	
-- CNardella	-- RPoltrino	-- DBarry	-- WSmith	
-- WParker	-- JCamobreco	-- WGardel	-- TMadden	

Revised 02/03/86

USE ONLY BLACK INK

Attachment 2BVM-31

STONE & WEBSTER ENGINEERING CORPORATION
 BEAVER VALLEY POWER STATION-UNIT NO. 2
 JO NO 122410-O.F.E. NO 10080-C.O. NO. 6289

FJ Mayer Job Bk _____
 OR 2BV # _____
 Time 2:35 PM
 Date 5/23/86
 Incoming _____ Outgoing _____

TELEPHONE MEMORANDUM

Between L. LY of SWEC and B. BARTOLUCCI of OKONITE

Subject Thermal Resistivity of Insulation and Jacket of Okonite cable (PI & PJ)
 THE JOB BOOK OR 2BV NUMBER MUST BE PLACED IN UPPER RIGHT
 SUMMARY

L. LY asked B. BARTOLUCCI for the Thermal Resistivity (P)
of Insulation material type Okonite (EPR) and Jacket material
type Okolon (Hypalon).

B. Bartolucci replied with the followings:

① The thermal resistivity of insulation material type Okonite
(EPR); PI = 400 $\frac{^{\circ}\text{C}\cdot\text{cm}}{\text{Watt}}$

② The thermal resistivity of Jacket material type Okolon
(Hypalon); PJ = 300 $\frac{^{\circ}\text{C}\cdot\text{cm}}{\text{Watt}}$

The above is a change in yes___ no___
 budget/schedule

Preparer Lee H. Ly
 Proj Engr
 Concurrence (Required only for change
 in budget/schedule) _____

cc: X JAKLINEX JTHOMAS

X WMBonike
X CORichardson, Jr
X WJParker, Jr
X KBGooden
X SJDDonovan

CHWilbur
JDSutton
REROemer
VLachpammer
RFrossi
FNMorrissey
JOWebb

X RJPasioneck
WRHunter
TMJacob
JAPizzi
AYWong
AJFiorente
NBGGoldstein
RObadiah

X AADasenbrock
Attn: RMC Site
Distribution
CEEwing
RJSwiderski
TPNoonan
DMAducci

X HFFoley
X HWDurkin

2PP-6.01
REVISION 0
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DCA NO./ REVISION: 96043 2
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1. LOCATION UNIT 2 & CCHMRY		2. EQUIPMENT/COMPONENT I.D. NO.: NA	
3. SYSTEM/SUBSYSTEM/AREA NO. GENERIC		4. INITIATING DOCUMENTS I.D. NO.: NA	
5. PROBLEM DESCRIPTION/PROPOSED CHANGE (OPTIONAL): REV. 2: CONSTRUCTION REQUEST TO PROVIDE DEFINITION OF ROCKBESTOS FREE RATED CABLE SPANS.			
6. DISCIPLINE <input type="checkbox"/> BG <input type="checkbox"/> EM <input type="checkbox"/> PR <input checked="" type="checkbox"/> CO <input type="checkbox"/> CT <input type="checkbox"/> MECH <input type="checkbox"/> ELECT. <input type="checkbox"/> C/S <input type="checkbox"/> IAS <input type="checkbox"/> HVAC <input type="checkbox"/> OTHER (SPECIFY)			
7. B.M.I.F.E. ORIGINATED BY: <u>B.M.I.F.E.</u> DATE: <u>1/6/92</u> ORGANIZATION: <u>ABB IMPEL</u> APPROVAL: <u>B.M.I.F.E.</u> DATE: <u>1/6/92</u>			
8. DETAILS OF CHANGE: REV. 2: ADD NOTE (E) ILL TO DWG. NO. 52-09103 SHSS PED-1-6 REV. CP-2 AS SHOWN ON PG. 9 OF 9.			
9. ENGINEERING BASIS: REV. 2: THIS NOTE IS TO CLARIFY THE APPLICATION OF ROCKBESTOS FREE RATED CABLE SPANS PER DESIGN CRITERIA & THIS CHANGE WILL HAVE NO IMPACT ON CABLE NO. 0218-CO-0094 REV. 1, HENCE THIS CHANGE IS ACCEPTABLE.			
10. AFFECTED DOCUMENT NUMBER(S)		11. REFERENCE DOCUMENTS	
DWG. NO. 52-09103 SHSS PED-1-6 DWG. NO. 52-09103 SHSS PED-3-7		NA NA	
12. INCORPORATION REQUIREMENT YES NO		13. U-I IMPACT <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
YES NO ✓ ✓		14. THE HIGHEST CLASS OF AFFECTED DOCUMENT(S) IS <input checked="" type="checkbox"/> CLASS I OR II <input type="checkbox"/> NON-SAFETY	
15. REMARKS NA		16. LDCR NO. NA	
17. ADDITIONAL DISTRIBUTION J. MATHEW - IMI A. PATEL - IMI		18. DOES DESIGN CHANGE CHARGE GENERIC REQUIREMENT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, NO BACKFIT REQUIRED? <input type="checkbox"/> YES <input type="checkbox"/> NO	
19. INTERDISCIPLINE REVIEW (10%)		20. RESPONSIBLE ENGINEER B.M.I.F.E. DATE: 1/9/92	
GROUP ORG. BG CT		21. DESIGN VERIFIER: <u>BRAVIN B. B. B.</u> DATE: <u>1-8-92</u> METHOD: <u>DESIGN REVIEW</u>	
INITIALS (REVIEWER)		22. LEAD DISCIPLINE ENGINEER J. MATHEW DATE: 1/15/92	
DATE		23. DESIGN REPRESENTATIVE ORGANIZATION: <u>N/A</u> SIGNATURE: <u>N/A</u> DATE: <u></u>	
		24. PROJECT ENGINEER: <u>CHARSEL H. ARSOV JACOBS</u> <u>C.M. R. R. R.</u> DATE: <u>1-16-92</u>	

FIGURE 7.1

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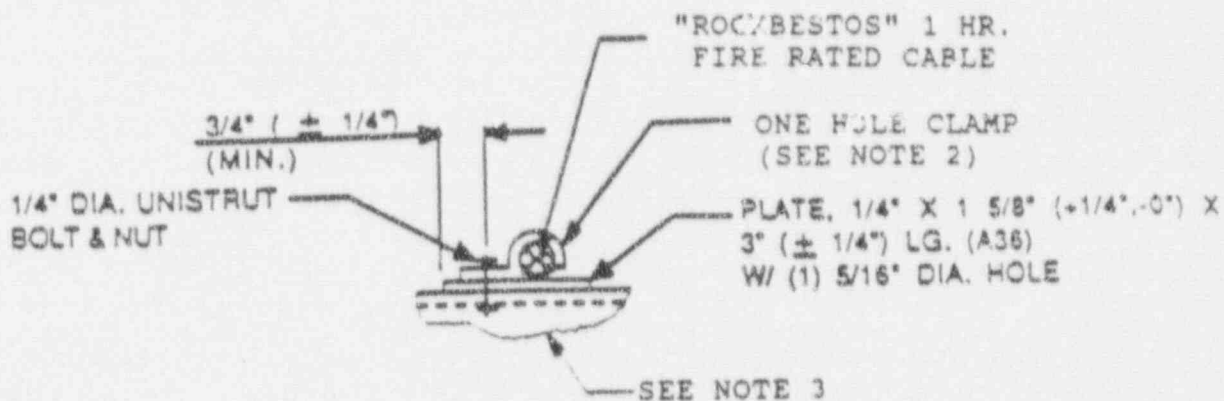
COMANCHE PEAK STEAM ELECTRIC STATION UNIT 2 DESIGN CHANGE AUTHORIZATION					DCA NO. REVISION <u>16093</u> <u>0</u> PAGE 1 OF <u>9</u>
1. LOCATION <u>UNIT 2 & COMMON</u>		2. EQUIPMENT/COMPONENT I.D. NO. <u>N/A</u>			
3. SYSTEM/SUBSYSTEM/AREA NO. <u>GENERIC</u>		4. INITIATING DOCUMENT I.D. NO. <u>N/A</u>			
5. PROBLEM DESCRIPTION/PROPOSED CHANGE (OPTIONAL): <u>CONSTRUCTION HAS REQUESTED SUPPORT DETAILS FOR THE INSTALLATION OF ROCKBESTOS CABLE (1HR FIRE RATED)</u>					
6. DISCIPLINE <input type="checkbox"/> BG <input type="checkbox"/> EM <input type="checkbox"/> PR <input checked="" type="checkbox"/> CO <input type="checkbox"/> CT <input type="checkbox"/> MECH. <input type="checkbox"/> ELEC. <input type="checkbox"/> C/S <input type="checkbox"/> M/C <input type="checkbox"/> HVAC <input type="checkbox"/> OTHER (SPECIFY)					
7. ORIGINATED BY: <u>W.L. SANDERS</u> DATE: <u>8-15-91</u> ORGANIZATION: <u>ABB</u> EXT: <u>6388</u> APPROVAL: <u>[Signature]</u> DATE: <u>9/5/91</u>					
8. DETAILS OF CHANGE <u>NEW DETAILS SHOWN ON FOLLOWING PAGES ADDED FOR SUPPORT OF ROCKBESTOS CABLE INSTALLATIONS.</u> <u>"MEL" IS NOT AFFECTED BY THIS DESIGN CHANGE.</u>					
9. ENGINEERING BASIS: <u>DETAILS HAVE BEEN QUALIFIED BY CALCULATION</u> <u>CND2 021B-CO-009A REV. 0</u>					
10. AFFECTED DOCUMENT NUMBER(S)		11. INCORPORATION REQUIRED?		12. REFERENCE DOCUMENTS	
		YES NO		<u>N/A</u>	
<u>DWG. 32-0910 SH. PESP-1-2</u>		<u>X</u>			
<u>REV. CP-2</u>					
<u>DWG 32-0910 SH PESP-3-7</u>		<u>X</u>			
<u>REV CP-3</u>					
13. REMARKS				14. U-1 IMPACT <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
				15. THE HIGHEST CLASS OF AFFECTED DOCUMENT(S) IS <input checked="" type="checkbox"/> CLASS I OR II <input type="checkbox"/> NON-SAFETY	
				16. LOG NO. <u>N/A</u>	
				17. DOES DESIGN CHANGE CHANGE GENERIC REQUIREMENT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, IS BACKUP REQUIRED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
18. ADDITIONAL DISTRIBUTION <u>GLENN PUGH</u> <u>DHIREN PANDYA</u> } IM 1 <u>WALT. SANDERS</u> }				19. RESPONSIBLE ENGINEER <u>W.L. SANDERS</u> DATE <u>9/4/91</u>	
18. INTERDISCIPLINE REVIEW (IDR)				20. DESIGN VERIFIER <u>A. BHUVANI</u> <u>Bhuvan</u> DATE <u>9/4/91</u> METHOD: <u>DESIGN REVIEW</u>	
GROUP ORG.	CONST.	G.C.	C/S	21. LEAD DISCIPLINE ENGINEER <u>D. C. PANDYA</u> <u>[Signature]</u> DATE <u>9/5/91</u>	
INITIALS (REVIEWER)	<u>W</u>	<u>L</u>	<u>T</u>	22. DESIGN REPRESENTATIVE ORGANIZATION: <u>N/A</u> SIGNATURE: _____ DATE: _____	
DATE	<u>8-5-91</u>	<u>9-15-91</u>	<u>9-4-91</u>	23. PROJECT ENGINEER CHARGED H. ABON JAVUSE <u>C.M. N...</u> DATE <u>9/5/91</u>	

DPC01-1

 2PP-501-1, Rev. 1
 RECORD TYPE CODE: 5C.220

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

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RC-1

PLAN OR ELEVATION

NOTES:

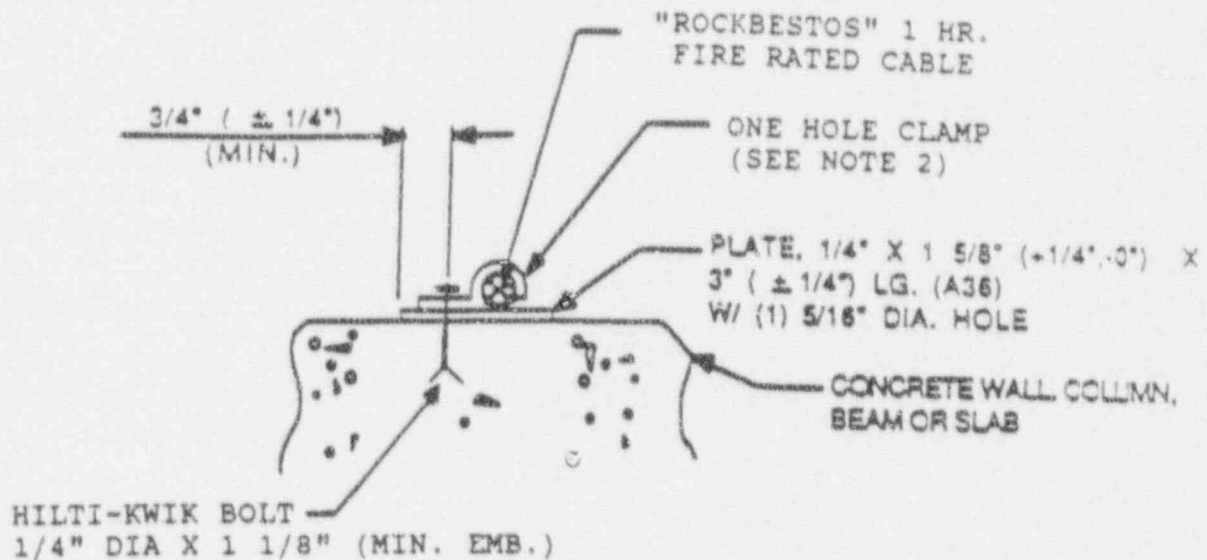
1. MAXIMUM SUPPORT SPACING TO BE 6'-0" U.O.N.
2. FOR ACCEPTABLE CLAMPS FOR USE WITH THIS DETAIL, SEE TABLE BELOW:

MANUFACTURER	FOR SIZE #8 AWG	FOR SIZE 1/0	MATERIAL
THOMAS & BETTS	N/A	# 1212	ASTM A-619
UNISTRUT	P-2014	N/A	ASTM A-575
CAPACITY (LBS)	2	4	N/A

3. TO BE USED WITH SUPPORT TYPE US-1 ONLY.
FOR SUPPORT DETAILS NOT SHOWN, SEE DRAWING S2-0910 SH. PESD 3-7, REV. CP-3.
4. FOR WET AREA INSTALLATION, A SPACER IS REQUIRED BETWEEN THE CABLE AND THE PLATE. SPACER IS TO BE O-Z GEDNEY 141G FOR #8 AWG CABLE AND O-Z GEDNEY 142G FOR 1/0 CABLE.
5. FOR DETAILS NOT SHOWN, REFER TO DRAWING NO. S2-0910 SH. PESD-1-6, REV. CP-2.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
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DESIGN REVISION: 10
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RC-2
PLAN OR ELEVATION

NOTES:

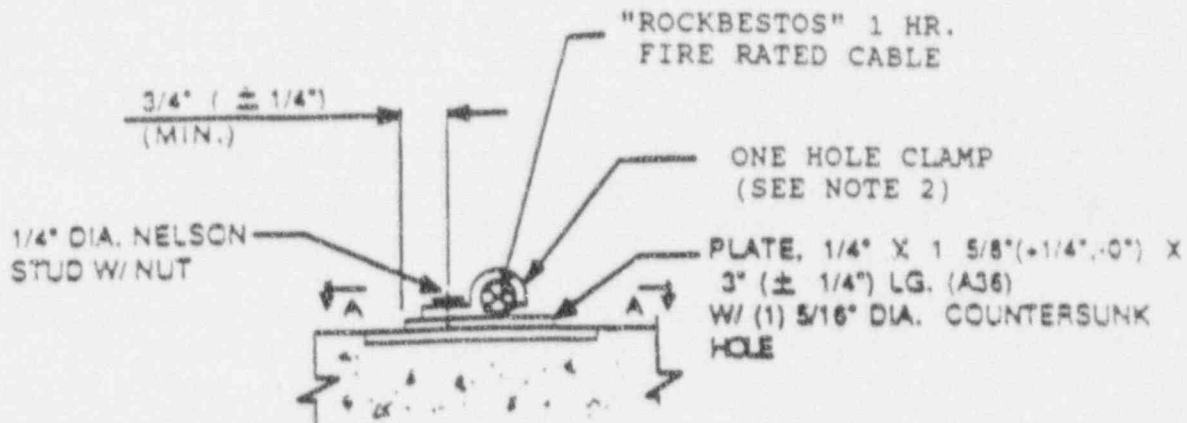
1. MAXIMUM SUPPORT SPACING TO BE 6'-0" U.C.N.
2. FOR ACCEPTABLE CLAMPS FOR USE WITH THIS DETAIL, SEE TABLE BELOW:

MANUFACTURER	FOR SIZE #8 AWG	FOR SIZE 1/0	MATERIAL
THOMAS & BETTS	N/A	# 1212	ASTM A-619
UNISTRUT	P-2014	N/A	ASTM A-375
CAPACITY (LBS)	2	4	N/A

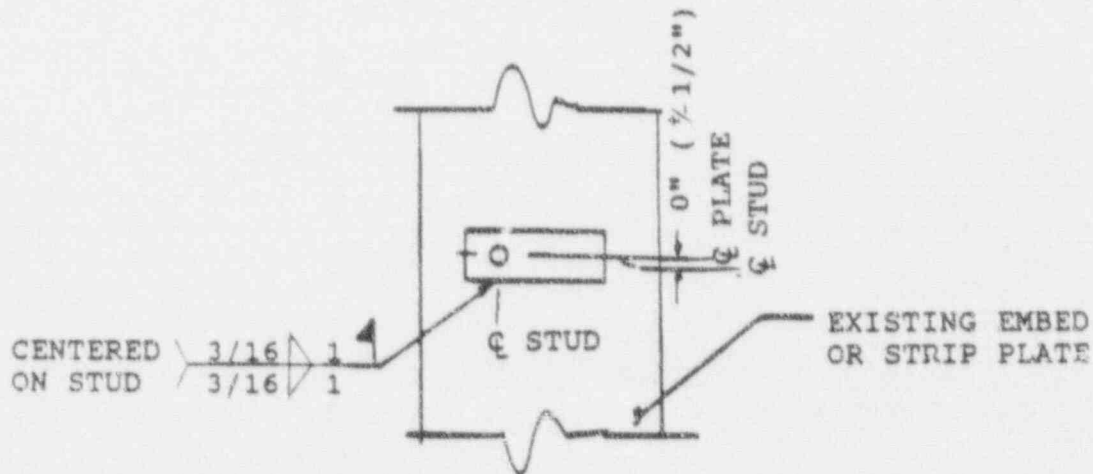
3. FOR WET AREA INSTALLATION, A SPACER IS REQUIRED BETWEEN THE CABLE AND THE PLATE. SPACER IS TO BE O-2 GEDNEY 141G FOR #8 AWG CABLE AND O-2 GEDNEY 142G FOR 1/0 CABLE.
4. FOR DETAILS NOT SHOWN, REFER TO DRAWING NO. S2-0910 SH. PEGD-1-6, REV. CP-2.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

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RC-3
PLAN OR ELEVATION



SECTION A-A

FOR NOTES, REFER TO FOLLOWING PAGE.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

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NOTES FOR DETAIL RC-3:

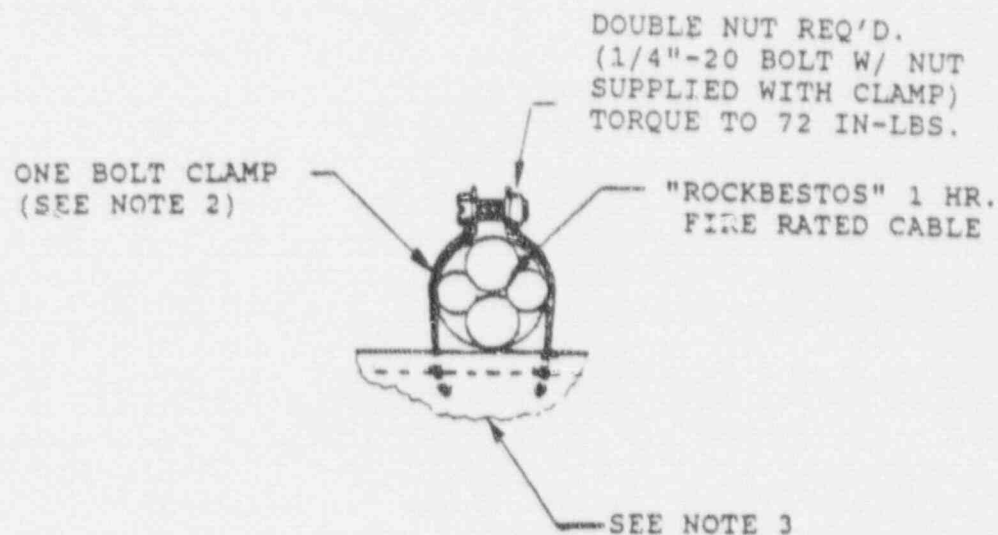
1. MAXIMUM SUPPORT SPACING TO BE 6'-0" U.O.N.
2. FOR ACCEPTABLE CLAMPS FOR USE WITH THIS DETAIL,
SEE TABLE BELOW:

MANUFACTURER	FOR SIZE #8 AWG	FOR SIZE 1/0	MATERIAL
THOMAS & BETTS	N/A	# 1212	ASTM A-619
UNISTRUT	P-2014	N/A	ASTM A-575
CAPACITY (LBS)	2	4	N/A

3. CLEARANCE AND EDGE DISTANCE REQUIREMENTS PER DRAWING S2-0100, LATEST REVISION, MUST BE SATISFIED.
4. FOR WET AREA INSTALLATION, A SPACER IS REQUIRED BETWEEN THE CABLE AND THE PLATE. SPACER IS TO BE O-2 GEDNEY 141G FOR #8 AWG CABLE AND O-2 GEDNEY 142G FOR 1/0 CABLE.
5. FOR DETAILS NOT SHOWN, REFER TO DRAWING NO. S2-0910 SH. PESD-1-6, REV. CP-2.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

DES. NO. REV. A OR
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RC-4
PLAN OR ELEVATION

NOTES:

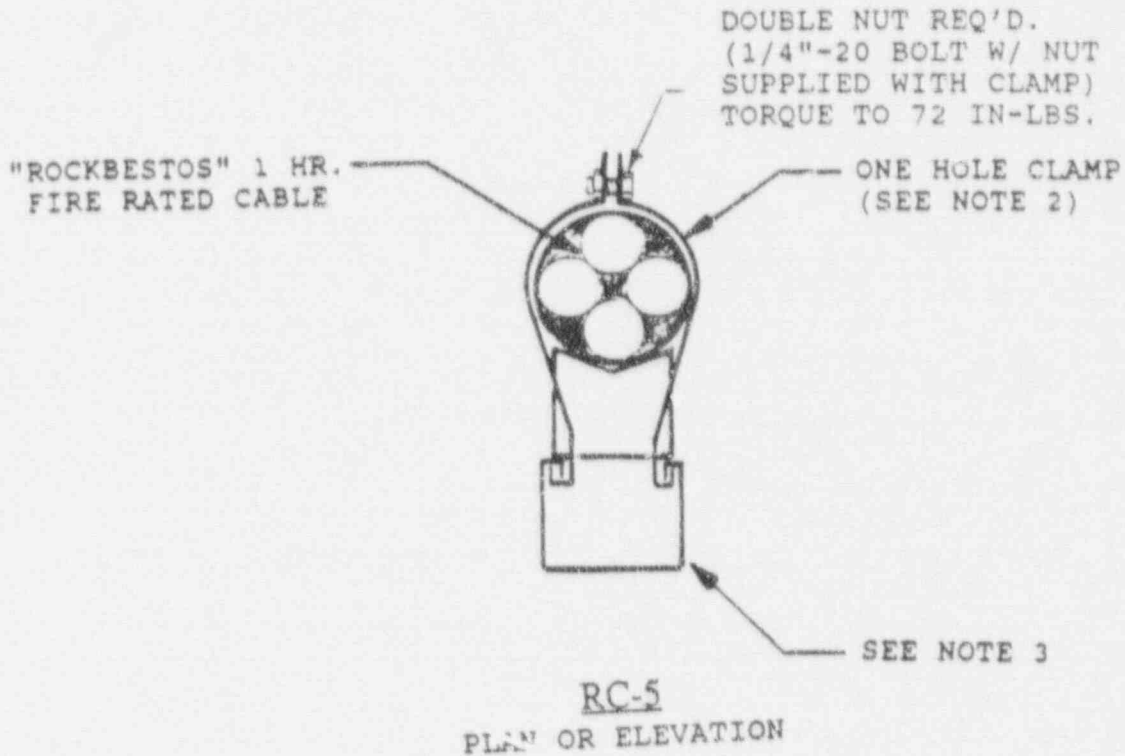
1. MAXIMUM SUPPORT SPACING TO BE 6'-0" U.O.N.
2. FOR ACCEPTABLE CLAMPS FOR USE WITH THIS DETAIL, SEE TABLE BELOW:

MANUFACTURER	FOR SIZE #8 AWG	FOR SIZE 1/0	MATERIAL
UNISTRUT	P-1109B	P-1112B	ASTM A-575
CAPACITY (LBS)	2	4	N/A

3. TO BE USED WITH SUPPORT TYPE US-1 ONLY.
FOR SUPPORT DETAILS NOT SHOWN, SEE DRAWING S2-0910 SH. PESD 3-7, REV. CP-3.
4. FOR DETAILS NOT SHOWN, REFER TO DRAWING NO. S2-0910 SH. PESD-1-6, REV. CP-2.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

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NOTES:

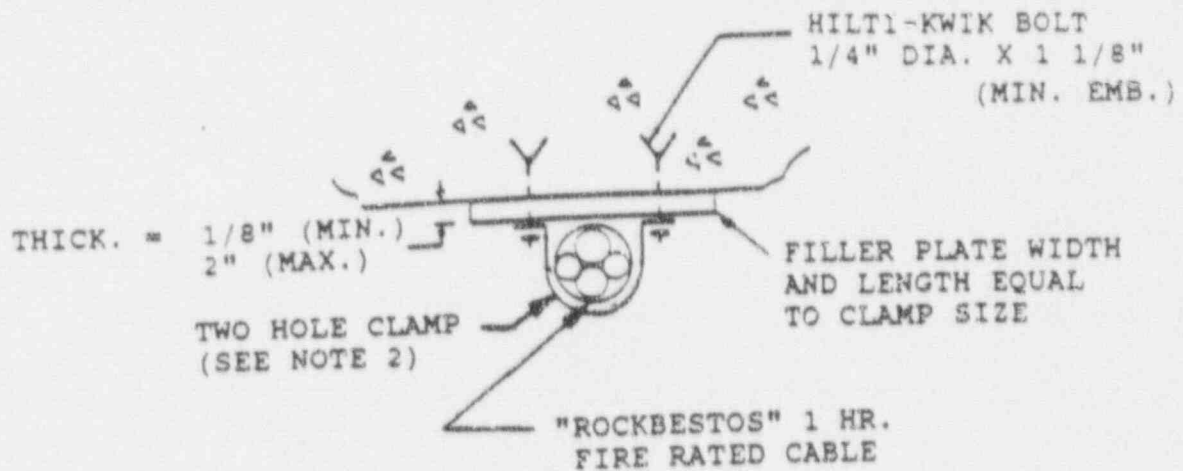
1. MAXIMUM SUPPORT SPACING TO BE 6'-0" U.O.N.
2. FOR ACCEPTABLE CLAMPS FOR USE WITH THIS DETAIL, SEE TABLE BELOW:

MANUFACTURER	FOR SIZE #8 AWG	FOR SIZE 1/0	MATERIAL
UNISTRUT	N/A	P-1565	ASTM A-575
CAPACITY (LBS)	N/A	4	N/A

3. TO BE USED WITH SUPPORT TYPE US-1 ONLY. FOR SUPPORT DETAILS NOT SHOWN, SEE DRAWING S2-0910 SH. PESD 3-7, REV. CP-3.
4. FOR DETAILS NOT SHOWN, REFER TO DRAWING NO. S2-0910 SH. PESD-1-6, REV. CP-2.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
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DES. NO. REV. SIZE
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RC-6
PLAN OR ELEVATION

NOTES:

1. MAXIMUM SUPPORT SPACING TO BE 6'-0" U.O.N.
2. FOR ACCEPTABLE CLAMPS FOR USE WITH THIS DETAIL, SEE TABLE BELOW:

MANUFACTURER	FOR SIZE #8 AWG	FOR SIZE 1/0	MATERIAL
JNISTRUT	N/A	P-2558-07	ASTM A-575
CAPACITY (LBS)	N/A	4	N/A

3. FOR WET AREA INSTALLATION, A SPACER IS REQUIRED BETWEEN THE CABLE AND THE PLATE. SPACER IS TO BE O-Z GEDNEY 141G FOR #8 AWG CABLE AND O-Z GEDNEY 142G FOR 1/0 CABLE.
4. FOR DETAILS NOT SHOWN, REFER TO DRAWING NO. S2-0910 SH. PESD-1-6, REV. CP-2.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

1	DCA NO./REVISION:
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REVISE DRAWING NO. S2-0910 SH. PESD-3-7, REV CP-3, NOTE 4 TO ADD THE FOLLOWING:

ONLY ONE (1) ROCKBESTOS CABLE SUPPORT DETAILS RC-1, RC-4 OR RC-5 MAY BE ATTACHED BETWEEN TWO CONSECUTIVE HEADER CLAMPS WITH THE SUPPORT BEING RESTRICTED TO A SINGLE BAY INSTALLATION.

REVISE DRAWING NO. S2-0910 SH. PESD-1-6, REV CP-2 TO ADD THE FOLLOWING:

(E) ROCKBESTOS CABLE SUPPORT DETAILS

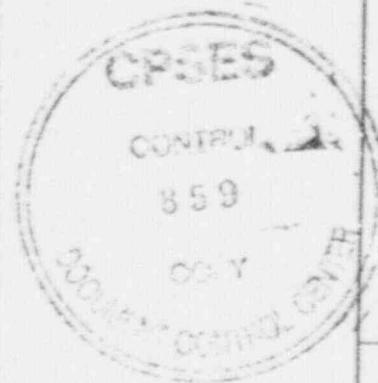
- i. NO PRIOR ENGINEERING APPROVAL IS REQUIRED FOR ATTACHING SUPPORT TYPES RC-1 THROUGH RC-6 TO CONCRETE STRUCTURES, EMBED SHEET PLATES, OR EMBED STRIP PLATES IN UNIT 2 PROVIDED CLEARANCE AND EDGE DISTANCE REQUIREMENTS AND LIMITATIONS OF DRAWING S2-0100, LATEST REVISION, AND PROCEDURE CPES-S-2001, LATEST REVISION, ARE SATISFIED.
- ii. ANY ATTACHMENTS IN THE COMMON AREAS REQUIRE PRIOR ENGINEERING APPROVAL.

[illegible]

I. TABLE A WEIGHTS							
CND SIZE (IN.)	CND WT WG (* / FT)	FLEX CND WT WF (* / FT)	BC WT WD (*)	LBD WT WL (*)	AIR DROP CABLE WT WG (*)	UNION WT WU (*)	SHIM/FILLER PLUS CLAMP WPLATE
3/4"	1.5	0.73	7.8	11.0	1.7	0.6	5.5
1"	2.0	1.19	7.4	11.0	1.7	0.8	6
1 1/2"	4.0	2.40	6.2	9.0	5.8	1.8	6.5
2"	5.0	2.73	5.9	9.0	6.0	2.8	9
3"	13.0	8.78	9.0	22.0	27.0	8.0	10.5
4"	19.0	12.64	15.7	51.0	38.6	10.8	12
5"	23.0	15.36	-	62.0	38.6	15.1	13.5

TABLE A.1			
APPLETON PTC PULLBOX			
CONDUIT SIZE (INCHES)	CATALOG NUMBER	DIMENSIONS (INCHES) *	EMPTY WEIGHT (LBS)
3/4	1200	12x2 1/8x2 1/8	3.5
1	1200	12x2 1/8x2 1/8	3.5
1 1/2	1212	18x2 1/2x2 5/8	5.25
2	1223	24x3 3/8x3 3/4	12
3	1245	36x4 7/8x4 5/8	27
4	1814	48x6 1/2x6 3/8	51
5	1815	48x7 1/8x7 3/8	58

* THESE DIMENSIONS HAVE A TOLERANCE OF +1/4"



NOTICE
DESIGN CHANGE STATUS OF 1-85
DRAWING SHALL BE CHECKED AT A
COMPUTER TERMINAL PRIOR TO USE.

REV	DATE	BY	CHKD	REMARKS
CP-5	SLF 01-20 1991	AK	AK	REVISED AS NOTED
GROUP / ORGANIZATION				
REVISIONS INITIALS AND DATE				
NOTES:				
1. WG AND WF INCLUDES THE WEIGHT OF THE CABLE.				
2. WD, WL, AND WU ARE THE WEIGHTS OF THE FITTINGS (BC, LBD, AND UNION) MINUS WG TIMES THE LENGTH OF THE FITTING.				
3. WU (AIR CABLE DROP WT) IS BASED ON A MAXIMUM OF 4'-6" LONG DROP.				
4. WPLATE IS THE WEIGHT OF FILLER/SHIM PLATES PLUS WEIGHT OF P2558 CLAMP.				
5. WEIGHT OF UNION, BC, AND LBD SHALL BE ADDED TO THE CONDUIT LOADS AT EACH ADJACENT SUPPORT.				
6. CONDUITS COVERED WITH THERMOLAG SHALL BE EVALUATED ON A CASE BY CASE BASIS.				
7. DELETED				
REDRAWN FROM: DWG. S2-0910 SH. PESD-2-2 REV. CP-1 ORIGINAL ORGANIZATION: EBASEC				
CLASS I NUCLEAR SAFETY RELATED SAFETY CLASS 1 - SPECIAL CATEGORY 1 SAFETY CLASS 2 - CLASS 2 SAFETY CLASS 3 - ISOLATED SYSTEMS				
TU ELECTRIC CPSES GLEN ROSE, TEXAS				
PRE-ENGINEERED STANDARD DESIGN (PESD) FOR CATEGORY I CONDUIT SYSTEMS				
DWG. NO.	S2-0910 SH. PESD-2-2	CHNG.	REV.	CP-5

FINAL PRINT

B09100221.DGN

II. TABLE B.1 ALLOWABLE CONDUIT SPAN

TABLE B.1.1 ALLOWABLE CONDUIT SPAN FOR CONDUITS W/P2558 CLAMP W/NELSON STUDS							
CONDUIT SIZE (IN.)	STRAIGHT RUNS **	OTHER SPANS	OVERHANG	P2558 CLAMP	FLEX CONDUIT		SPAN BETWEEN JUNCTION BOX AND FIRST SUPPORT
				NELSON STUD DIA.	MAX.	MIN.	
3/4"	5'-9"	4'-2"	2'-0"	3/8"	4'-0"	*	2'-6"
1"	7'-0"	5'-2"	2'-4"	3/8"	4'-0"	*	3'-1"
1 1/2"	7'-0"	5'-6"	2'-6"	3/8"	4'-0"	*	3'-6"
2"	9'-0"	6'-0"	3'-0"	1/2"	4'-0"	*	4'-2"
3"	9'-0"	6'-0"	3'-0"	1/2"	4'-0"	1'-3"	5'-0"
4"	10'-0"	6'-0"	2'-0"	1/2"	5'-0"	1'-3"	5'-10"
5"	12'-0"	6'-0"	2'-0"	1/2"	5'-0"	1'-3"	6'-6"

TABLE B.1.2 ALLOWABLE CONDUIT SPAN FOR CONDUITS W/P2558 CLAMP W/ HKB ₄ OR UNISTRUT BOLTS								
CONDUIT SIZE (IN.)	STRAIGHT RUNS **	OTHER SPANS	OVERHANG	P2558 CLAMP		FLEX CONDUIT		SPAN BETWEEN JUNCTION BOX AND FIRST SUPPORT
				HILTI BOLT DIA.	UNISTRUT CLAMP BOLT DIA.	MAX.	MIN.	
¾"	5'-9"	4'-2"	2'-0"	¾"	¾"	4'-0"	*	2'-6"
1"	7'-0"	5'-2"	2'-4"	¾"	¾"	4'-0"	*	3'-1"
1½"	5'-2"	2'-7"	2'-0"	¾"	-	4'-0"	*	3'-6"
2"	9'-0"	6'-0"	3'-0"	½"	-	4'-0"	*	4'-2"
3"	9'-0"	6'-0"	3'-0"	½"	-	4'-0"	1'-3"	5'-0"
4"	8'-8"	4'-4"	2'-0"	½"	-	5'-0"	1'-3"	5'-10"
5"	7'-2"	3'-7"	1'-9"	½"	-	5'-0"	1'-3"	5'-6"

* SEE NOTE 4

** ALLOWABLE CONDUIT SPANS FOR STRAIGHT RUN IS ONLY APPLICABLE TO A SPAN WITHOUT LBD, BC, UNION OR P.T.C. BUILDING FOR SPANS WITH LBD, BC, OR UNIONS, USE ALLOWABLE CONDUIT SPAN FOR OTHER SPANS.

NOTICE
DESIGN CHANGE STATUS OF THIS
DRAWING SHALL BE CHECKED AT A
COMPUTER JOB PRIOR TO USE.

REV.	DATE	BY	CHK.	APPV.	REMARKS
CP-3	03-18-1991	TS	TS	TS	REVISED AS NOTED
GROUP ORGANIZATION					
REVISIONS, INITIALS AND DATE					
NOTES:					
1. THIS TABLE IS APPLICABLE TO THE FOLLOWING BUILDINGS:					
ELECTRICAL CONTROL BUILDING REACTOR BUILDING (INTERNAL STRUCTURES) CONTAINMENT BUILDING EL. 805'-9" AND BELOW AUXILIARY BUILDING EL. 831'-4" AND BELOW FUEL BUILDING EL. 841'-0" AND BELOW SAFEGUARDS BUILDING EL. 871'-6" AND BELOW INCLUDING DIESEL GENERATOR BUILDING SERVICE WATER INTAKE STRUCTURE EL. 817'-0" AND BELOW					
SEE TABLE B.2 ON SH. PESD-2-4 FOR ALL OTHER LOCATIONS.					
2. SAME SIZE A325 (OR A449) BOLTS MAY BE SUBSTITUTED FOR NELSON STUDS.					
3. THESE SPANS SATISFY THE CLAMP CAPACITIES. THEREFORE, CONDUIT CLAMPS NEED NOT BE DESIGN VALIDATED.					
4. FOR 2" AND UNDER CONDUITS, THE MINIMUM LENGTH SHALL BE THE LENGTH WHICH WILL ALLOW 1" MINIMUM MOVEMENT (SLACK) IN THE FLEX CONDUIT.					
REDRAWN FROM: DWG. S2-0910 SH. PESD-2-3 REV. CP-1 ORIGINAL ORGANIZATION: EBS&CO					
CLASS I Nuclear Safety-Reliability Branch - Design - Engineering Branch - Design - Construction Branch - Design - Maintenance					
TO ELECTRIC CPSES GLEN ROSE, TEXAS					
PRE-ENGINEERED STANDARD DESIGN (PESD) FOR CATEGORY I CONDUIT SYSTEMS					
DWG. NO. S2-0910 SH. PESD-2-3					

FINAL PRINT

18-MAR-1991 15:01

B09100233.DGN

III. TABLE B.2 ALLOWABLE CONDUIT SPAN

TABLE B.2.1 ALLOWABLE CONDUIT SPAN
FOR CONDUITS W/ P2558 CLAMP W/ NELSON STUDS

CND SIZE (IN.)	STRAIGHT RUNS **	OTHER SPANS	OVERHANG	P2558 CLAMP	FLEX CONDUIT		SPAN BETWEEN JUNCTION BOX AND FIRST SUPPORT
				NELSON STUD DIA.	MAX.	MIN.	
3/4"	5'-9"	3'-6"	1'-9"	3/8"	4'-0"	Δ	2'-6"
1"	7'-0"	5'-2" *	2'-3"	3/8"	4'-0"	Δ	3'-1"
1 1/2"	7'-0"	5'-6" *	2'-6"	3/8"	4'-0"	Δ	3'-6"
2"	9'-0"	6'-0"	3'-0"	1/2"	4'-0"	Δ	4'-2"
3"	9'-0"	6'-0"	2'-6"	1/2"	4'-0"	1'-3"	5'-0"
4"	10'-0"	5'-5"	2'-0"	1/2"	5'-0"	1'-3"	5'-10"
5"	10'-10"	5'-5"	2'-0"	1/2"	5'-0"	1'-3"	6'-6"

Δ SEE NOTE 4

TABLE B.2.2 ALLOWABLE CONDUIT SPAN
FOR CONDUITS W/ P2558 CLAMP W/ HKBS OR UNISTRUT BOLTS

CND SIZE (IN.)	STRAIGHT RUNS **	OTHER SPANS	OVERHANG	P2558 CLAMP		FLEX CONDUIT		SPAN BETWEEN JUNCTION BOX AND FIRST SUPPORT
				HITI BOLT DIA.	UNISTRUT CLAMP BOLT DIA.	MAX.	MIN.	
3/4"	5'-5"	3'-6"	1'-9"	3/8"	3/8"	4'-0"	Δ	2'-6"
1"	7'-0"	5'-2" *	2'-3"	3/8"	3/8"	4'-0"	Δ	3'-1"
1 1/2"	3'-7"	1'-9"	0'-11"	3/8"	-	4'-0"	Δ	3'-6"
2"	9'-0"	4'-11"	3'-0"	1/2"	-	4'-0"	Δ	4'-2"
3"	9'-0"	4'-11"	2'-6"	1/2"	-	4'-0"	1'-3"	5'-0"
4"	6'-4"	3'-2"	1'-4"	1/2"	-	5'-0"	1'-3"	5'-10"
5"	5'-3"	2'-8"	0'-7"	1/2"	-	5'-0"	1'-3"	6'-6"

* ALLOWABLE CONDUIT SPAN FOR CONDUITS IN CONTAINMENT
BUILDING EL 1000'-6" SHALL BE REDUCED TO 4'-6".

** ALLOWABLE CONDUIT SPAN FOR STRAIGHT RUN IS ONLY APPLICABLE
TO A SPAN WITHOUT LBD, BC, UNION OR PTC PULLBOX. FOR SPANS WITH PTC PULLBOX,
LBD, BC, OR UNIONS, USE ALLOWABLE CONDUIT SPAN
FOR OTHER SPANS.

NOTICE
DESIGN CHANGE STATUS OF THIS
DRAWING SHALL BE CHECKED AT A
COMPUTER TERMINAL PRIOR TO USE

REV.	DATE	BY	CHK	APPD	REMARKS
CP-3	03-18-88	72	73	74	REVISED AS NOTED
CORRECTED REVISIONS: INITIALS AND DATE					
NOTES: 1. THIS TABLE IS APPLICABLE TO OTHER BUILDINGS AND ELEVATIONS NOT COVERED BY TABLE B.1 ON SH. PESD-2-3 WITH THE EXCEPTION OF THE FOLLOWING BUILDINGS AND ELEVATIONS: A. AUXILIARY BUILDING, EL. 884'-6" AND ABOVE B. FUEL BUILDING, EL. 899'-6" AND ABOVE 2. SAME SIZE AS25 (OR A470) BOLTS MAY BE SUBSTITUTED FOR NELSON STUDS. 3. THESE SPANS SATISFY THE CLAMP CAPACITIES, THEREFORE, CONDUIT CLAMPS NEED NOT BE DESIGN VALIDATED. 4. FOR 2" AND UNDER CONDUITS, THE MINIMUM LENGTH SHALL BE THE LENGTH WHICH WILL ALLOW 1" MINIMUM MOVEMENT (SLACK) IN THE FLEX CONDUIT.					
REDUCED FROM DMC L-0910 SH. PESD-2-4 REV. CP-1 ORIGINAL ORGANIZATION: EASCO					
CLASS I HAZARDOUS SAFETY-RELATED SYSTEMS TV ELECTRIC CPSES GLEN ROSE, TEXAS					
PRE-ENGINEERED STANDARD DESIGN (PESD) FOR CATEGORY I CONDUIT SYSTEMS					
DMC NO. 52-0910 SH. PESD-2-4 SHEET NO. CP-3					

FINAL PRINT

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TABLE 9.3 ALLOWABLE CONDUIT SPAN FOR CABLE SPREAD ROOM FRAME (CSRFF)

CND SIZE (IN.)	STRAIGHT RUNS *	SINGLE BEND IN A CONTINUOUS RUN *	DOUBLE BEND IN A CONTINUOUS RUN *	SINGLE BEND WITH LBD **	OTHER SPANS	OVERHANG	P2558 CLAMP ***	FLEX CONDUIT	
							NELSON STUG DIA.	MAX.	MIN.
3/4"	4'-3"	3'-7"	3'-10"	1'-4"	1'-6"	0'-6"	3/8"	4'-0"	Δ
1"	4'-11"	3'-7"	4'-6"	1'-11"	2'-2"	0'-8"	3/8"	4'-0"	Δ
1 1/2"	5'-8"	4'-7"	5'-2"	3'-0"	3'-2"	0'-10"	3/8"	4'-0"	Δ
2"	6'-7"	6'-7"	6'-7"	3'-5"	3'-11"	1'-6"	1/2"	4'-0"	Δ
3"	7'-7"	7'-7"	7'-7"	4'-1"	4'-6"	1'-6"	1/2"	4'-0"	1'-3"
4"	8'-8"	7'-3"	8'-8"	4'-4"	5'-5"	1'-9"	1/2"	4'-0"	1'-3"
5"	9'-3"	6'-0"	9'-3"	4'-5"	5'-4"	1'-0"	1/2"	4'-0"	1'-3"

• ALLOWABLE SPAN INCLUDES THE TOTAL LENGTH OF LRD.

Δ SEE NOTE 6

*** TO SATISFY CONDUIT CLAMP CAPACITY, CONDUIT LOAD ON EACH CLAMP (I_L, E_L) SHALL BE LESS THAN OR EQUAL TO VALUES SHOWN BELOW.

MAXIMUM CLAMP CAPACITY	
CNO SIZE (IN.)	MAXIMUM L _L , L _T
3/4"	87
1"	71
1 1/2"	64
2"	147
3"	206
4"	251
5"	298

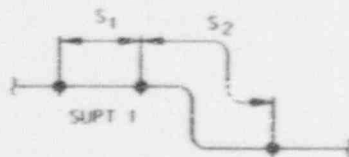
NOTICE

DESIGN CHANGE STATUS OF THIS
DRAWING SHALL BE CHECKED AT A
COMPUTER TERMINAL PRIOR TO USE

REV	DATE	BY	CHKD	APPR	REMARKS
CP-3	07 08 1991	AL	TS	3.20 9	REVISED AS NOTED J. J.
GROUP / DESCRIPTION:		CHST	CL		
MEASUREMENT DETAILS AND DATE:		6'	6'		
NOTES					
1. CONDUIT SPAN FROM JUNCTION BOX TO FIRST SUPPORT SHALL BE LIMITED TO 1'-6".					
2. THIS TABLE IS NOT APPLICABLE TO CONDUIT RUN WITH OVERHANGS ON BOTH SIDES OF A SINGLE SPAN.					
3. THESE SPANS ARE RIGID SPANS I.E.A. SPAN FREQUENCY IS GREATER THAN OR EQUAL TO 33hz.					
4. SAME SIZE #7X (OR #6X) BOLTS MAY BE SUBSTITUTED FOR NELSON STUDS.					
5. THESE SPANS WERE OBTAINED FROM DESIGN BASIS DOCUMENT JRO-CS-III.					
6. FOR 2" AND UNDER CONDUITS, THE MINIMUM LENGTH SHALL BE THE LENGTH WHICH WILL ALLOW FLEXURE MOVEMENT (SLACK) IN THE FLEX CONDUIT.					
7. CONTENTS OF SULPESO-2-S REV CP-1 HAVE BEEN MOVED TO SULPESO-2-6.					
CLASS I NATIONAL SAFETY COUNCIL SAFETY CLASS I - GENERAL CATEGORY I SAFETY CLASS II - SPECIALTY SAFETY CLASS III - SPECIALTY - HAZARDOUS					
TO ELEC. TRC CPSES GLEN ROSE, TEXAS					
PRE-ENGINEERED STANDARD DESIGN (PESDI) FOR CATEGORY I CONDUIT SYSTEMS					
FORM NO.	S2-G910 SH.PESDI-2-S	FORM NO.	REV.	CP-3	

FINAL PRINT

TABLE C - CONDUIT SUPPORT LOADS



CONDUIT LOAD AT SUPPORT 1 PER CONDUIT, $L_L = L_T = (KS_1 + KS_2)W_C + LS[(W_d) \text{ OR } (W_f) \times F] + W_{FITTING} + K_1 W_{PTC} + W_{PLATE}$

WHERE: L_L = SUPPORT LOAD IN THE LONGITUDINAL DIRECTION OF THE CONDUIT

L_T = SUPPORT LOAD PERPENDICULAR TO THE CONDUIT LONGITUDINAL AXIS (TWO DIRECTIONS)

$K = 0.5$ FOR STRAIGHT SPANS

$= 1.0$ FOR SINGLE BEND OR DOUBLE BEND SPANS

$= 1.25$ FOR OVERHANG SPANS

S_1, S_2 = TOTAL LENGTH OF SPANS ADJACENT TO SUPPORT

W_C = UNIT CONDUIT WEIGHT (TABLE A, SH. PESD-2-2)

W_d = WEIGHT OF AIRDROP (TABLE A, SH. PESD-2-2)

W_f = UNIT WEIGHT OF FLEXIBLE CONDUIT (TABLE A, SH. PESD-2-2)

F = TOTAL LENGTH OF FLEXIBLE CONDUIT (FEET)

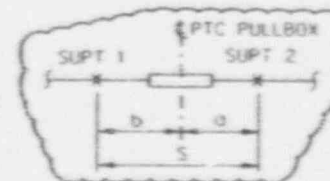
$W_{FITTING}$ = WEIGHT OF FITTING (LBD, BC, UNION) (TABLE A, SH. PESD-2-2)

W_{PTC} = EMPTY WEIGHT OF APPLETON PTC PULLBOX

$K_1 = a/s$ FOR SUPT 1, $K_1 = b/s$ FOR SUPT 2

W_{PLATE} = WEIGHT OF FILLER/SHIM PLATES PLUS P2558 CONDUIT CLAMP (TABLE A, SH. PESD-2-2)

NOTICE
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LIMITATIONS:

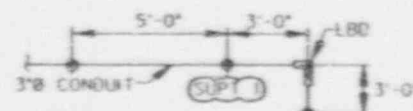
1. SUPPORTS ARE EVENLY SPACED AS MUCH AS POSSIBLE. HOWEVER, A CONTINUOUS SPAN SHALL NOT BE LESS THAN HALF OF ANY ADJACENT SPAN.
2. SPAN ADJACENT TO OVERHANG SPAN SHALL BE AT LEAST TWICE AS LONG AS THE OVERHANG SPAN BUT NOT LESS THAN 1'-6".
3. SPAN REQUIREMENTS SHOWN IN TABLES B.1, B.2 AND B.3 SHALL BE MET.
4. SPAN ADJACENT TO SPAN WITH LBD SHALL BE STRAIGHT RUN.

5. DELETED

6. DELETED

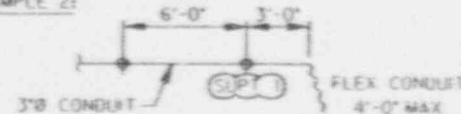
(SEE CONTINUATION ON SH. PESD-2-2)

EXAMPLE 1:



LOAD AT SUPPORT 1, $L_L = L_T = 10.5 \times 5 + 1.0 \times 6 \times 13 = 22 + 10.5 = 32.5$ LBS

EXAMPLE 2:

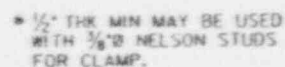


LOAD AT SUPPORT 1, $L_L = L_T = 10.5 \times 6 + 1.25 \times 3 \times 13 + 1.5(4 \times 8.78) + 0.5 \times 15 = 63$ LBS

REV	DATE	BY	CHK	APP'D	REMARKS
CP-2	03-29-1991	WJ	WJ	WJ	REVISED AS NOTED.
<p>CONDUIT SPECIFICATION: 3" SCH 40</p> <p>REVISIONS: 1. 03-29-1991</p>					
<p>NOTES:</p> <ol style="list-style-type: none"> 1. ALL LIMITATIONS SHALL BE SATISFIED. 2. WEIGHTS ARE SHOWN ON TABLE A ON SH. PESD-2-2. 3. AT AN OVERHANG, IF FLEXIBLE CONDUIT IS NOT PRESENT, WEIGHT OF AIRDROP SHALL BE INCLUDED IN CALCULATING THE SUPPORT LOAD. 					
<p>REDRAWN FROM: DWG. S2-0910 SH. PESD-2-2 REV. CP-1 ORIGINAL ORGANIZATION: EDC/CS</p>					
<p>CLASS I Hazardous (Explosive) - Related SPECIAL CLASS I - GROUP 1, DIVISION 1 SPECIAL CLASS I - GROUP 2, DIVISION 1 SPECIAL CLASS I - GROUP 3, DIVISION 1</p>					
<p>TO: ELECTRIC CPSES GLEN ROSE, TEXAS</p>					
<p>PRE-ENGINEERED STANDARD DESIGN (PESD) FOR CATEGORY I CONDUIT SYSTEMS</p>					
<p>DWG. NO. S2-0910 SH. PESD-2-6</p>					

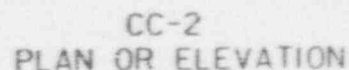
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20-MAR-1981 13453



SECTION 1-1

CAPACITIES (LBS)	
1/2" Ø HSA8	250
3/8" Ø HKB	100



(FLOOR, WALL OR CEILING MOUNTED)
FOR SUPPORT CAPACITY SEE NOTE 5



NOTICE

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COMPUTER TERMINAL PRIOR TO USE

INDEX	DATE	FILE	IN	APPRO	REMARKS
CP-5	58 F 03-08 1991 <i>[Signature]</i>	<i>106</i>	<i>76</i> 3-29 <i>[Signature]</i>	<i>106</i> 3-29 <i>[Signature]</i>	REVISED AS NOTED.
GROUP / DISCUSS (A FORM)			<i>106</i> <i>[Signature]</i>		
PRE MEMBERS' INITIALS			<i>[Signature]</i>		

ANDREAS

1. FOR GENERAL NOTES SEE DWG 52-0910 SAL PESO-1 SERIES.
2. $\frac{1}{2}$ " SUPER HITCHER BOLT SHALL BE USED FOR CASES WHERE $\frac{1}{2}$ " NELSON STUDS ARE USED FOR CLAMP.
3. THE FILLER PLATE WEIGHT SHALL BE INCLUDED IN THE SUPPORT LOAD CALCULATION.
4. FOR CLAMP ATTACHMENT DETAILS, SEE DWG 52-0910-PESO-6 SERIES.
5. SUPPORT CAPACITY HAS BEEN PREDETERMINED FOR DETAIL CC-2. THESE SUPPORTS CAN BE USED ANYWHERE AS LONG AS THE SPANS GIVEN IN TABLES B1.1 AND B1.2 ARE MAINTAINED. SEE SAL PESO-2-3 AND 2-4 FOR TABLES.
6. CONTENTS OF SAL PESO-3-2 REV CP-1 HAVE BEEN MOVED TO SAL PESO-3-3.
7. NO GROUPING IS REQUIRED.

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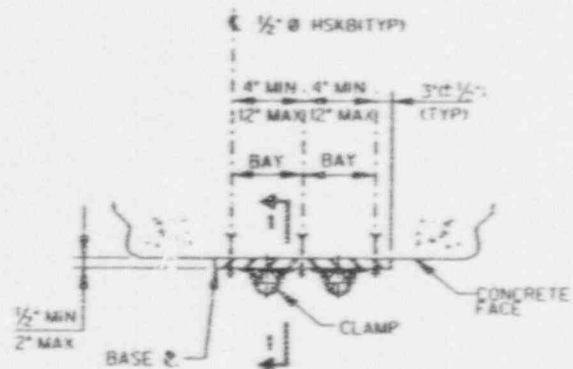


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COPIES
GLEN ROSE, TEXAS

PRE-ENGINEERED STANDARD DESIGN
(PESD) FOR CATEGORY I
CONDUIT SYSTEMS

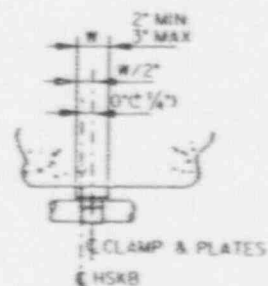
QWEL NO.	SP. NO.	REV.
S2-0910 SH. PESD-3-2	-	CP-

FINAL PRINT



CC-3
PLAN OR ELEVATION (CONTINUOUS BASE R)
CAPACITY ON CHART IS FOR EACH BAY

CND (IN)	TABLE FOR CC-3 CAPACITY (LBS)
$\leq 1\frac{1}{2}$ "	145
≥ 2 "	170



SECTION 1-1

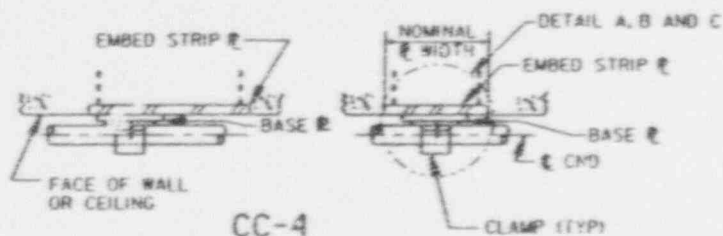
NOTICE

DESIGN CHANGE STATUS OF THIS
DRAWING SHALL BE CHECKED AT A
COMPUTER TERMINAL PRIOR TO USE.

REV	DATE	BY	CHK	APPD	REMARKS
CP-3	SLP 03-10 1991	MS JUL	TS JUL	MS JUL	REVISED AS NOTED.
GROUP / ORGANIZATION PREPARED BY INITIALS AND DATE 01/01/91					
NOTES 1. FOR GENERAL NOTES SEE DWG S2-0910-PESD-1-SERIES. 2. ANY COMBINATION OF CONDUITS MAY BE PLACED BETWEEN TWO (2) MULTI SUPER XMM BOLTS PROVIDED WITH SUPER XMM BOLT SPACING DOES NOT EXCEED THE VALUES SHOWN AND CAPACITY SHOWN IS NOT EXCEEDED. 3. THE FILLER PLATE WEIGHT SHALL BE INCLUDED IN THE SUPPORT LOAD CALCULATIONS. 4. FOR CONDUIT ATTACHMENT DETAILS SEE DWG S2-0910-PESD-6-SERIES. 5. CONTENTS OF SH-PESD-3-3 REV. CP-1 HAVE BEEN MOVED TO SH-PESD-3-2Z.					
CLASS I INSULATION SAFETY-RELATED SAFETY CLASS 1 - NO HAZARD CATEGORY I SAFETY CLASS 2 - CATEGORY II SAFETY CLASS 3 - ASSOCIATED HAZARDOUS					
TO ELECTRIC CPSES GLEN ROSE, TEXAS					
PRE-ENGINEERED STANDARD DESIGN (PESD) FOR CATEGORY I CONDUIT SYSTEMS					
DWG. NO. S2-0910 SH-PESD-3-3 SCALE: 1"=1'-0" CP-3					

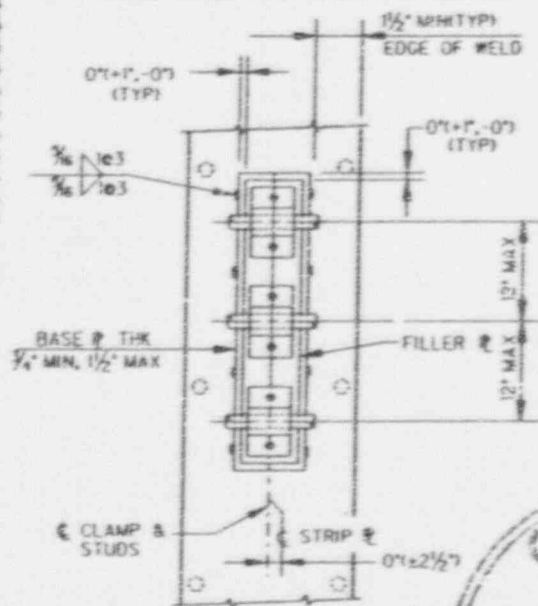
FINAL PRINT

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CC-4 PLAN OR ELEVATION

(OTHER CONDUIT NOT SHOWN FOR CLARITY)

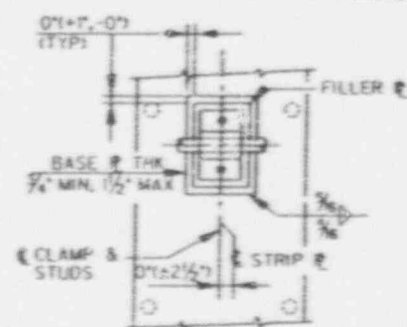


DETAIL B

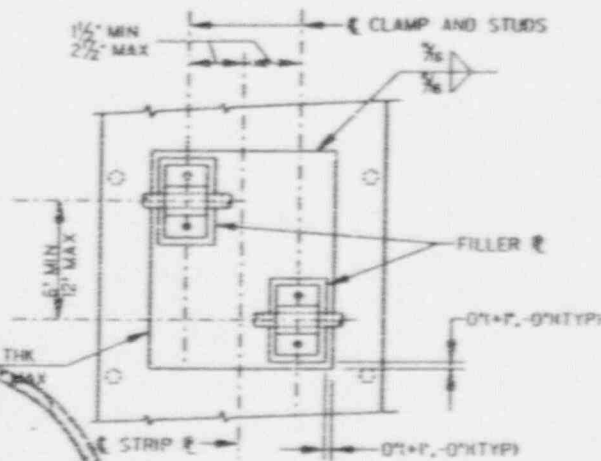
(CONTINUOUS FILLER WITH BASE)

TABLE
CAPACITY (LBS)

360

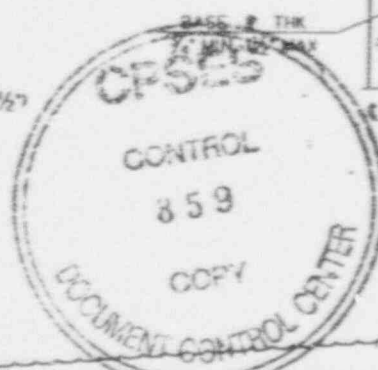


DETAIL A



DETAIL C

(COMMON BASE WITH STAGGERED FILLER)



REV	DATE	BY	CHKD	APPROV	REVISIONS
CP-2	11-26-1990	AB	PP	60	REVISED AS NOTED.

- NOTES
1. FOR GENERAL NOTES SEE DWG S2-0910-PESD-1 SERIES.
 2. THE DETAILS SHOWN FOR EMBEDDED STRIP PLATE ARE ALSO APPLICABLE FOR EMBEDDED SHEET PLATE.
 3. THE FILLER PLATE WEIGHT SHALL BE INCLUDED IN THE SUPPORT LOAD CALCULATION.
 4. ROTATION OF CONDUIT FROM THE ORIENTATION SHOWN IS ALLOWED, PROVIDED THE REQUIREMENTS OF CPES-S-2001 AND S-0706 DRAWINGS ARE MET.
 5. FOR CONDUIT ATTACHMENT DETAILS, SEE DWG S2-0910-PESD-6 SERIES.
 6. CONTENTS OF SH PESD-3-4 REV CP-1 HAVE BEEN MOVED TO SH PESD-3-21.

NOTICE

DESIGN CHANGE STATUS OF THIS DOCUMENT SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE

CLASS I

HAZARDOUS WASTE TREATMENT
SAFETY CLASS I (EXCEPT CATEGORY 1)
SAFETY CLASS I (EXCEPT CATEGORY 1)

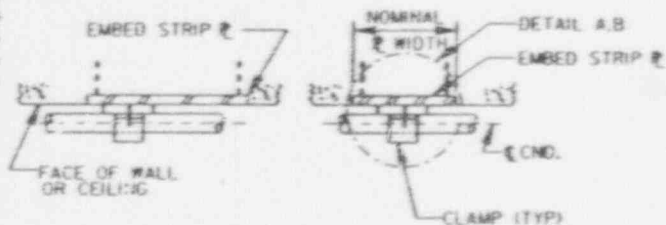
TO ELECTRIC
CPSES
GLEN ROSE, TEXAS

PRE-ENGINEERED STANDARD DESIGN
(PESD) FOR CATEGORY I CONDUIT
SYSTEMS

DWG NO. S2-0910 SH PESD-3-4
SHEET NO. 1 OF 1
REV. CP-2

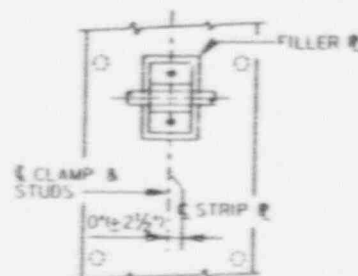
FINAL PRINT

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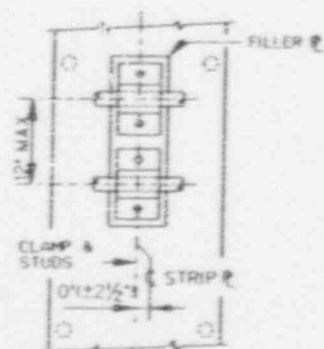


CC-5 PLAN OR ELEVATION

(OTHER CONDUIT NOT SHOWN FOR CLARITY)
FOR SUPPORT CAPACITY SEE NOTE 5



DETAIL A (SINGLE FILLER)



DETAIL B (CONTINUOUS FILLER)



REV	DATE	BY	CHK	APP	REVISION
CP-2	10-26-79	AB	PD	AB	REVISED AS NOTED
CONDUIT ATTACHMENT					
REVISIONS IN THIS SET					

NOTES

1. FOR GENERAL NOTES SEE DWG S2-0910-PESD-1 SERIES.
2. THE DETAILS SHOWN FOR EMBEDDED STRIP PLATE ARE ALSO APPLICABLE FOR EMBEDDED SHEET PLATE.
3. ROTATION OF CONDUIT FROM THE ORIENTATION SHOWN IS ALLOWED PROVIDED THE REQUIREMENTS OF CPES-5-2001 AND 2523-S-0786 DRAWINGS ARE MET.
4. FOR CONDUIT ATTACHMENT DETAILS, SEE DWG S2-0910-PESD-6 SERIES.
5. SUPPORT CAPACITY HAS BEEN PRE-DETERMINED. THIS SUPPORT CAN BE USED ANYWHERE AS LONG AS THE ALLOWABLE SPANS GIVEN IN TABLES B.1 AND B.2 ARE MAINTAINED. SEE DWG S2-0910-SH-PESD-2-3 AND SH-PESD-2-4 FOR SPAN TABLES.
6. CONTENTS OF SH-PESD-3-5 REV CP-1 HAVE BEEN MOVED TO SH-PESD-3-7.

NOTICE

DESIGN CHANGE STATUS OF THIS DOCUMENT SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE

CLASS I

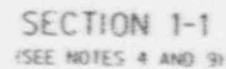
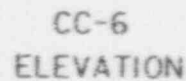
NUCLEAR SAFETY-RELATED
SAFETY CLASS 1 SYSTEM CATEGORY 1
SAFETY CLASS 2 SYSTEM CATEGORY 2
SAFETY CLASS 3 SYSTEM CATEGORY 3

TO ELECTRIC
CPSES
GLEN ROSE, TEXAS

PRE-ENGINEERED STANDARD DESIGN
(PESD) FOR CATEGORY I
CONDUIT SYSTEMS

DWG. NO.	S2-0910-SH-PESD-3-5	SCALE	REV.	CP-2
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NO DIA	"A"	"B"	"T"
4 8 5	1½	4	½
≤ 3	1	3	¾ OR 1

52-0910 SH. PESD-3-6	SALES	REV.
	-	CP-3

FINAL PRINT

2-1/4" FOR P2329 & P2326
OR 1/2" FOR P5547 UNISTRUT
BOLT (MIN 2 PLCS REQ'D)

HEADER P5000,
P5000HS, P3000
P1000 OR P5500

FACE OF CONC
WALL OR
CEILING

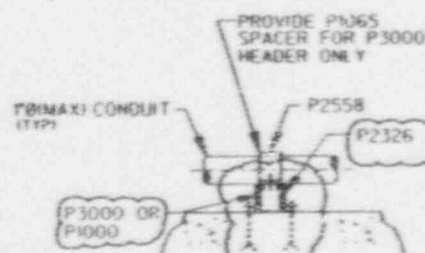
P2558 (TYP)

P2329 (FOR P5000 OR
P5000HS HEADER)
P2326 (FOR P3000 OR
P1000 HEADER)
P5547 (FOR P5500 HEADER)

2" (± 1/2")
(TYP)

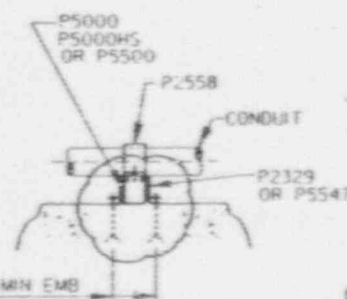
7" MIN (TYP)
1'-4" MAX (TYP)

US-1 PLAN OR ELEVATION (FLOOR, WALL OR CEILING MOUNTED)



SECTION 1-1

(FOR P3000 OR
P1000 HEADERS)



SECTION 1-1

(FOR P5000
P5000HS OR P5500 HEADERS)

NOTICE

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COMPUTER TERMINAL PRIOR TO USE

REV	DATE	BY	CHK	APP	REMARKS
CP-3	03-18-1991	TS	TS	TS	REVISED AS NOTED.

GROUP	DESCRIPTION	REVISIONS	DATE
1			

NOTES:

- FOR GENERAL NOTES, SEE DWG S2-0910-PESD-1 SERIES.
- FOR CONDUIT ATTACHMENT DETAILS SEE DWG S2-0910-PESD-6 SERIES.
- THE WEIGHT OF FILLER AND/OR SHIM PLATES SHALL BE INCLUDED IN THE SUPPORT LOAD CALCULATION.
- ONLY ONE CONDUIT CAN BE ATTACHED BETWEEN TWO CONSECUTIVE MULTI-KINK BOLTS.
- CONTENTS OF SH PESD-3-1 REV CP-1 HAVE BEEN MOVED TO SH PESD-3-20.
- THIS SUPPORT TYPE IS LIMITED TO CONDUIT SIZES 1/2" DIAMETER AND 1" DIAMETER.
- SUPPORT CAPACITY HAS BEEN PREDETERMINED. THIS SUPPORT CAN BE USED ANYWHERE AS LONG AS THE ALLOWABLE SPANS GIVEN IN TABLES B1 AND B2 ARE MAINTAINED. SEE DWG S2-0910 SH PESD-2-3 AND SH PESD-2-4 FOR SPAN TABLES.
- NO GROUTING IS REQUIRED.

REDRAWN FROM:
DWG S2-0910 SH PESD-3-5 REV CP-1
ORIGINAL ORGANIZATION: EBASCO

CLASS I
NUCLEAR SAFETY RELATION
SAFETY CLASS - SYSTEM CATEGORY 1
SAFETY CLASS - SYSTEM CATEGORY 1
SAFETY CLASS - SYSTEM CATEGORY 1
TO ELECTRIC
CPSES
GLEN ROSE, TEXAS

PRE-ENGINEERED STANDARD DESIGN
(PESD) FOR CATEGORY I CONDUIT
SYSTEMS

DWG NO.	S2-0910 SH PESD-3-7	DATE	REV	CP-3
---------	---------------------	------	-----	------

FINAL PRINT

80900173.DGN

FIGURE 7.1

2PP-8.01
REVISION 0
PAGE 1 OF 1COMANCHE PEAK STEAM ELECTRIC STATION
UNIT 2 DESIGN CHANGE AUTHORIZATION

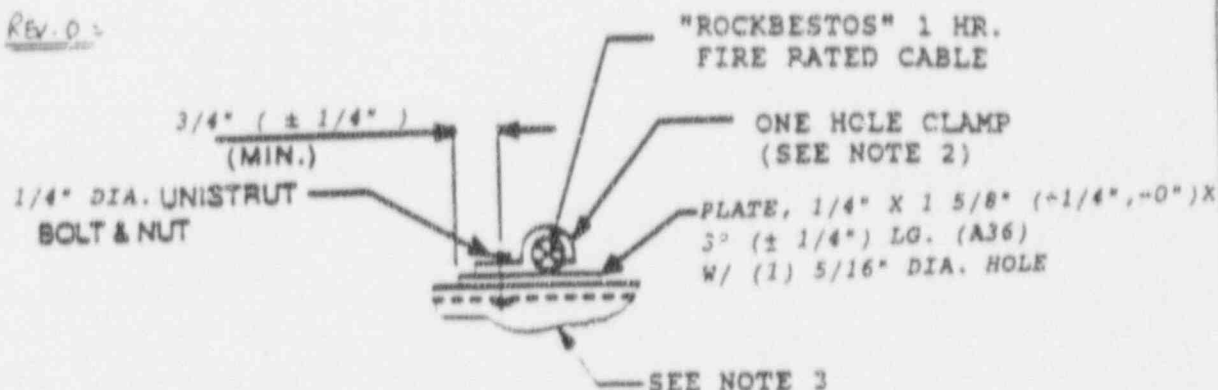
1 LOCATION UNIT 2 & COMMON		2 EQUIPMENT/COMPONENT I.D. NO.: NA	
3 SYSTEM/SUBSYSTEM/AREA NO. GENERIC		4 INITIATING DOCUMENTS I.D. NO.: NA	
5 PROBLEM DESCRIPTION/PROPOSED CHANGE (OPTIONAL): REV. 2: CONSTRUCTION REQUEST TO PROVIDE DEFINITION OF ROCKBELTOS FIRE RATED CABLE SPANS.			
6 DISCIPLINE <input type="checkbox"/> BG <input type="checkbox"/> EM <input type="checkbox"/> PR <input checked="" type="checkbox"/> SD <input type="checkbox"/> CT <input type="checkbox"/> MECH. <input type="checkbox"/> ELECT. <input type="checkbox"/> C/S <input type="checkbox"/> I&O <input type="checkbox"/> HVAC <input type="checkbox"/> OTHER (SPECIFY)			
7 B.M. NOTE ORIGINATED BY: B.M.		8 DATE: 1/6/92 ORGANIZATION: AEE IMPER. EXT. 8007	
9 DETAILS OF CHANGE REV. 2: ADD NOTE (E) ILL TO DWG. NO. S2-0910 SH. PESD-1-6 REV. CP-2 AS SHOWN ON PG. 9 OF 9.			
10 ENGINEERING BASIS REV. 2: THIS NOTE IS TO CLARIFY THE APPLICATION OF ROCKBELTOS FIRE RATED CABLE SPANS PER DESIGN CRITERIA & THIS CHANGE MAY HAVE NO IMPACT ON CALC. NO. 0218-00-0094 REV. 1, HENCE THIS CHANGE IS ACCEPTABLE.			
11 AFFECTED DOCUMENT NUMBER(S)		12 INCORPORATION REQUIRED?	
Dwg. NO. S2-0910 SH. PESD-1-6		YES NO	
Dwg. NO. S2-0910 SH. PESD-3-7		YES NO	
13 REMARKS NA		14 REFERENCE DOCUMENTS NA	
15 ADDITIONAL DISTRIBUTION J. MATHEW - IM A. PATEL - IM		16 U-I IMPACT <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
17 INTERDISCIPLINE REVIEW (IDR)		18 THE HIGHEST CLASS OF AFFECTED DOCUMENT(S) IS <input checked="" type="checkbox"/> CLASS I OR II <input type="checkbox"/> NON-SAFETY	
GROUP ORG.		19 LDCR NO. 1992 NA	
INITIALS (REVIEWER)		20 DOES DESIGN CHANGE CHANGE GENERIC REQUIREMENT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
DATE		IF YES, IS BACKFIT REQUIRED? <input type="checkbox"/> YES <input type="checkbox"/> NO	
1/6/92		21 RESPONSIBLE ENGINEER B. HINE DATE: 1/8/92	
1/15/92		22 DESIGN VERIFIER: BRAHMIN B. DATE: 1-8-92	
1/15/92		METHOD: DESIGN REVIEW	
1/15/92		23 LEAD DISCIPLINE ENGINEER J. MATHEW DATE: 1/15/92	
1/15/92		24 DESIGN REPRESENTATIVE N/A	
1/15/92		25 PROJECT ENGINEER: CHARSEL M. ASOU. JACUOS C.M. ASOU. JACUOS DATE: 1-16-92	

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

REV. NO. / 2
PAGE 2 OF 9

7a CONT'D

REV. 0 =



RC-1

PLAN OR ELEVATION

NOTES:

1. MAXIMUM SUPPORT SPACING TO BE 6'-0" U.O.N.
2. FOR ACCEPTABLE CLAMPS FOR USE WITH THIS DETAIL, SEE TABLE BELOW:

MANUFACTURER	FOR SIZE #8 AWG	FOR SIZE 1/0	MATERIAL
THOMAS & BETTS	N/A	# 1212	ASTM A-619
UNISTRUT	P-2014	N/A	ASTM A-575
CAPACITY (LBS)	2	4	N/A

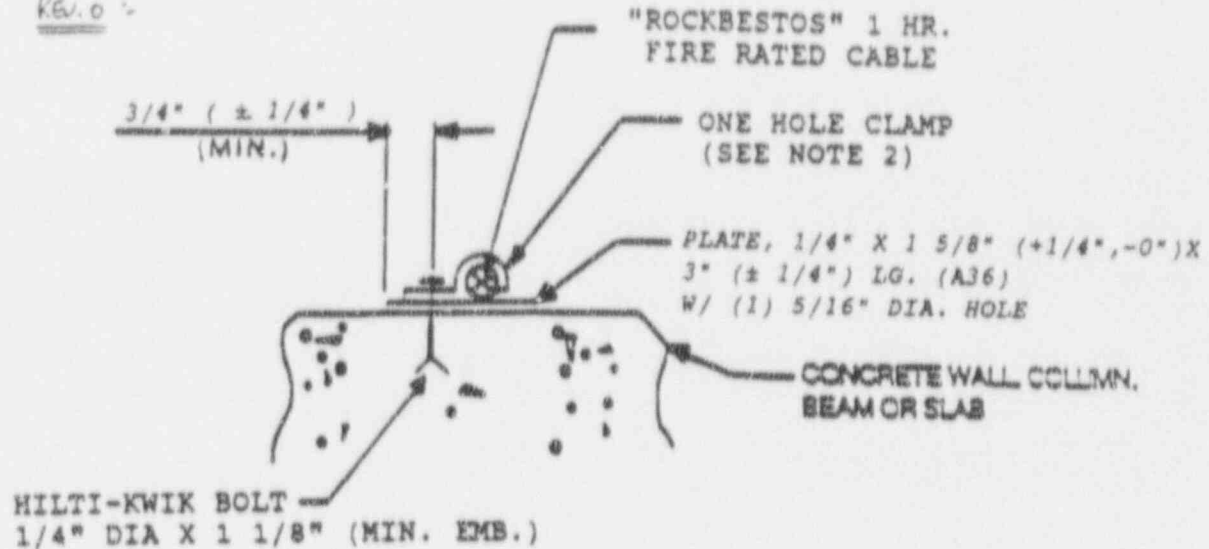
3. TO BE USED WITH SUPPORT TYPE US-1 ONLY.
FOR SUPPORT DETAILS NOT SHOWN, SEE DRAWING S2-0910 SH. PESD 3-7, REV. CP-3.
4. FOR WET AREA INSTALLATION, A SPACER IS REQUIRED BETWEEN THE CABLE AND THE PLATE. SPACER IS TO BE O-Z GEDNEY 141G FOR #8 AWG CABLE AND O-Z GEDNEY 142G FOR 1/0 CABLE.
5. FOR DETAILS NOT SHOWN, REFER TO DRAWING NO. S2-0910 SH. PESD-1-6, REV. CP-2.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

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7a CONT'D

Rev. 0 -



RC-2

PLAN OR ELEVATION

NOTES:

1. MAXIMUM SUPPORT SPACING TO BE 6'-0" U.O.N.
2. FOR ACCEPTABLE CLAMPS FOR USE WITH THIS DETAIL, SEE TABLE BELOW:

MANUFACTURER	FOR SIZE #8 AWG	FOR SIZE 1/0	MATERIAL
THOMAS & BETTS	N/A	# 1212	ASTM A-619
UNISTRUT	P-2014	N/A	ASTM A-575
CAPACITY (LBS)	2	4	N/A

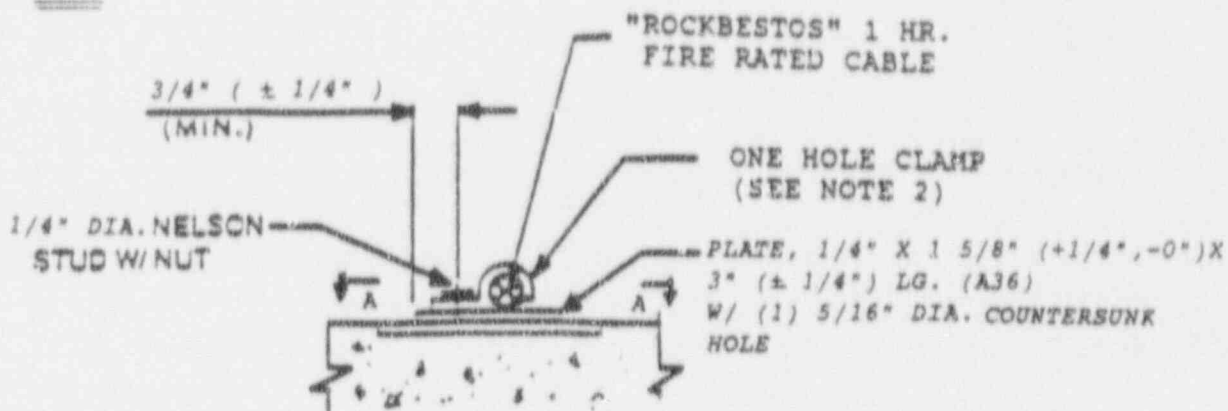
3. FOR WET AREA INSTALLATION, A SPACER IS REQUIRED BETWEEN THE CABLE AND THE PLATE. SPACER IS TO BE O-2 GEDNEY 141G FOR #8 AWG CABLE AND O-2 GEDNEY 142G FOR 1/0 CABLE.
4. FOR DETAILS NOT SHOWN, REFER TO DRAWING NO. S2-0910 SH. PESD-1-6, REV. CP-2.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

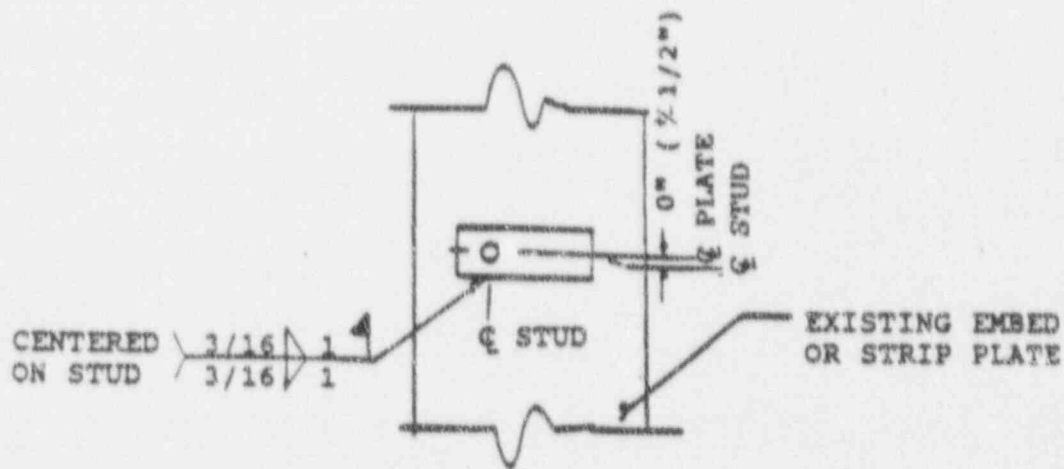
DES. NO./REVISION:
90043/2
PAGE 4 OF 9

7a CONT'D

REV. 0 -



RC-3
PLAN OR ELEVATION



SECTION A-A

FOR NOTES, REFER TO FOLLOWING PAGE.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

DLA NO./REVISION

96023 / 2

18

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7a CONT'D

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NOTES FOR DETAIL RC-3:

1. MAXIMUM SUPPORT SPACING TO BE 6'-0" U.O.N.
2. FOR ACCEPTABLE CLAMPS FOR USE WITH THIS DETAIL,
SEE TABLE BELOW:

MANUFACTURER	FOR SIZE #8 AWG	FOR SIZE 1/0	MATERIAL
THOMAS & BETTS	N/A	# 1212	ASTM A-619
UNISTRUT	P-2014	N/A	ASTM A-575
CAPACITY (LBS)	2	4	N/A

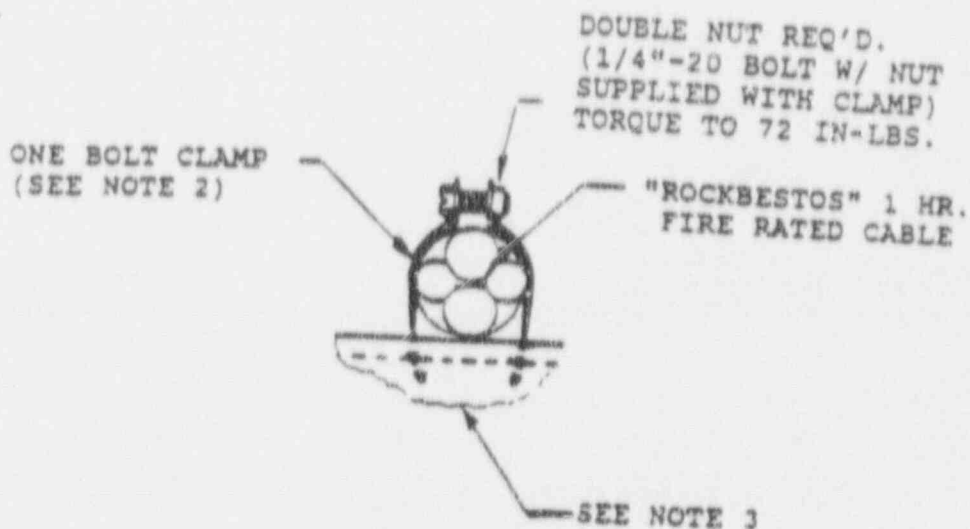
3. CLEARANCE AND EDGE DISTANCE REQUIREMENTS PER DRAWING S2-0100, LATEST REVISION, MUST BE SATISFIED.
4. FOR WET AREA INSTALLATION, A SPACER IS REQUIRED BETWEEN THE CABLE AND THE PLATE. SPACER IS TO BE O-Z GEDNEY 141G FOR #8 AWG CABLE AND O-Z GEDNEY 142G FOR 1/0 CABLE.
5. FOR DETAILS NOT SHOWN, REFER TO DRAWING NO. S2-0910 SH. PESD-1-6, REV. CP-2.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

DES. NO. REVISION
2043/2
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7a CONT'D

REV. 0.



RC-4
PLAN OR ELEVATION

NOTES:

1. MAXIMUM SUPPORT SPACING TO BE 6'-0" U.O.N.
2. FOR ACCEPTABLE CLAMPS FOR USE WITH THIS DETAIL, SEE TABLE BELOW:

R1 DCA

MANUFACTURER	FOR SIZE #8 AWG	FOR SIZE 1/0	MATERIAL
UNISTRUT	P-1109	P-1112B	ASTM A-575
CAPACITY (LBS)	2	4	N/A

3. TO BE USED WITH SUPPORT TYPE US-1 ONLY.
FOR SUPPORT DETAILS NOT SHOWN, SEE DRAWING S2-0910 SH. PESD 3-7, REV. CP-3.
4. FOR DETAILS NOT SHOWN, REFER TO DRAWING NO. S2-0910 SH. PESD-1-6, REV. CP-2.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

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96083 / 2
PAGE 7 OF 9

7a CONT'D

REV. 0

"ROCKBESTOS" 1 HR.
FIRE RATED CABLE

DOUBLE NUT REQ'D.
(1/4"-20 BOLT W/ NUT
SUPPLIED WITH CLAMP)
TORQUE TO 72 IN-LBS.

ONE HOLE CLAMP
(SEE NOTE 2)



SEE NOTE 3

RC-5
PLAN OR ELEVATION

NOTES:

1. MAXIMUM SUPPORT SPACING TO BE 6'-0" U.O.N.
2. FOR ACCEPTABLE CLAMPS FOR USE WITH THIS DETAIL,
SEE TABLE BELOW:

MANUFACTURER	FOR SIZE #8 AWG	FOR SIZE 1/0	MATERIAL
UNISTRUT	N/A	P-1565	ASTM A-575
CAPACITY (LBS)	N/A	4	N/A

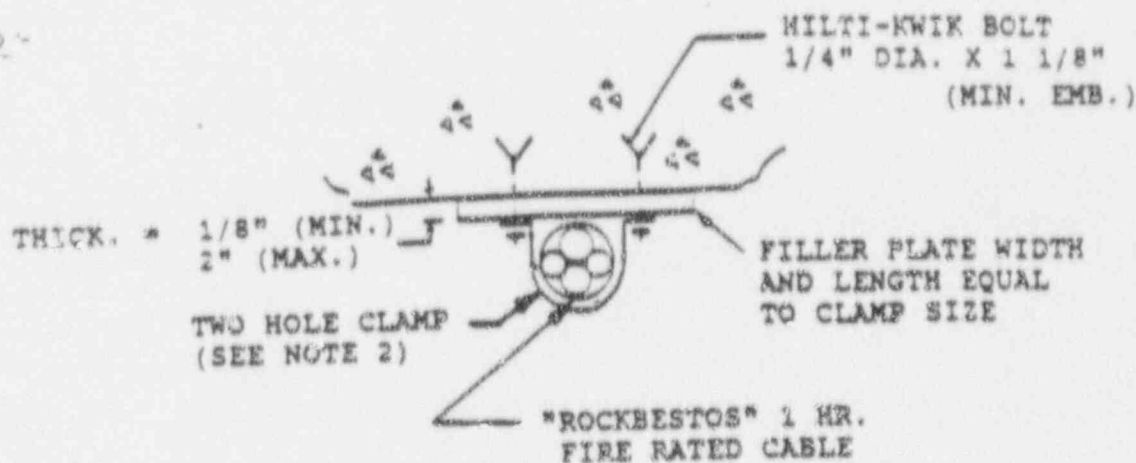
3. TO BE USED WITH SUPPORT TYPE US-1 ONLY.
FOR SUPPORT DETAILS NOT SHOWN, SEE DRAWING
S2-0910 SH. PESD 3-7, REV. CP-3.
4. FOR DETAILS NOT SHOWN, REFER TO DRAWING NO. S2-0910 SH.
PESD-1-6, REV. CP-2.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

1.2 DES. REV. REVISION
96043/2
1.3 PAGE 8 OF 9

7A CONT'D

REV. 0 -



RC-6
PLAN OR ELEVATION

NOTES:

1. MAXIMUM SUPPORT SPACING TO BE 6'-0" U.O.N.
2. FOR ACCEPTABLE CLAMPS FOR USE WITH THIS DETAIL, SEE TABLE BELOW:

MANUFACTURER	FOR SIZE #8 AWG	FOR SIZE 1/0	MATERIAL
UNISTRUT	N/A	P-2558-07	ASTM A-575
CAPACITY (LBS)	N/A	4	N/A

3. FOR WET AREA INSTALLATION, A SPACER IS REQUIRED BETWEEN THE CABLE AND THE PLATE. SPACER IS TO BE O-2 GEDNEY 141G FOR #8 AWG CABLE AND O-2 GEDNEY 142G FOR 1/0 CABLE.
4. FOR DETAILS NOT SHOWN, REFER TO DRAWING NO. S2-0910 SH. PESD-1-6, REV. CP-2.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

DESIGN REVISION	96043 / 2
PAGE	9 OF 9

7a CONT'D

Rev. 0

REVISE DRAWING NO. S2-0910 SH. PESD-3-... REV CP-3, NOTE 4 TO ADD THE FOLLOWING:

ONLY ONE (1) ROCKBESTOS CABLE SUPPORT DETAILS RC-1, RC-4 OR RC-5 MAY BE ATTACHED BETWEEN TWO CONSECUTIVE HEADER CLAMPS WITH THE SUPPORT BEING RESTRICTED TO A SINGLE BAY INSTALLATION.

REVISE DRAWING NO. S2-0910 SH. PESD-1-6, REV CP-2 TO ADD THE FOLLOWING:

(E) ROCKBESTOS CABLE SUPPORT DETAILS

1. NO PRIOR ENGINEERING APPROVAL IS REQUIRED FOR ATTACHING SUPPORT TYPES RC-1 THROUGH RC-6 TO CONCRETE STRUCTURES, EMBED SHEET PLATES, OR EMBED STRIP PLATES IN UNIT 2 PROVIDED CLEARANCE AND EDGE DISTANCE REQUIREMENTS AND LIMITATIONS OF DRAWING S2-0100, LATEST REVISION, AND PROCEDURE CPES-S-2001, LATEST REVISION, ARE SATISFIED.
11. ANY ATTACHMENTS IN THE COMMON AREAS REQUIRE PRIOR ENGINEERING APPROVAL.
111. ROCKBESTOS FIRE RATED CABLE SPANS AND SPAN ATTRIBUTES SHALL BE MEASURED AS DEFINED ON THE S2-0910 GENERAL NOTE DRAWINGS. WHERE THE CABLE EXITS FROM A CABLE TRAY, THE SPAN SHALL BE MEASURED FROM THE POINT OF LAST CABLE CONTACT INSIDE THE TRAY.

R.2
DCA

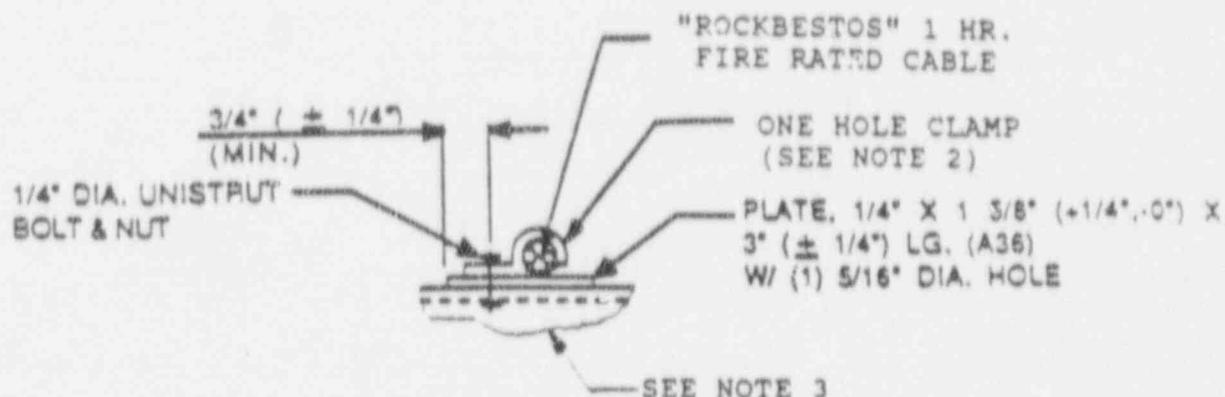
FIGURE 7.1

2PP-501
REVISION 2
PAGE 1 OF 1

COMANCHE PEAK STEAM ELECTRIC STATION UNIT 2 DESIGN CHANGE AUTHORIZATION									
1. LOCATION UNIT 2, & COMMON					2. EQUIPMENT/COMPONENT I.D. NO.: N/A				
3. SYSTEM/SUBSYSTEM/AREA NO. GENERIC					4. INITIATING DOCUMENTS I.D. NO.: N/A				
5. PROBLEM DESCRIPTION/PROPOSED CHANGE (OPTIONAL): CONSTRUCTION HAS REQUESTED SUPPORT DETAILS FOR THE INSTALLATION OF ROCKBESTOS CABLE (1HR FIRE RATED)									
6. DISCIPLINE <input type="checkbox"/> NO <input type="checkbox"/> EM <input type="checkbox"/> PR <input checked="" type="checkbox"/> CO <input type="checkbox"/> CT <input type="checkbox"/> MECH <input type="checkbox"/> ELECT <input type="checkbox"/> C/S <input type="checkbox"/> IAC <input type="checkbox"/> HVAC <input type="checkbox"/> OTHER (SPECIFY)									
7. ORIGINATED BY: W.L. SANDERS DATE: 8-15-91 ORGANIZATION: ABB IMPELL EXT: 6388 APPROVAL: [Signature] DATE: 9/1/91									
8. DETAILS OF CHANGE NEW DETAILS SHOWN ON FOLLOWING PAGES ADDED FOR SUPPORT OF ROCKBESTOS CABLE INSTALLATIONS. "MEL" IS NOT AFFECTED BY THIS DESIGN CHANGE.									
9. ENGINEERING BASIS: DETAILS HAVE BEEN QUALIFIED BY CALCULATION CND2 021B-CO-009A REV. 0.									
10. AFFECTED DOCUMENT NUMBER(S)				11. INCORPORATION REQUIRED?		12. REFERENCE DOCUMENTS			
				YES NO		N/A			
DWG. 52-0910 SH-PESD-1-6				X		S. 09 1991			
REV. CP-2						DCC			
DWG. 52-0910 SH-PESD-3-7									
REV. CP-3				X					
13. V-I IMPACT <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO									
14. THE HIGHEST CLASS OF AFFECTED DOCUMENT(S) IS? <input checked="" type="checkbox"/> CLASS I OR II <input type="checkbox"/> NON-SAFETY									
15. LDCR NO. N/A									
16. DOES DESIGN CHANGE CHANGE GENERIC REQUIREMENT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO									
IF YES, IS BACKUP REQUIRED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO									
17. RESPONSIBLE ENGINEER: W.L. SANDERS [Signature] DATE: 9/4/91									
18. DESIGN VERIFIER: A. BHOUANI [Signature] DATE: 9/4/91									
METHOD: DESIGN REVIEW									
19. LEAD DISCIPLINE ENGINEER: D. C. [Signature] DATE: 9/5/91									
20. DESIGN REPRESENTATIVE? N/A									
21. PROJECT ENGINEER: C. M. [Signature] DATE: 9/5/91									
22. INTERDISCIPLINARY REVIEW (IDR)									
GROUP/ORG.	CONST.	G.C.	C/S						
INITIALS (REVIEWER)	LM	WLB	TW						
DATE	8-5-91	9-11-91	9-1-91						

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

DESIGN NO. / REVISION: 96093 / 10
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RC-1

PLAN OR ELEVATION

NOTES:

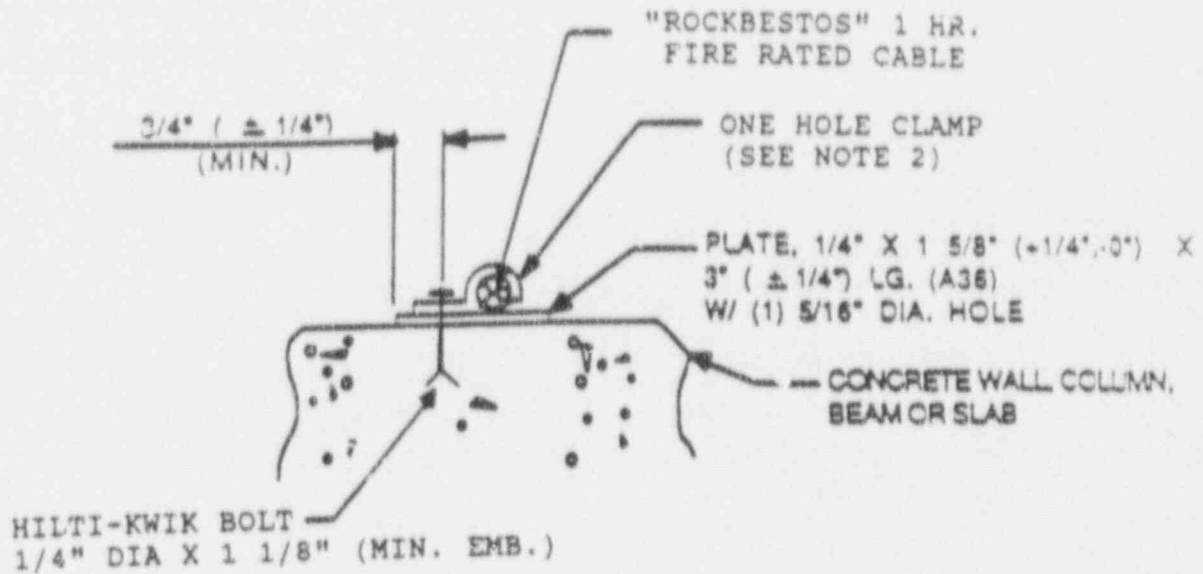
1. MAXIMUM SUPPORT SPACING TO BE 6'-0" U.O.N.
2. FOR ACCEPTABLE CLAMPS FOR USE WITH THIS DETAIL, SEE TABLE BELOW:

MANUFACTURER	FOR SIZE #8 AWG	FOR SIZE 1/0	MATERIAL
THOMAS & BETTS	N/A	# 1212	ASTM A-619
UNISTRUT	P-2014	N/A	ASTM A-575
CAPACITY (LBS)	2	4	N/A

3. TO BE USED WITH SUPPORT TYPE US-1 ONLY. FOR SUPPORT DETAILS NOT SHOWN, SEE DRAWING S2-0910 SH. PESD 3-7, REV. CP-3.
4. FOR WET AREA INSTALLATION, A SPACER IS REQUIRED BETWEEN THE CABLE AND THE PLATE. SPACER IS TO BE O-2 GEDNEY 141G FOR #8 AWG CABLE AND O-2 GEDNEY 142G FOR 1/0 CABLE.
5. FOR DETAILS NOT SHOWN, REFER TO DRAWING NO. S2-0910 SH. PESD-1-6, REV. CP-2.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

DESIGN REVISION	10
PAGE	3 OF 9



RC-2
PLAN OR ELEVATION

NOTES:

1. MAXIMUM SUPPORT SPACING TO BE 6'-0" U.O.N.
2. FOR ACCEPTABLE CLAMPS FOR USE WITH THIS DETAIL,
SEE TABLE BELOW:

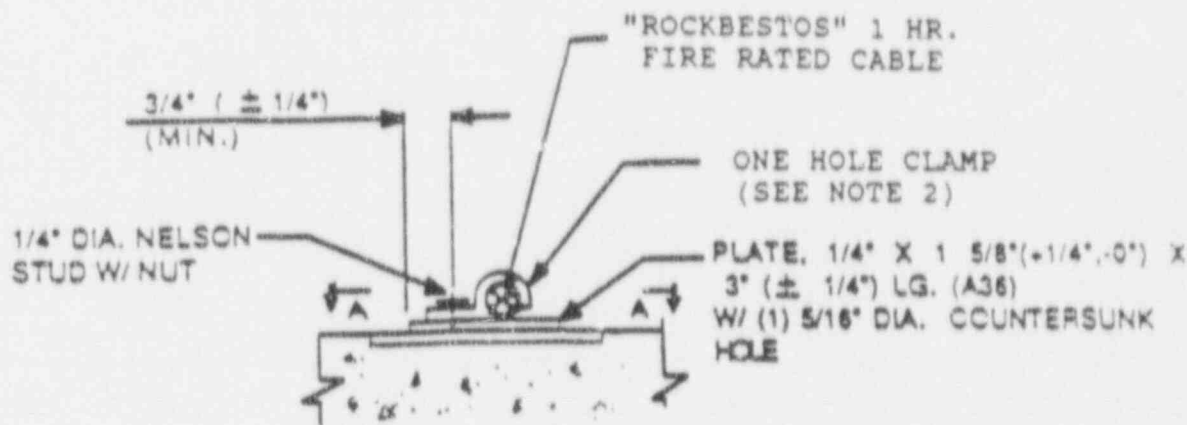
MANUFACTURER	FOR SIZE #8 AWG	FOR SIZE 1/0	MATERIAL
THOMAS & BETTS	N/A	# 1212	ASTM A-619
UNISTRUT	P-2014	N/A	ASTM A-575
CAPACITY (LBS)	2	4	N/A

3. FOR WET AREA INSTALLATION, A SPACER IS REQUIRED BETWEEN THE CABLE AND THE PLATE. SPACER IS TO BE O-Z GEDNEY 141G FOR #8 AWG CABLE AND O-Z GEDNEY 142G FOR 1/0 CABLE.
4. FOR DETAILS NOT SHOWN, REFFR TO DRAWING NO. S2-0910 SH. PESD-1-6, REV. CP-2.

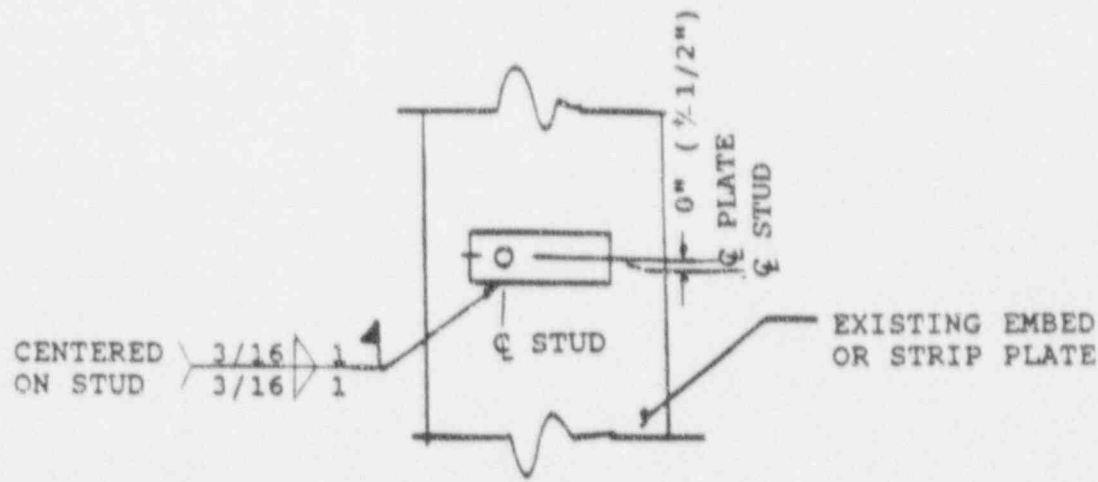
DDSC-1

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

8	DCA NO. REVISION
18	PAGE 4 OF 9



RC-3
PLAN OR ELEVATION



SECTION A-A

FOR NOTES, REFER TO FOLLOWING PAGE.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

DCR NO. REVISION
96045 / 0
PAGE 5 OF 9

NOTES FOR DETAIL RC-3:

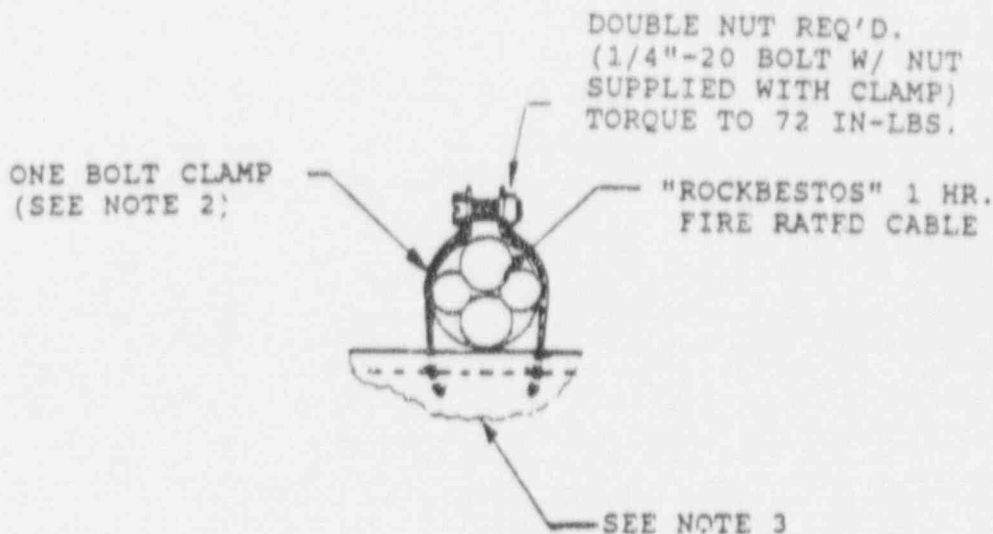
1. MAXIMUM SUPPORT SPACING TO BE 6' - 0" U.O.N.
2. FOR ACCEPTABLE CLAMPS FOR USE WITH THIS DETAIL,
SEE TABLE BELOW:

MANUFACTURER	FOR SIZE #8 AWG	FOR SIZE 1/0	MATERIAL
THOMAS & BETTS	N/A	# 1212	ASTM A-619
UNISTRUT	P-2014	N/A	ASTM A-575
CAPACITY (LBS)	2	4	N/A

3. CLEARANCE AND EDGE DISTANCE REQUIREMENTS PER DRAWING S2-0100, LATEST REVISION, MUST BE SATISFIED.
4. FOR WET AREA INSTALLATION, A SPACER IS REQUIRED BETWEEN THE CABLE AND THE PLATE. SPACER IS TO BE O-Z GEDNEY 141G FOR #8 AWG CABLE AND O-Z GEDNEY 142G FOR 1/0 CABLE.
5. FOR DETAILS NOT SHOWN, REFER TO DRAWING NO. S2-0910 SH. PESD-1-6, REV. CP-2.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

DESIGN. REV. 8/10
PAGE 6 OF 9



RC-4
PLAN OR ELEVATION

NOTES:

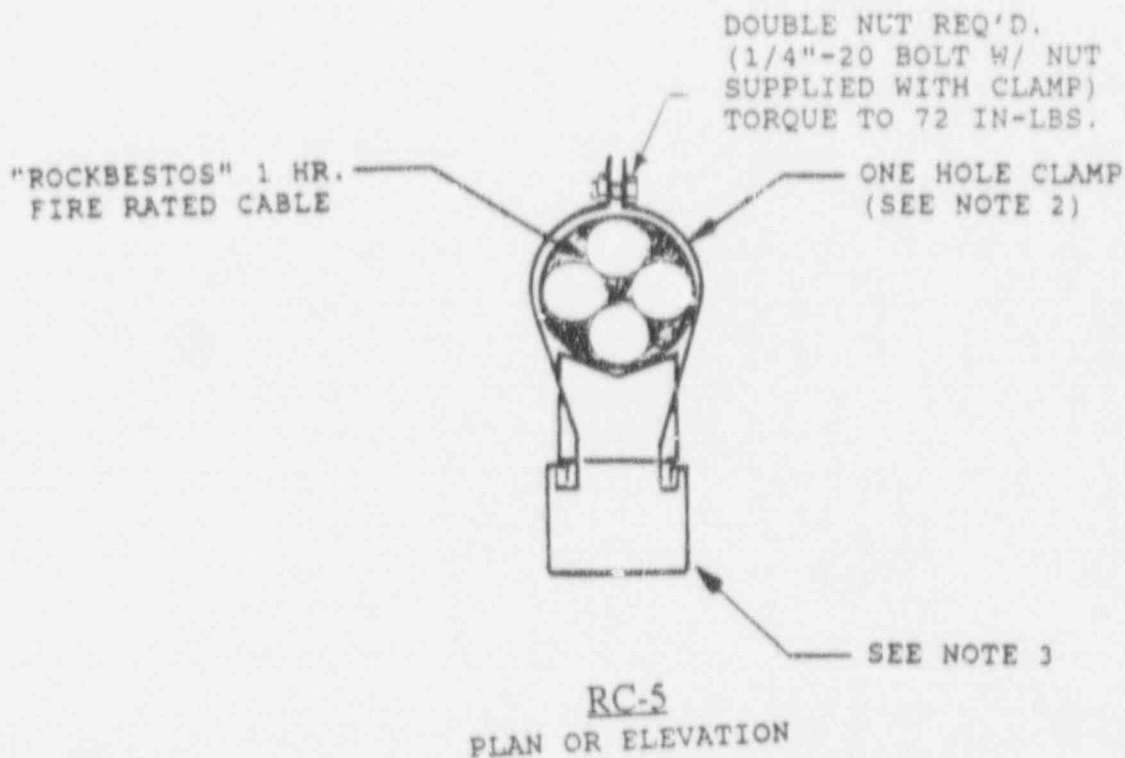
1. MAXIMUM SUPPORT SPACING TO BE 6'-0" U.O.N.
2. FOR ACCEPTABLE CLAMPS FOR USE WITH THIS DETAIL, SEE TABLE BELOW:

MANUFACTURER	FOR SIZE #8 AWG	FOR SIZE 1/0	MATERIAL
UNISTRUT	P-1109B	P-1112B	ASTM A-575
CAPACITY (LBS)	2	4	N/A

3. TO BE USED WITH SUPPORT TYPE US-1 ONLY.
FOR SUPPORT DETAILS NOT SHOWN, SEE DRAWING S2-0910 SH. PESD 3-7, REV. CP-3.
4. FOR DETAILS NOT SHOWN, REFER TO DRAWING NO. S2-0910 SH. PESD-1-6, REV. CP-2.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

DCI NO. REV. 10
PAGE 7 OF 2



NOTES:

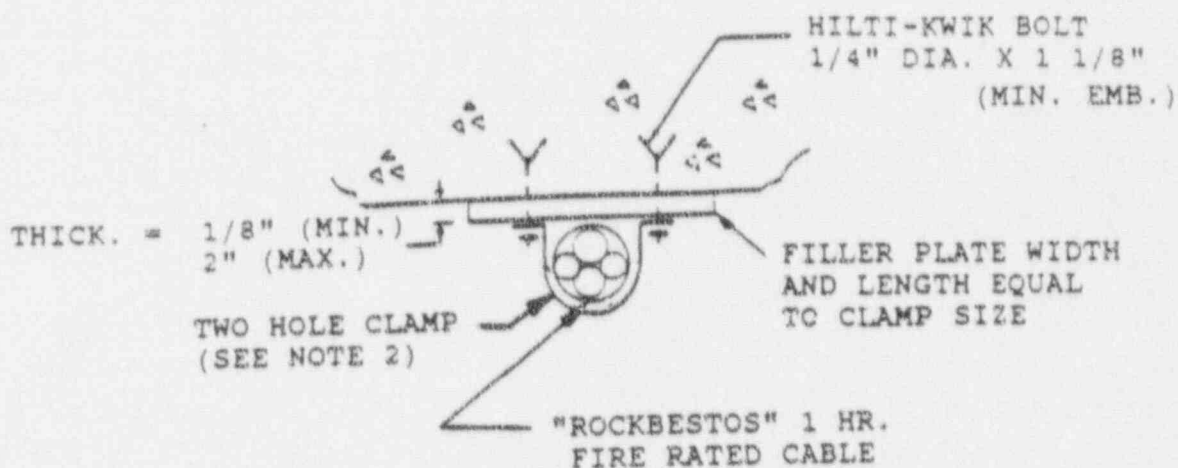
1. MAXIMUM SUPPORT SPACING TO BE 6'-0" U.O.N.
2. FOR ACCEPTABLE CLAMPS FOR USE WITH THIS DETAIL,
SEE TABLE BELOW:

MANUFACTURER	FOR SIZE #8 AWG	FOR SIZE 1/0	MATERIAL
UNISTRUT	N/A	P-1565	ASTM A-575
CAPACITY (LBS)	N/A	4	N/A

3. TO BE USED WITH SUPPORT TYPE US-1 ONLY.
FOR SUPPORT DETAILS NOT SHOWN, SEE DRAWING
S2-0910 SH. PESD 3-7, REV. CP-3.
4. FOR DETAILS NOT SHOWN, REFER TO DRAWING NO. S2-0910 SH.
PESD-1-6, REV. CP-2.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

DESIGN REVISION: 10
PAGE 8 OF 9



RC-6
PLAN OR ELEVATION

NOTES:

1. MAXIMUM SUPPORT SPACING TO BE 6'-0" U.O.N.
2. FOR ACCEPTABLE CLAMPS FOR USE WITH THIS DETAIL, SEE TABLE BELOW:

MANUFACTURER	FOR SIZE #8 AWG	FOR SIZE 1/0	MATERIAL
UNISTRUT	N/A	P-2558-07	ASTM A-575
CAPACITY (LBS)	N/A	4	N/A

3. FOR WET AREA INSTALLATION, A SPACER IS REQUIRED BETWEEN THE CABLE AND THE PLATE. SPACER IS TO BE O-Z GEDNEY 141G FOR #8 AWG CABLE AND O-Z GEDNEY 142G FOR 1/0 CABLE.
4. FOR DETAILS NOT SHOWN, REFER TO DRAWING NO. S2-0910 SH. PESD-1-6, REV. CP-2.

page 2

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

4	DCA NO./REVISION:
	76043 . 6
15	PAGE 9 OF 9

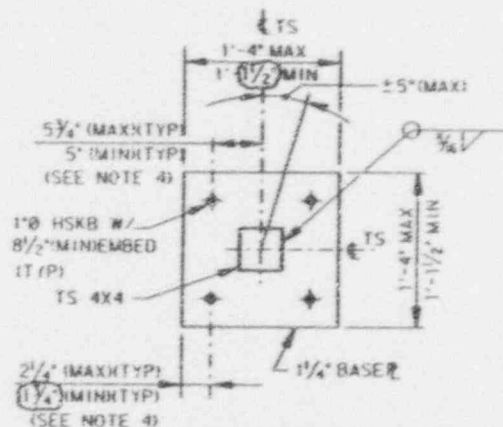
REVISE DRAWING NO. S2-0910 SH. PESD-3-7, REV CP-3, NOTE 4 TO ADD THE FOLLOWING:

ONLY ONE (1) ROCKBESTOS CABLE SUPPORT DETAILS RC-1, RC-4 OR RC-5 MAY BE ATTACHED BETWEEN TWO CONSECUTIVE HEADER CLAMPS WITH THE SUPPORT BEING RESTRICTED TO A SINGLE BAY INSTALLATION.

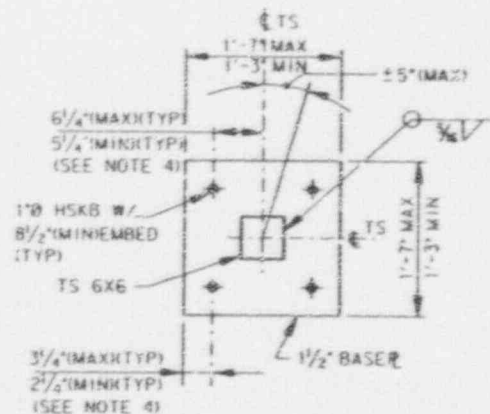
REVISE DRAWING NO. S2-0910 SH. PESD-1-6, REV CP-2 TO ADD THE FOLLOWING:

(E) ROCKBESTOS CABLE SUPPORT DETAILS

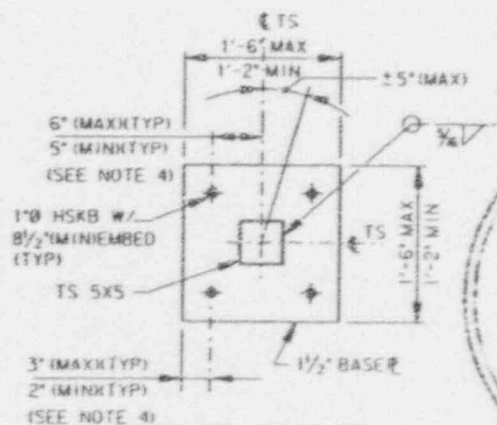
- i. NO PRIOR ENGINEERING APPROVAL IS REQUIRED FOR ATTACHING SUPPORT TYPES RC-1 THROUGH RC-6 TO CONCRETE STRUCTURES, EMBED SHEET PLATES, OR EMBED STRIP PLATES IN UNIT 2 PROVIDED CLEARANCE AND EDGE DISTANCE REQUIREMENTS AND LIMITATIONS OF DRAWING S2-0100, LATEST REVISION, AND PROCEDURE CPES-S-2001, LATEST REVISION, ARE SATISFIED.
- ii. ANY ATTACHMENTS IN THE COMMON AREAS REQUIRE PRIOR ENGINEERING APPROVAL.



BASE ANCHOR
TYPE I-A FOR 4'x4'x $\frac{1}{8}$ "



BASE ANCHOR
TYPE II-A FOR TS 6'x6'x $\frac{1}{8}$ "

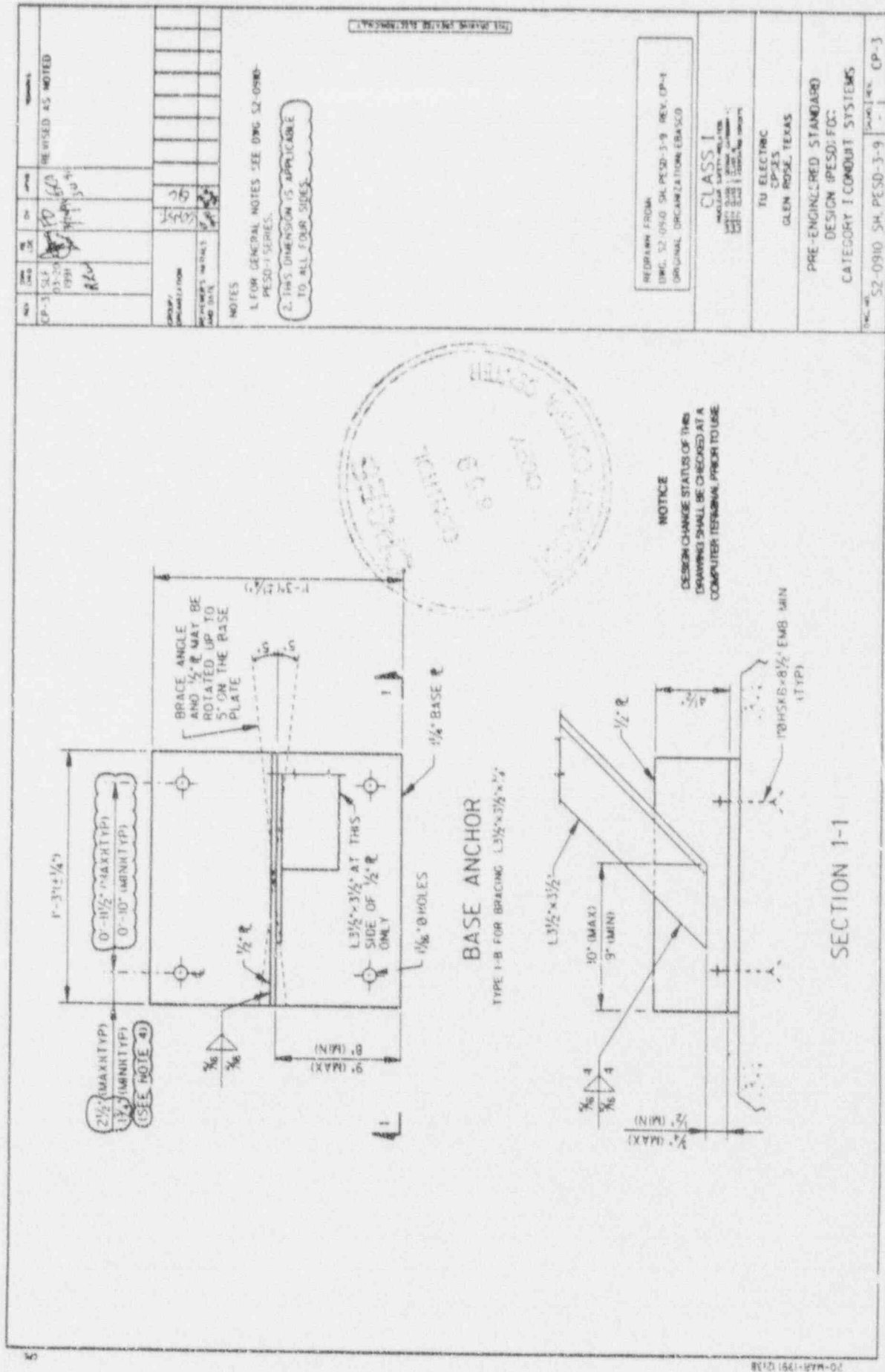


BASE ANCHOR
TYPE II-B FOR TS 5'x5'x $\frac{1}{8}$ "



REV	DATE	BY	APP'D	REMARKS
CP-4	SLF 03-26 1991	AS 90	TS 3-21 91	REVISED AS NOTED
<p>GROUP/ ORGANIZATION</p> <p>PREPARED BY INITIALS AND DATE</p>				
<p>NOTES</p> <p>1. FOR GENERAL NOTES SEE DWG S2-0910-PESD-1 SERIES.</p> <p>2. HOLES IN BASE PLATE TO BE 1 1/4" Ø.</p> <p>3. BASE ANCHOR TYPE I-A, II-A, OR II-B IS NOT REQUIRED WHEN TUBE STEEL MEMBER IS DIRECTLY WELDED TO THE EMBEDDED PLATE.</p> <p>4. THIS DIMENSION IS APPLICABLE TO ALL FOUR SIDES.</p>				
<p>NOTICE</p> <p>DESIGN CHANGE STATUS OF THIS DRAWING SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE.</p> <p>RECORDED FROM: DWG. S2-0910 SH, PESD-3-B REV. CP-1 ORIGINAL ORGANIZATION: ERASCO</p>				
<p>CLASS I</p> <p>NUCLEAR SAFETY RELATED</p> <p>SAFETY CLASS I - CATEGORY 1</p> <p>SAFETY CLASS I - CATEGORY 2</p> <p>SAFETY CLASS I - CATEGORY 3</p>				
<p>TO ELECTRIC</p> <p>CPSES</p> <p>GLEN ROSE, TEXAS</p>				
<p>PRE ENGINEERED STANDARD</p> <p>DESIGN (PESD) FOR</p> <p>CATEGORY I CONDUIT SYSTEMS</p>				
<p>DWG. NO. S2-0910 SH, PESD-3-B</p> <p>DATE: 1991</p> <p>CP-4</p>				

FINAL PRINT



NO.	DATE	BY	CHK	APP	REVISIONS
CP-3	SLF	03-20	1991	10	REVISED AS NOTED
GROUP	DESCRIPTION	DATE	BY	CHK	APP
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10

NOTES

1. FOR GENERAL NOTES SEE DWG S2-0910-PESD-1 SERIES.

2. THIS DIMENSION IS APPLICABLE TO ALL FOUR SIDES.

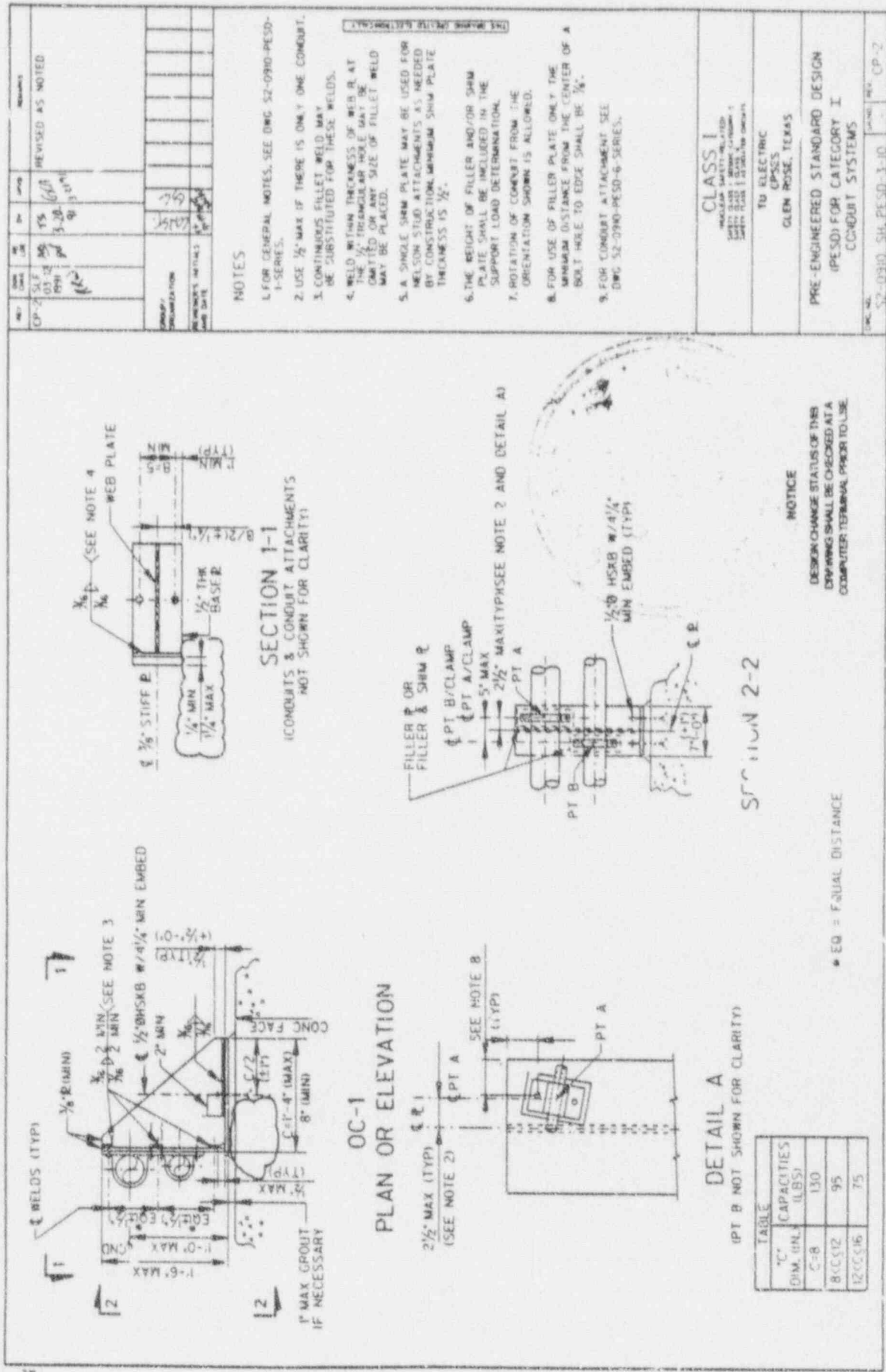
REVISIONS FROM
DWG. S2-0910-PESD-3-9 REV. (P-1)
ORIGINAL ORGANIZATION (EASCO)

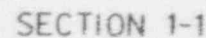
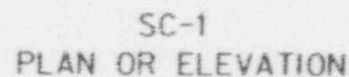
CLASS 1
NATIONAL SAFETY COUNCIL
1000 16TH STREET, N.W.
WASHINGTON, D.C. 20036

TO ELECTRIC
SPECIES
GLEN ROSAL, TEXAS

PRE-ENGINEERED STANDARD
DESIGN (PESD) FOR
CATEGORY 1 CONDUIT SYSTEMS

FINAL PRINT
S2-0910-PESD-3-9
CP-3





SUPPORT CAPACITY (LBS)	
SG, RB	AUX, ECB, FB, SWI
80	59

REV	DATE	BY	DATE	REVISION
CP-2	05-25 1991 (6)	TS 3-29 91	3-29 91	REMOVED AS NOTED ALSO INCORPORATED DCA 93928 REV D.

[illegible]

1. FOR GENERAL NOTES, SEE DWG. S2-0910-
PESD-1 SERIES.
2. FOR CONDUIT ATTACHMENT DETAILS, SEE DWG.
S2-0910 SH. PESD-6 SERIES.
3. FILLER AND SHIM PLATE HEIGHTS SHALL BE
INCLUDED IN THE CONDUIT SUPPORT
LOAD CALCULATION.

DESIGN CHANGE STATUS OF THIS
DRAWING SHALL BE CHECKED AT A
COMPUTER TERMINAL PRIOR TO USE

SAFETY DATA SHEET

TU ELECTRIC
OPSES
GLEN ROSE, TEXAS

PRE-ENGINEERED STANDARD DESIGN
(PESD) FOR CATEGORY I CONDUIT
SYSTEMS.

DATE REC.	52-0910 SH. PESD-3-11	DATE REC.	CP-2
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FINAL PRINT

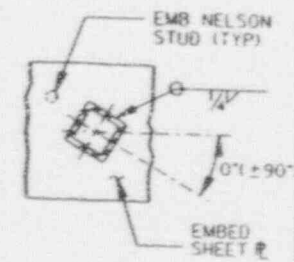
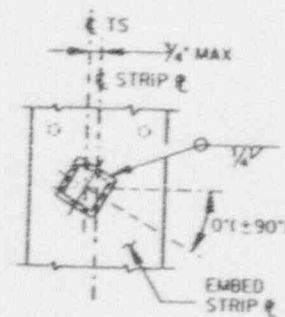
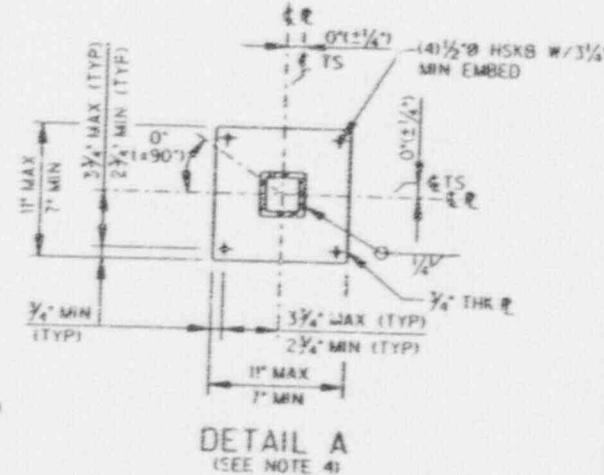
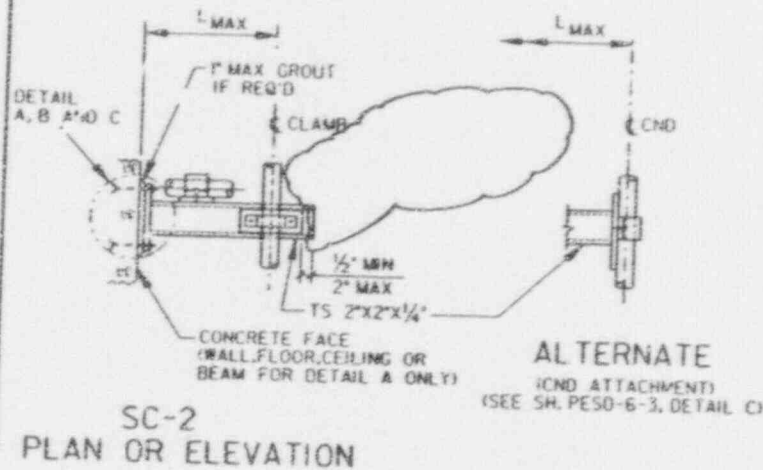


TABLE						
L MAX	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-3"
CAPACITIES (LBS)	150	112	82	63	34	26

80903122.DCN

REV	CHG	NO	BY	DATE	REVISION
CP-2	SLF	03-24	TS	3-27-91	REVISED TO INCORPORATE DCA 93928 REV 0.

GROUP / ORIENTATION	GROUP	ORIENTATION
	CLAMP	CLAMP

- NOTES
1. FOR GENERAL NOTES SEE DWG S2-0910-PESD-1 SERIES.
 2. FOR CONDUIT ATTACHMENT DETAILS SEE DWG S2-0910-PESD-6 SERIES.
 3. ROTATION OF CONDUIT FROM THE ORIENTATION SHOWN IS ALLOWED.
 4. ROTATION OF TUBE STEEL OR BASE PLATE OR BASE PLATE FROM ORIENTATION SHOWN IS ALLOWED.
 5. THE WEIGHT OF FILLER AND/OR SHIM PLATES SHALL BE INCLUDED IN THE SUPPORT LOAD CALCULATION.
 6. L MAX SHALL BE MEASURED TO CENTER-LINE OF THE FARTHEST CONDUIT CLAMP ATTACHMENT.

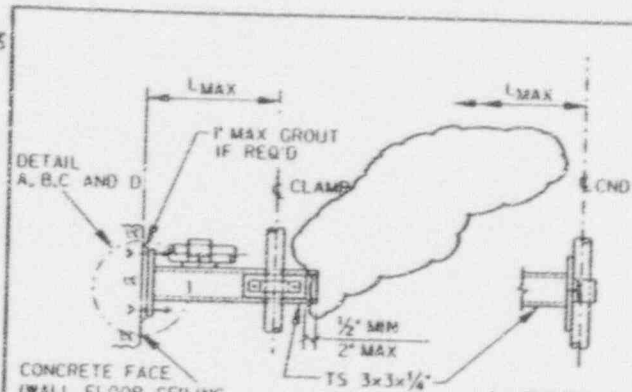
NOTICE
DESIGN CHANGE STATUS OF THIS DRAWING SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE.

CLASS I
NUCLEAR SAFETY-RELATED
SAFETY CLASS 1 - SYSTEM CATEGORY I
SAFETY CLASS 2 - SYSTEM CATEGORY II
SAFETY CLASS 3 - SYSTEM CATEGORY III
TO ELECTRIC
CPSES
GLEN ROSE, TEXAS

PIPE-ENGINEER'S STANDARD DESIGN
(PESD) FOR LOW VOLTAGE I CONDUIT
SYS: EWS

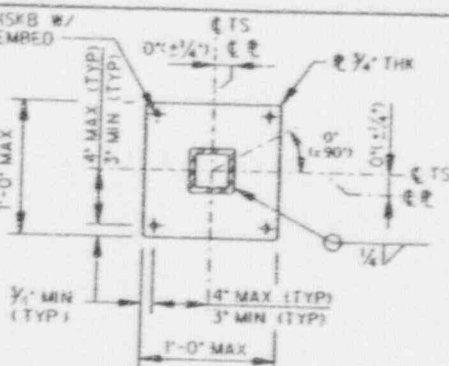
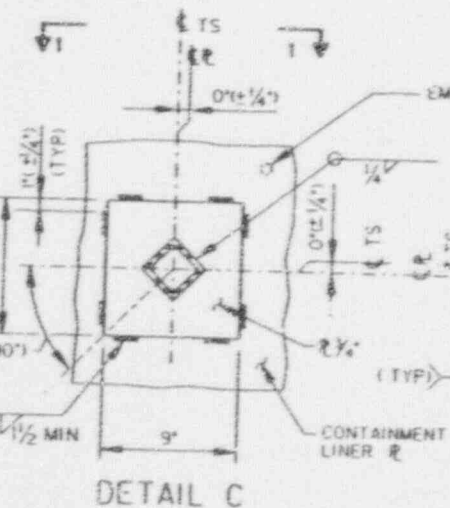
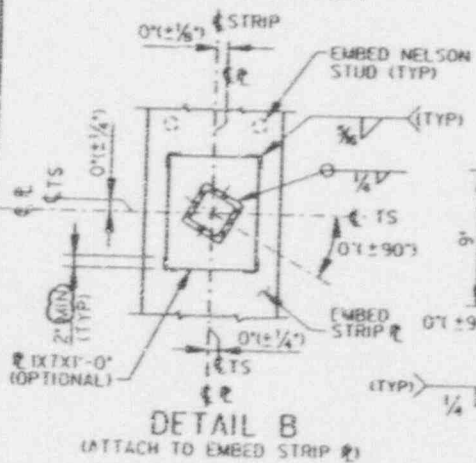
DWG NO.	S2-0910 SH. PESD-3-12	SCALE	REV.	CP-2
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FINAL PRINT

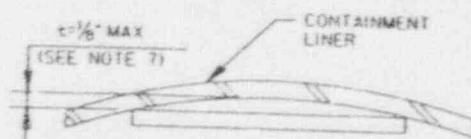
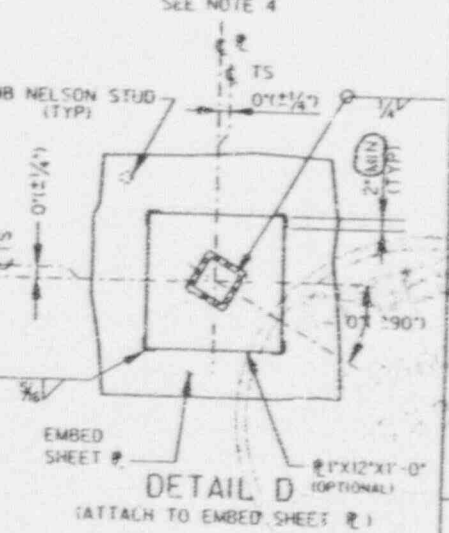


SC-3
PLAN OR ELEVATION

ALTERNATE
(CND ATTACHMENT)
(SEE SH. PESD-6-3, DETAIL C)



DETAIL A
SEE NOTE 4



(CONDUIT NOT SHOWN
FOR CLARITY)

SECTION 1-1

TABLE								
L MAX	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"
CAPACITIES (LBS)	256	195	154	126	104	68	43	25

B09K03132.DGN

REV	DATE	BY	CHKD	APPD	REMARKS
CP-2	SLF	TS			REVISED AS NOTED ALSO INCORPORATED OCA 93928 REV 0.
03-24	1991	3-23			
60		91			
GROUP / ORGANIZATION					
REVIEWERS INITIALS AND DATE					

NOTES

1. FOR GENERAL NOTES SEE DWG S2-0910-PESD-1 SERIES.
2. FOR CONDUIT ATTACHMENT DETAILS SEE DWG S2-0910-PESD-6 SERIES.
3. ROTATION OF CONDUIT FROM THE ORIENTATION SHOWN IS ALLOWED.
4. ROTATION OF TUBE STEEL ON BASE PLATE OR BASE PLATE FROM ORIENTATION SHOWN IS ALLOWED.
5. THE WEIGHT OF FILLER PLATES AND/OR SHIM PLATES SHALL BE INCLUDED IN THE SUPPORT LOAD CALCULATION.
6. L MAX SHALL BE MEASURED TO THE CENTERLINE OF THE FARTHEST CONDUIT CLAMP ATTACHMENT.
7. WELD SIZE SHALL BE $t + 1/4$ WHERE GAP EXISTS.
8. ENGINEERING APPROVAL IS REQUIRED PRIOR TO ANY ATTACHMENT TO CONTAINMENT LINER.
9. TUBE STEEL MAY BE WELDED DIRECTLY TO EMBEDDED PLATE WITHOUT THE USE OF BASE PLATE.

NOTICE

DESIGN CHANGE STATUS OF THIS
DRAWING SHALL BE CHECKED AT A
COMPUTER TERMINAL PRIOR TO USE.

CLASS I

NUCLEAR SAFETY RELATED
SAFETY CLASS I - SYSTEM CATEGORY 1
CLASS I - CLASS 1 - TRANSMISSION SYSTEMS

TU ELECTRIC
CPSES
GLEN ROSE, TEXAS

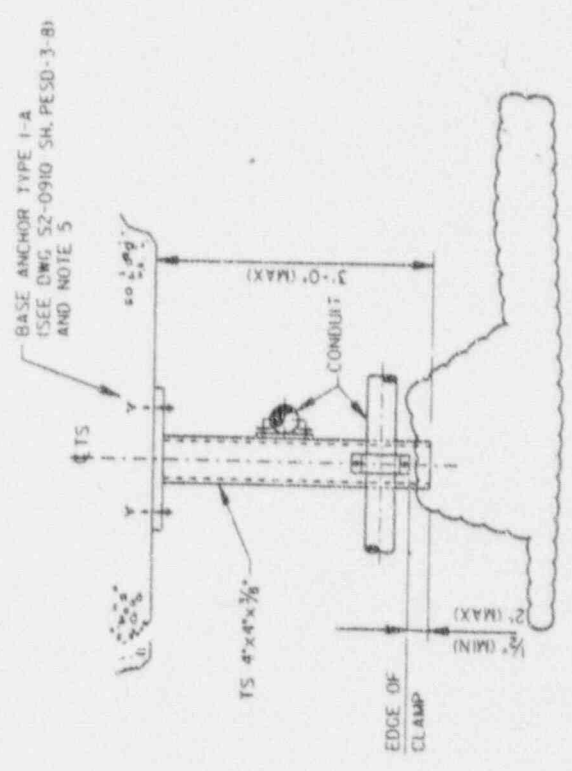
PRE-ENGINEERED STANDARD DESIGN
(PESD) FOR CATEGORY I CONDUIT
SYSTEMS

DWG NO. S2-0910 SH. PESD-3-13

FINAL PRINT

CP-2

REV	DATE	BY	CHK	REVISIONS
CP-2	03-26-1991	TS	TS	REVISED TO INCORPORATE DCA 93928 REV 0.
<div style="display: flex; justify-content: space-between;"> <div> <p>GROUP PRELIMINARY</p> <p>REVISIONS TO THIS DRAWING</p> </div> <div> <p>760</p> </div> </div>				
<p>NOTES:</p> <ol style="list-style-type: none"> 1. FOR GENERAL NOTES, SEE DWG 52-0910-PESD-1 SERIES. 2. FOR CONDUIT ATTACHMENT DETAILS SEE DWG 52-0910-PESD-5 SERIES. 3. ROTATION OF CONDUIT FROM THE ORIENTATION SHOWN IS ALLOWED. 4. THE WEIGHT OF FILLER AND/OR SHIM PLATES SHALL BE INCLUDED IN THE SUPPORT LOAD CALCULATION. 5. TUBE STEEL MAY BE WELDED DIRECTLY TO EMBEDDED PLATE WITHOUT THE USE OF BASE ANCHOR AND BY USING A $\frac{3}{8}$" ALL AROUND FILLET WELD. 				
<p>21/10/1991 10:11:11 AM</p>				
<p>NOTICE</p> <p>DESIGN CHANGE STATUS OF THIS DRAWING SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE.</p>				
<p>REPRINTED FROM</p> <p>DWG. 52-0910 SH PESD-3-2 REV. CP-1</p> <p>ORIGINAL ORGANIZATION EBASCO</p>				
<p>CLASS:</p> <p>TELECOM</p> <p>TELEPHONE</p> <p>TELETYPE</p> <p>TELEVISION</p> <p>TELEGRAPH</p> <p>TELEFAX</p> <p>TELEPHONE</p> <p>TELETYPE</p> <p>TELEVISION</p> <p>TELEGRAPH</p> <p>TELEFAX</p>				
<p>PRE-ENGINEERED STANDARD DESIGN (PESD) FOR CATEGORY 1 CONDUIT SYSTEMS</p>				
<p>DWG. NO. 52-0910 SH PESD-3-14</p> <p>REV. CP-2</p>				



SC-4
PLAN OR ELEVATION
(FLOOR, WALL, OR CEILING MOUNTED)

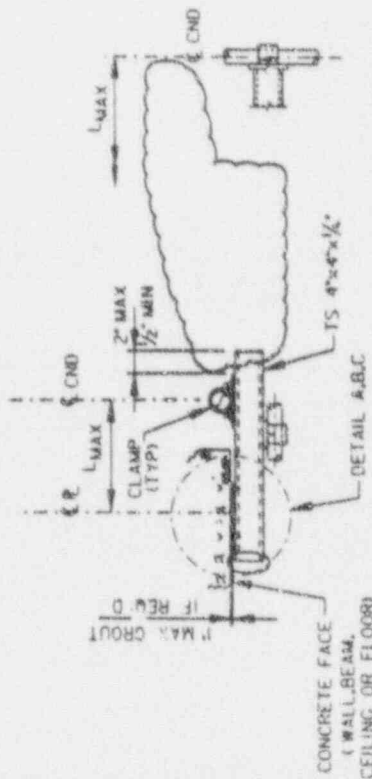
SUPPORT CAPACITY (LBS)
300

BOH3142.DGN

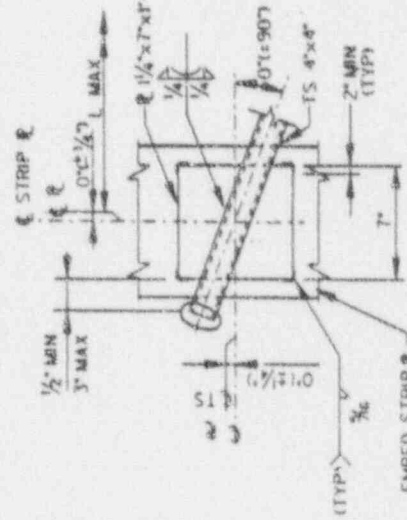
FINAL PRINT

1 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

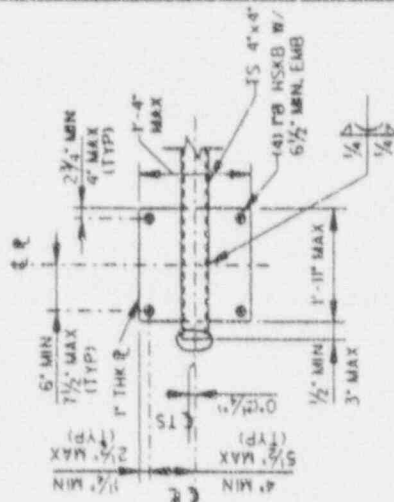
	2'-3"	2'-6"	2'-9"	3'-0"	3'-3"	3'-6"	3'-9"	4'-0"	4'-3"	4'-6"	4'-9"	5'-0"
L _{MAX}												
CAPACITIES μ RC ₀₁	312	288	268	243	233	218	204	181	145	116	94	75



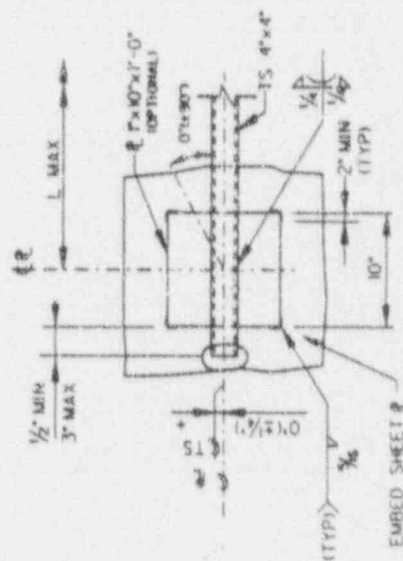
SC-5
PLAN OR ELEVATION



DETAIL B
(STRIP PLATE)



DETAIL A
(SEE NOTE 4)



DETAIL C

(SHEET PLATE SEE NOTE 4)

SOLUTIONS

DESIGN CHANGE STATUS OF THIS
DRAWING SHALL BE CHECKED AT A
COMPUTER TERMINAL PRIOR TO LINE

CLASS I

[illegible]

TO ELECTRIC
COPIES

PRE-ENGINEERED STANDARD DESIGN
(PESD) FOR CATEGORY I
CONDUIT SYSTEMS

DATE	10/10/10	BY	CP-2
TIME	10:00	LOCATION	CP-2
REMARKS	CP-2		

FINAL PRINT

• A

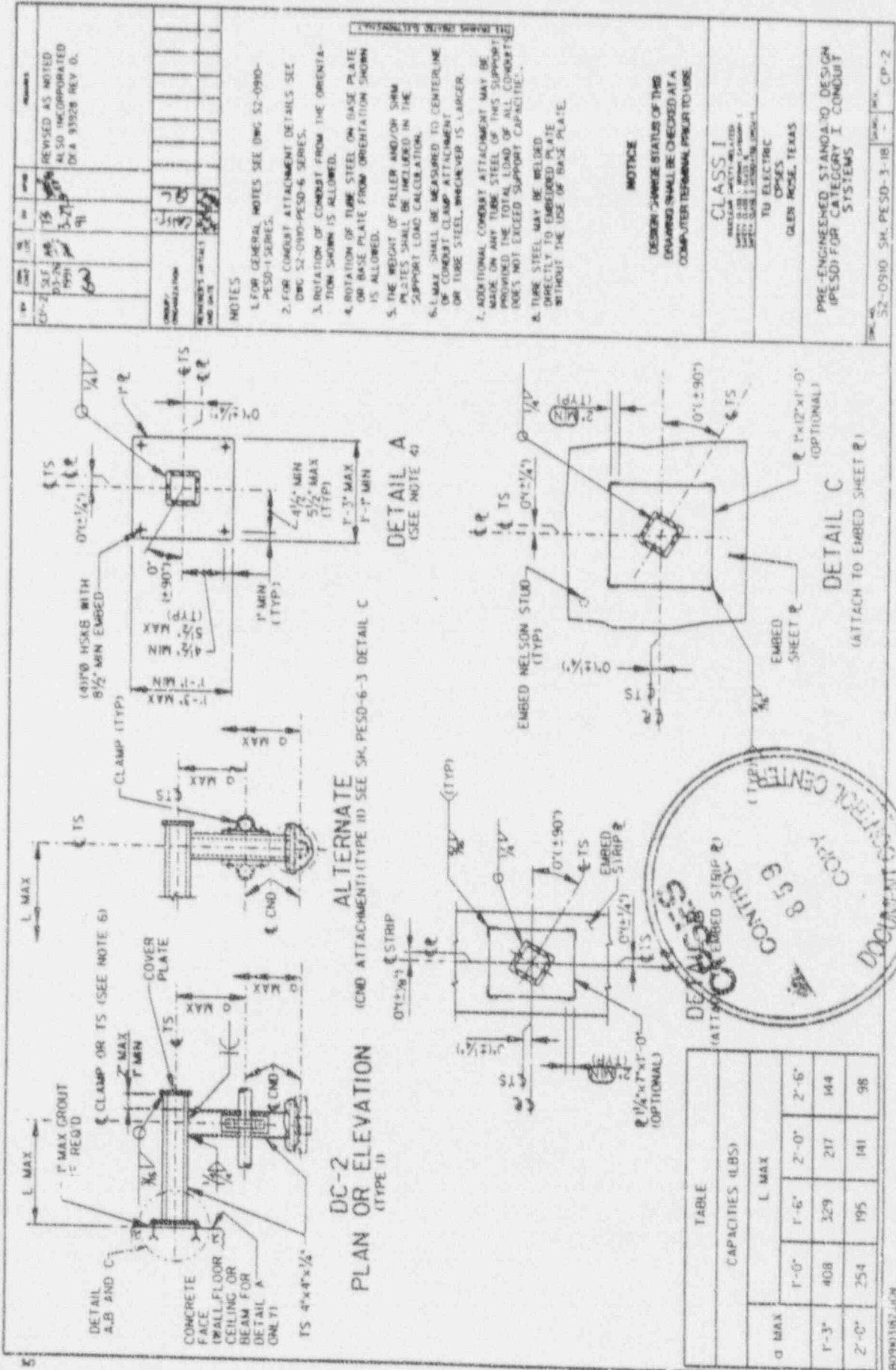
[illegible]

1000

• Ω

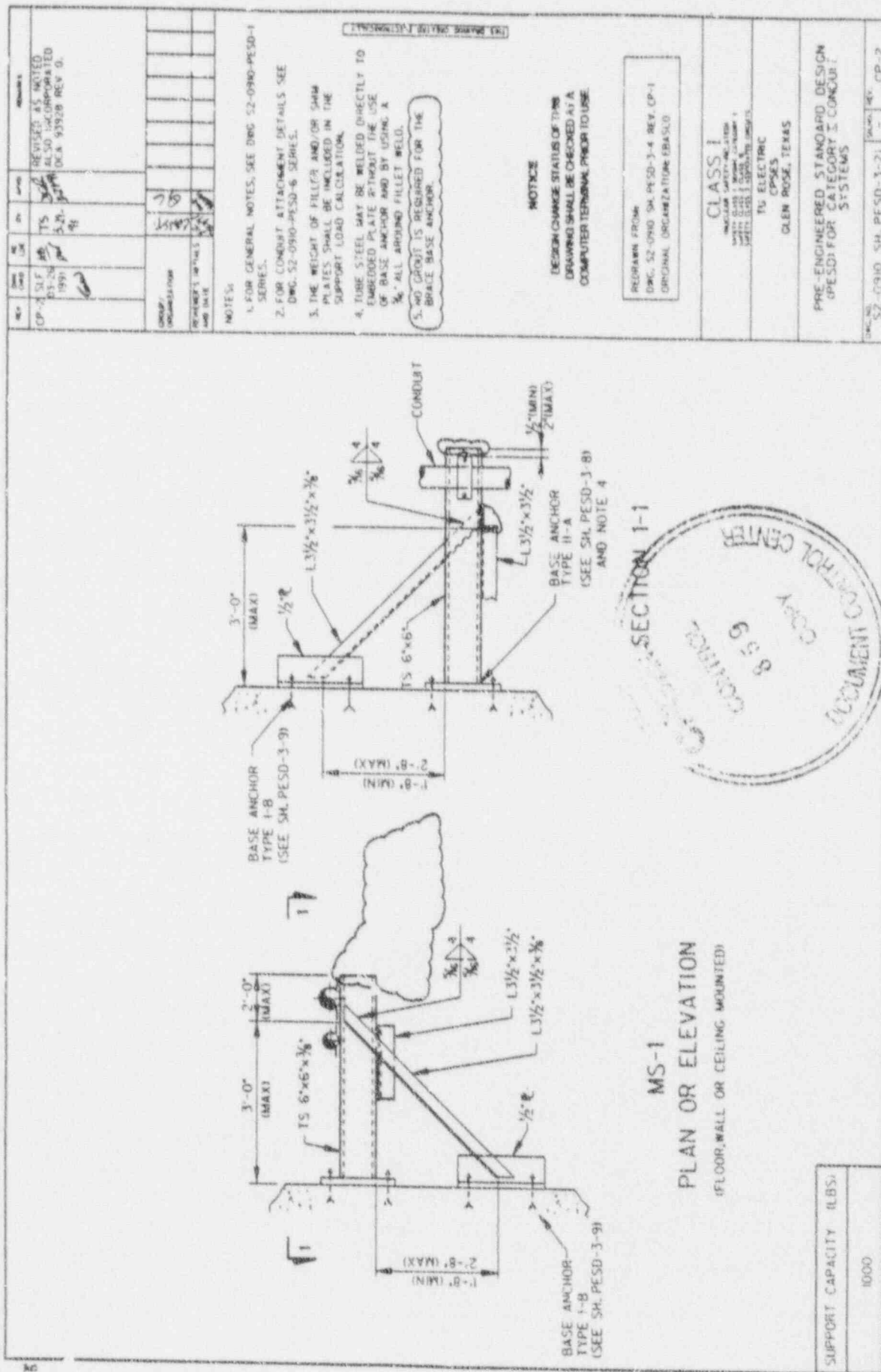
• 2

• 22



B0990102.JUN

FINAL PRINT



MS-1
PLAN OR ELEVATION
(FLOOR, WALL OR CEILING MOUNTED)

SUPPORT CAPACITY (LBS.)
1000

BOH03702.DGN

REV	DATE	BY	CHK	DESCRIPTION
CP-1	05-20-99	TS	TS	REVISIONS AS NOTED ALSO INCORPORATED O.C.A. 93928 REV. 0.
GROUP	ORGANIZATION	PROJECT'S INITIALS	DATE	

NOTE 1/4

- FOR GENERAL NOTES, SEE DWG. 52-0910-PESD-1 SERIES.
- FOR CONDUIT ATTACHMENT DETAILS, SEE DWG. 52-0910-PESD-6 SERIES.
- THE WEIGHT OF FILLER AND/OR SHIM PLATES SHALL BE INCLUDED IN THE SUPPORT LOAD CALCULATION.
- TUBE STEEL MAY BE WELDED DIRECTLY TO FURRED PLATE WITHOUT THE USE OF BASE ANCHOR AND BY USING A 3/8" ALL AROUND FILLET WELD.
- NO GROUT IS REQUIRED FOR THE BRACE BASE ANCHOR.

NOTICE

DESIGN CHANGE STATUS OF THIS DRAWING SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE.

REQUIRE FROM:
DWG. 52-0910 SH. PESD-3-4 REV. CP-1
ORIGINAL ORGANIZATION: EBA510

CLASS I

INSTALLATION SAFETY: NO LIFTING
SAFETY CLASS I: NO LIFTING
SAFETY CLASS I: NO LIFTING

TS ELECTRIC
CPSES
GLEN ROSE, TEXAS

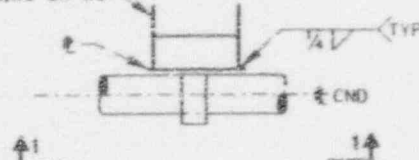
PRE-ENGINEERED STANDARD DESIGN
(PESD) FOR CATEGORY I CONDUIT
SYSTEMS

52-0910 SH. PESD-3-21 - CP-2

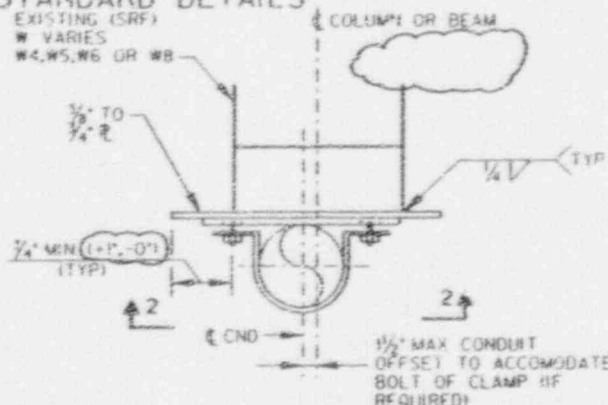
FINAL PRINT

CABLE SPREAD ROOM FRAME STANDARD DETAILS

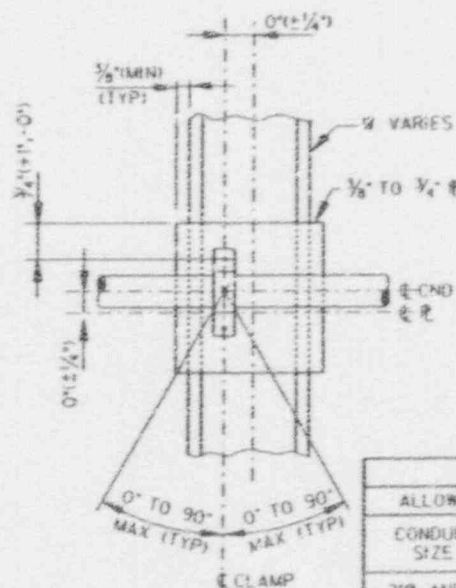
EXISTING (SRF)
W VARIES
W4, W5, W6 OR W8



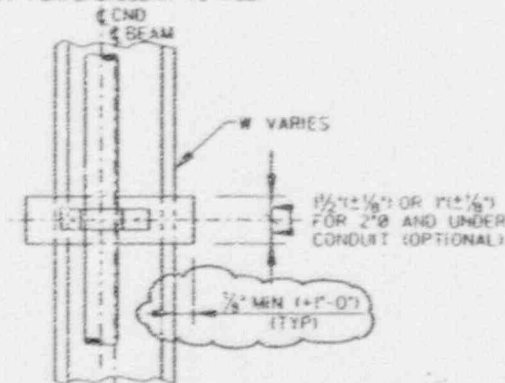
SR-1 PLAN OR ELEVATION
(CONDUIT PARALLEL TO WEB)



SR-2 PLAN OR ELEVATION
(CONDUIT PERPENDICULAR TO WEB)



SECTION 1-1



SECTION 2-2

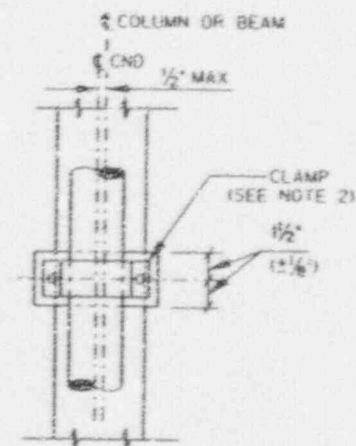
TABLE 1, SEE NOTE 6				
ALLOWABLE CONDUIT SUPPORT CAPACITIES (LBS)				
CONDUIT SIZE	CONDUIT ORIENTATION	PLATE THICKNESS (IN)		
		3/8	1/2	5/8 TO 3/4
2" Ø AND UNDER	Ø=0°	88	160	252
	Ø=90°	66	121	191
3" Ø TO 5" Ø	Ø=0°	200	359	563
	Ø=90°	155	155	244

REV	DATE	BY	CHKD	APPROV	REMARKS
CP-2	03-10-1991	RLV	TS	3/20/91	REVISED AS NOTED
GROUP / ORGANIZATION					
REVIEWER'S INITIALS AND DATE					
NOTES					
1. FOR GENERAL NOTES, SEE DWG S2-0910-PESD-1 SERIES.					
2. FILLER PLATE WEIGHTS SHALL BE INCLUDED IN THE CONDUIT SUPPORT LOAD CALCULATION.					
3. FOR CONDUIT ATTACHMENT DETAILS SEE DWG S2-0910-PESD-6 SERIES.					
4. PLAN OR ELEVATION IS SCHEMATIC AND MAY BE OPPOSITE HAND.					
5. SRF INDICATES SPREAD ROOM FRAMING.					
6. TABLE 1 IF 0° TO 90°. USE THE LOWER CAPACITY VALUE.					
NOTICE					
DESIGN CHANGE STATUS OF THIS DRAWING SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE.					
CLASS I					
NUCLEAR SAFETY RELATION					
TWO CLASS I SAFETY CATEGORY 1					
TWO CLASS I SAFETY CATEGORY 2					
TWO CLASS I SAFETY CATEGORY 3					
TO ELECTRIC					
CPSES					
GLEN ROSE, TEXAS					
PRE-ENGINEERED STANDARD DESIGN (PESD) FOR CATEGORY I CONDUIT SYSTEMS					
S2-0910 SH, PESD-3-2					
CP-2					

FINAL PRINT

Technical drawing of a clamp assembly. Labels include: COLUMN OR BEAM, NELSON STUD (TYP), 1 1/2" MAX CONDUIT OFFSET TO ACCOMMODATE NELSON STUD OF CLAMP (IF REQ'D), END, (SEE TABLE #), EXISTING(SRF) W VARIES W4, W5, W6 OR W3, (MIN), 3/4", 1/4" (TYP), and 1/4" (MIN).

SR-3
PLAN OR ELEVATION



SECTION 1-1

CONDUIT SIZE	CONDUIT SIZE						
	1/4" Ø	1" Ø	1 1/2" Ø	2" Ø	3" Ø	4" Ø	5" Ø
1/4"	43	43	43	43	—	—	—
1/2"	79	79	79	79	47	—	—
3/4"	127	127	127	127	75	50	35
1"	186	186	186	186	111	75	52

807834742 DCB

FILE #	DATE (Y-M-D)	BY (NAME)	TIME	STATUS	REMARKS
CP-2	SEP 15-12 1999	TS 3:20 91	HA 3:45		REVISED AS NOTED

[illegible]

1. FOR GENERAL NOTES, SEE DWG 2323-S2-0910-
PESD-1 SERIES.
2. FOR CONDUIT ATTACHMENT DETAILS, SEE
DWG S2-0910-PESD-6 SERIES.
3. FILLER PLATE MIGHT BE INCLUDED
IN THE CONDUIT SUPPORT LOAD CALCULATION.
4. PLAN OR ELEVATION IS SCHEMATIC
AND MAY BE OPPOSITE HAND.
5. SRF INDICATES SPREAD ROOF FRAMING.

DESIGN CHANGE STATUS OF THIS
DRAWING SHALL BE CHECKED AT A
COMPUTER TERMINAL PRIOR TO USE

NUCLEAR SAFETY-RELATED:
SAFETY CLASS 1: SIGNIFICANT CATEGORY 1
SAFETY CLASS 2: CLASS 2
SAFETY CLASS 3: SIGNIFICANT CATEGORY 2

TM ELECTRIC
CPSES
GLEN ROSE, TEXAS

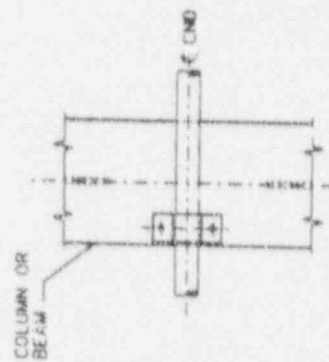
PRE-ENGINEERED STANDARD DESIGN
(PESD) FOR CATEGORY I CONDUIT
SYSTEMS

DATE REC'D	FILE NO.	REMARKS
82-0910	SH. PECO-3-24	CP-2

FINAL PRINT



Diagram illustrating a connection detail for a column or beam combination. The detail shows a beam with a U-bolts clamp. Labels include: COLUMN OR BEAM COMBINATION, CLAMP (SEE NOTE 23), P MIN (TYP), and EXISTING (REF) # VARIES #3, #5, #6 OR #8.



PLAIN OR ELEVATION
(CONDUIT MAY BE PARALLEL OR PERPENDICULAR TO THE FLANGE)

SECTION 1-1

NOTICE

DESIGN CHANGE STATUS OF THIS
DOCUMENT SHALL BE CHECKED AT A
COMPUTER TERMINAL PRIOR TO USE

CLASS I

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THE UNIVERSITY OF CHICAGO

5450
5451
5452

GLENN HOFER, TEXAS

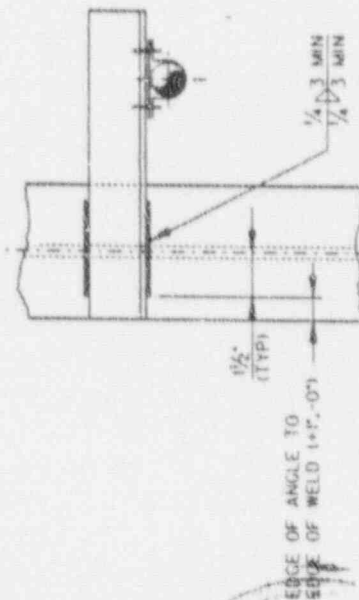
PRE-ENGINEERED STANDARD DESIGN
(PESD) FOR CATEGORY I COMBUST
SYSTEMS

INDUSTRY AND TRADE

SMC, NO.	DATE	REV.
52-0910 SM. PDS-3-25	-	CP-1

FINAL PRINT

SECTION 1-1

SR-5
PLAN OR ELEVATION

ALTERNATE SECTION 1-1

ALLOWABLE CONDUIT SUPPORT CAPACITY (LBS)	154
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9472 D&A-ACN-92

0009-9728(200605)26:5;1-P

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NOTICE

DESIGN CHANGE STATUS OF THIS DOCUMENT SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE

CLASS I

NUCLEAR SAFETY AREA
SAFE CLASS - 100%
SAFE CLASS - 100%
SAFE CLASS - 100%

TU ELECTRIC
CPSES
NEW ROSE, TEXAS

PRE-ENGINEERED STANDARD DESIGN
(PESD) FOR CATEGORY 1 CONCRETE
SYSTEMS

SZ-0310 SH PESD-3-26	CP-1
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FINAL PRINT

246



ALLOWABLE CONDUIT SUPPORT CAPACITY (LBS)
150



GROUP 1 CHLORINE (20 THRU)	GROUP 2 BROMINE				
METALLOIDS (21-22, 32-33) AND 50-51	GROUP 3 ALUMINUM				

1. FOR GENERAL NOTES, SEE DWG. S2-090-PED-0
1-SERIES.
2. FOR CONCRETE ATTACHMENT, SEE
DWG. S2-090-PED-6-SERIES.
3. FOR BOLTED CLAMPS MINIMUM THICKNESS
OF INDIVIDUAL FILLER $\frac{1}{2}$ IN. MAY BE U.S.
STANDARD GAGE 5-10-20 OR 30 IF
FABRICATED IN THE FIELD.
4. PLAN OR ELEVATION IS SCHEMATIC AND
MAY BE OPPOSITE HAND.
5. ANKLE MAY BE LOCATED AT EITHER SIDE
OF PLATE.
6. SEE INDICATED SPREAD ROOM FRAMING.

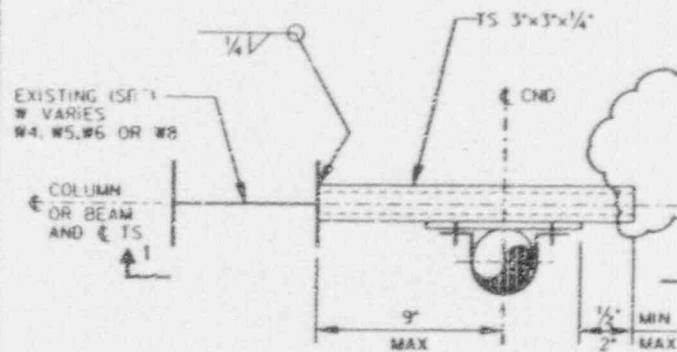
DESIGN CHANGE STATUS OF THIS
DOCUMENT SHALL BE CHECKED AT A
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INVESTIGATE: SAFETY - RISK ASSESSMENT

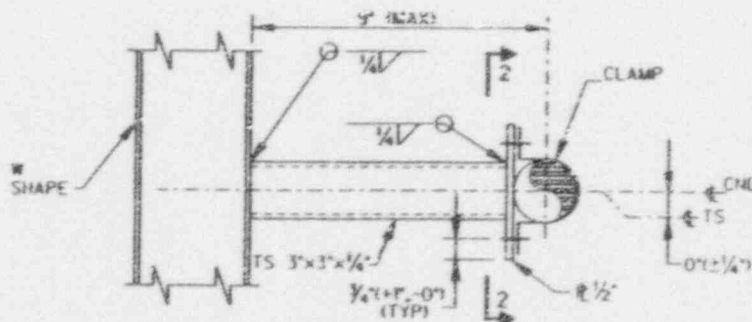
PRE-ENGINEERED STANDARD DESIGN
(PESD) FOR CATEGORY I CONDUIT
SYSTEMS

FINAL PRINT

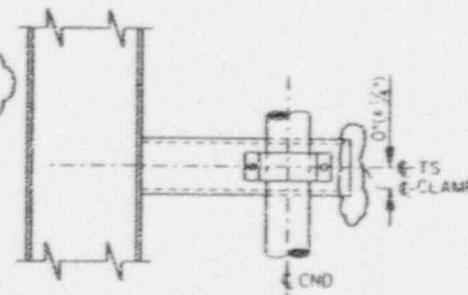
CABLE SPREAD ROOM FRAME STANDARD DETAIL



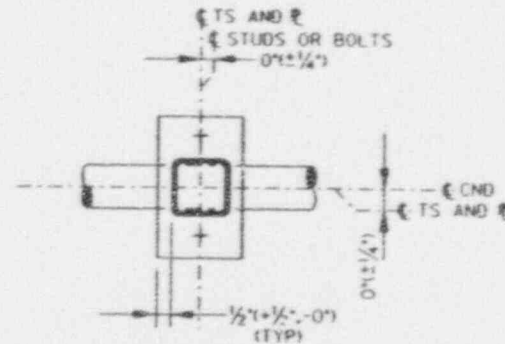
SR-7
CASE I
PLAN OR ELEVATION



SR-7
CASE II
PLAN OR ELEVATION



SECTION 1-1



SECTION 2-2

NOTICE
DESIGN CHANGE STATUS OF THIS
DRAWING SHALL BE CHECKED AT A
COMPUTER TERMINAL PRIOR TO USE.

ALLOWABLE CONDUIT SUPPORT CAPACITY (LBS)
550

REV	DATE	BY	CHKD	APPD	REMARKS
CP-2	03-28-1991	AB	TS	TS	REVISED AS NOTED ALSO INCORPORATED DCA 93928 REV O.

GROUP / OPERATION	REVIEWER'S INITIALS AND DATE

- NOTES:
1. FOR GENERAL NOTES, SEE DWG S2-0910-PESD-1 SERIES.
 2. FOR CONDUIT ATTACHMENT DETAILS SEE DWG S2-0910-PESD-6 SERIES.
 3. WEIGHT OF FILLER/SHIM PLATE SHALL BE INCLUDED IN THE CONDUIT SUPPORT LOAD CALCULATION.
 4. MORE THAN ONE CONDUIT MAY BE SUPPORTED AS LONG AS MAXIMUM DIMENSION AND SUPPORT CAPACITY ARE MAINTAINED.
 5. SR# INDICATES SPREAD ROOM FRAMING.



TO ELECTRIC CPSES GLEN ROSE, TEXAS
PRE-ENGINEERED STANDARD DESIGN (PESD) FOR CATEGORY I CONDUIT SYSTEMS
DWG. NO. S2-0910 SH, PESD-3-28

FINAL PRINT

26-MAR-1991 16:55

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SR-8
PLAN OR ELEVATION

280

80910 3292 DGN

SECTION 1-1

- | REV | DATE | BY | TO | NOTES |
|------|---------------|----------|--------------|---|
| CP-2 | 03-20
1991 | MS
SW | T
3-27-91 | REVISED AS NOTED
AL-2 INCORPORATED
DCA 93928 REV O. |

GROUP /
CONCERN / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 11 / 12 / 13 / 14 / 15 / 16 / 17 / 18 / 19 / 20 / 21 / 22 / 23 / 24 / 25 / 26 / 27 / 28 / 29 / 30 / 31 / 32 / 33 / 34 / 35 / 36 / 37 / 38 / 39 / 40 / 41 / 42 / 43 / 44 / 45 / 46 / 47 / 48 / 49 / 50 / 51 / 52 / 53 / 54 / 55 / 56 / 57 / 58 / 59 / 60 / 61 / 62 / 63 / 64 / 65 / 66 / 67 / 68 / 69 / 70 / 71 / 72 / 73 / 74 / 75 / 76 / 77 / 78 / 79 / 80 / 81 / 82 / 83 / 84 / 85 / 86 / 87 / 88 / 89 / 90 / 91 / 92 / 93 / 94 / 95 / 96 / 97 / 98 / 99 / 100 / 101 / 102 / 103 / 104 / 105 / 106 / 107 / 108 / 109 / 110 / 111 / 112 / 113 / 114 / 115 / 116 / 117 / 118 / 119 / 120 / 121 / 122 / 123 / 124 / 125 / 126 / 127 / 128 / 129 / 130 / 131 / 132 / 133 / 134 / 135 / 136 / 137 / 138 / 139 / 140 / 141 / 142 / 143 / 144 / 145 / 146 / 147 / 148 / 149 / 150 / 151 / 152 / 153 / 154 / 155 / 156 / 157 / 158 / 159 / 160 / 161 / 162 / 163 / 164 / 165 / 166 / 167 / 168 / 169 / 170 / 171 / 172 / 173 / 174 / 175 / 176 / 177 / 178 / 179 / 180 / 181 / 182 / 183 / 184 / 185 / 186 / 187 / 188 / 189 / 190 / 191 / 192 / 193 / 194 / 195 / 196 / 197 / 198 / 199 / 200 / 201 / 202 / 203 / 204 / 205 / 206 / 207 / 208 / 209 / 210 / 211 / 212 / 213 / 214 / 215 / 216 / 217 / 218 / 219 / 220 / 221 / 222 / 223 / 224 / 225 / 226 / 227 / 228 / 229 / 230 / 231 / 232 / 233 / 234 / 235 / 236 / 237 / 238 / 239 / 240 / 241 / 242 / 243 / 244 / 245 / 246 / 247 / 248 / 249 / 250 / 251 / 252 / 253 / 254 / 255 / 256 / 257 / 258 / 259 / 260 / 261 / 262 / 263 / 264 / 265 / 266 / 267 / 268 / 269 / 270 / 271 / 272 / 273 / 274 / 275 / 276 / 277 / 278 / 279 / 280 / 281 / 282 / 283 / 284 / 285 / 286 / 287 / 288 / 289 / 290 / 291 / 292 / 293 / 294 / 295 / 296 / 297 / 298 / 299 / 300 / 301 / 302 / 303 / 304 / 305 / 306 / 307 / 308 / 309 / 310 / 311 / 312 / 313 / 314 / 315 / 316 / 317 / 318 / 319 / 320 / 321 / 322 / 323 / 324 / 325 / 326 / 327 / 328 / 329 / 330 / 331 / 332 / 333 / 334 / 335 / 336 / 337 / 338 / 339 / 340 / 341 / 342 / 343 / 344 / 345 / 346 / 347 / 348 / 349 / 350 / 351 / 352 / 353 / 354 / 355 / 356 / 357 / 358 / 359 / 360 / 361 / 362 / 363 / 364 / 365 / 366 / 367 / 368 / 369 / 370 / 371 / 372 / 373 / 374 / 375 / 376 / 377 / 378 / 379 / 380 / 381 / 382 / 383 / 384 / 385 / 386 / 387 / 388 / 389 / 390 / 391 / 392 / 393 / 394 / 395 / 396 / 397 / 398 / 399 / 400 / 401 / 402 / 403 / 404 / 405 / 406 / 407 / 408 / 409 / 410 / 411 / 412 / 413 / 414 / 415 / 416 / 417 / 418 / 419 / 420 / 421 / 422 / 423 / 424 / 425 / 426 / 427 / 428 / 429 / 430 / 431 / 432 / 433 / 434 / 435 / 436 / 437 / 438 / 439 / 440 / 441 / 442 / 443 / 444 / 445 / 446 / 447 / 448 / 449 / 450 / 451 / 452 / 453 / 454 / 455 / 456 / 457 / 458 / 459 / 460 / 461 / 462 / 463 / 464 / 465 / 466 / 467 / 468 / 469 / 470 / 471 / 472 / 473 / 474 / 475 / 476 / 477 / 478 / 479 / 480 / 481 / 482 / 483 / 484 / 485 / 486 / 487 / 488 / 489 / 490 / 491 / 492 / 493 / 494 / 495 / 496 / 497 / 498 / 499 / 500 / 501 / 502 / 503 / 504 / 505 / 506 / 507 / 508 / 509 / 510 / 511 / 512 / 513 / 514 / 515 / 516 / 517 / 518 / 519 / 520 / 521 / 522 / 523 / 524 / 525 / 526 / 527 / 528 / 529 / 530 / 531 / 532 / 533 / 534 / 535 / 536 / 537 / 538 / 539 / 540 / 541 / 542 / 543 / 544 / 545 / 546 / 547 / 548 / 549 / 550 / 551 / 552 / 553 / 554 / 555 / 556 / 557 / 558 / 559 / 560 / 561 / 562 / 563 / 564 / 565 / 566 / 567 / 568 / 569 / 570 / 571 / 572 / 573 / 574 / 575 / 576 / 577 / 578 / 579 / 580 / 581 / 582 / 583 / 584 / 585 / 586 / 587 / 588 / 589 / 590 / 591 / 592 / 593 / 594 / 595 / 596 / 597 / 598 / 599 / 600 / 601 / 602 / 603 / 604 / 605 / 606 / 607 / 608 / 609 / 610 / 611 / 612 / 613 / 614 / 615 / 616 / 617 / 618 / 619 / 620 / 621 / 622 / 623 / 624 / 625 / 626 / 627 / 628 / 629 / 630 / 631 / 632 / 633 / 634 / 635 / 636 / 637 / 638 / 639 / 640 / 641 / 642 / 643 / 644 / 645 / 646 / 647 / 648 / 649 / 650 / 651 / 652 / 653 / 654 / 655 / 656 / 657 / 658 / 659 / 660 / 661 / 662 / 663 / 664 / 665 / 666 / 667 / 668 / 669 / 670 / 671 / 672 / 673 / 674 / 675 / 676 / 677 / 678 / 679 / 680 / 681 / 682 / 683 / 684 / 685 / 686 / 687 / 688 / 689 / 690 / 691 / 692 / 693 / 694 / 695 / 696 / 697 / 698 / 699 / 700 / 701 / 702 / 703 / 704 / 705 / 706 / 707 / 708 / 709 / 710 / 711 / 712 / 713 / 714 / 715 / 716 / 717 / 718 / 719 / 720 / 721 / 722 / 723 / 724 / 725 / 726 / 727 / 728 / 729 / 730 / 731 / 732 / 733 / 734 / 735 / 736 / 737 / 738 / 739 / 740 / 741 / 742 / 743 / 744 / 745 / 746 / 747 / 748 / 749 / 750 / 751 / 752 / 753 / 754 / 755 / 756 / 757 / 758 / 759 / 760 / 761 / 762 / 763 / 764 / 765 / 766 / 767 / 768 / 769 / 770 / 771 / 772 / 773 / 774 / 775 / 776 / 777 / 778 / 779 / 780 / 781 / 782 / 783 / 784 / 785 / 786 / 787 / 788 / 789 / 790 / 791 / 792 / 793 / 794 / 795 / 796 / 797 / 798 / 799 / 800 / 801 / 802 / 803 / 804 / 805 / 806 / 807 / 808 / 809 / 810 / 811 / 812 / 813 / 814 / 815 / 816 / 817 / 818 / 819 / 820 / 821 / 822 / 823 / 824 / 825 / 826 / 827 / 828 / 829 / 830 / 831 / 832 / 833 / 834 / 835 / 836 / 837 / 838 / 839 /

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NOTES:

1. FOR GENERAL NOTES, SEE DWG SZ-0940-PESG-1 SERIES.
2. MULTIPLE CONDUITS CAN BE ATTACHED TO THE SUPPORT PROVIDED TOTAL WEIGHT OF CONDUITS ATTACHED ARE WITHIN THE ALLOWABLE CONDUIT SUPPORT CAPACITY.
3. PLAIN OR ELEVATION IS SCHEMATIC AND MAY BE OPPOSITE HAND.
4. FOR CONDUIT ATTACHMENT, SEE DWG SZ-0940-PESG-6 SERIES.
5. FILLER PLATE WEIGHT SHALL BE INCLUDED IN THE CONDUIT SUPPORT LOAD CALCULATION.
6. SRF INDICATES SPREAD ROOM FRAMING.
7. NO CAP PLATES ARE REQUIRED FOR THE MATCHED BOX CONNECTIONS ON THIS SUPPORT.

NOTICE

DESIGN CHANGE STATUS OF THIS
DRAWING SHALL BE CHECKED AT A
COMPUTER TERMINAL PRIOR TO USE

CLASS I

INTEGRAL SAFETY-RELATED
SAFETY CLASS 1: SYSTEM CATEGORY 1
SAFETY CLASS 2: SYSTEM
SAFETY CLASS 3: SYSTEM

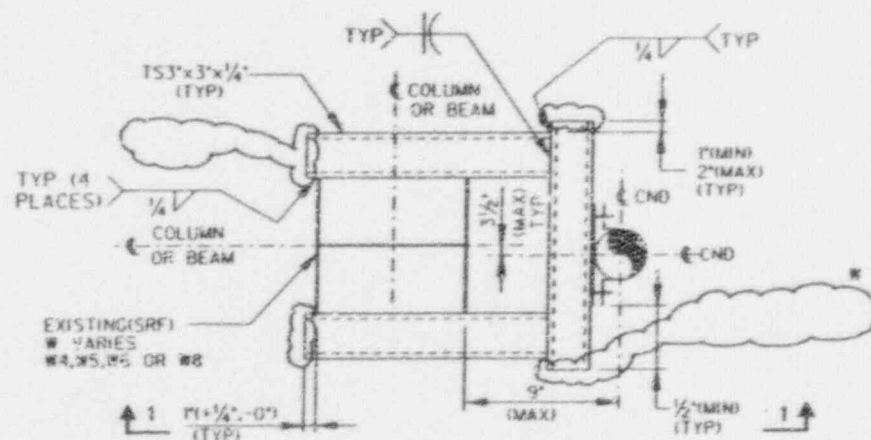
TJ ELECTRIC
CPSES
GLEN ROSE, TEXAS

PRE-ENGINEERED STANDARD DESIGN
(PESD) FOR CATEGORY I CONDUIT
SYSTEMS

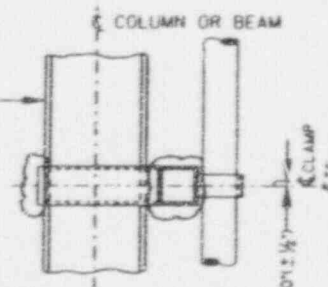
DATE REC.	SALVAGE	REV.
52-0910 SH. PESO-3-29	-	CP-2

FINAL PRINT

CABLE SPREAD ROOM FRAME STANDARD DETAIL



SR-9
PLAN OR ELEVATION



SECTION 1-1

ALLOWABLE CONDUIT
SUPPORT CAPACITY (LBS)

300

809103302.DGN

REV	DATE	BY	CHK	APP	REVISION
CP-2	03-26-1991	AB	TS	3-27-91	REVISED AS NOTED ALSO INCORPORATED DCA 93928 REV 0.
GROUP ORGANIZATION					
REVISIONS INITIALS AND DATE					
NOTES					
1. FOR GENERAL NOTES, SEE DWG S2-0910-PESD-1 SERIES.					
2. MULTIPLE CONDUITS CAN BE ATTACHED TO THE SUPPORT, PROVIDED TOTAL WEIGHT OF CONDUITS ATTACHED ARE WITHIN THE ALLOWABLE CONDUIT SUPPORT CAPACITY.					
3. PLAN OR ELEVATION IS SCHEMATIC AND MAY BE OPPOSITE HAND.					
4. FOR CONDUIT ATTACHMENT SEE DWG S2-0910-PESD-6 SERIES.					
5. FILLER PLATE WEIGHT SHALL BE INCLUDED IN THE CONDUIT SUPPORT LOAD CALCULATION.					
6. SRF INDICATES SPREAD ROOM FRAMING.					
7. NO CAP PLATES ARE REQUIRED FOR THE MATCHED BOX CONNECTIONS ON THIS SUPPORT.					
NOTICE					
DESIGN CHANGE STATUS OF THIS DRAWING SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE.					
CLASS I					
NUCLEAR SAFETY-RELATED					
SAFETY CLASS 1 - GENERAL CATEGORY 1					
SAFETY CLASS 2 - CLASS A					
SAFETY CLASS 3 - CLASS B					
TU ELECTRIC					
CPSES					
GLEN ROSE, TEXAS					
PRE-ENGINEERED STANDARD DESIGN (PESD) FOR CATEGORY 1 CONDUIT SYSTEMS					
DWG. NO.	S2-0910 SH, PESD-3-30	THRU	REV.	CP-2	

FINAL PRINT

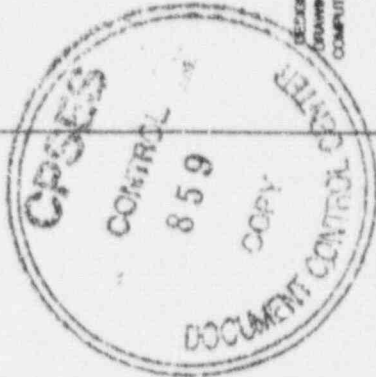
4.0 JUNCTION BOX DETAILS

1. FOR GENERAL NOTES SEE SECTION 1.0.
2. STEEL SHEET METAL FOR BOXES SHALL BE A569 OR A570, GRADE C.
3. BOXES SHALL BE FOR SURFACE MOUNTING, UNLESS OTHERWISE SPECIFIED. MOUNTING HOLES OR MOUNTING LUGS SHALL BE PROVIDED AT THE LOCATIONS SHOWN IN DETAILS (SEE SECTION 5.0).
4. DELETED
5. DELETED
6. THE WEIGHT OF CONTENTS INSIDE JUNCTION BOX SHALL BE EQUAL TO OR LESS THAN 10 LBS/FT TIMES THE LARGEST DIMENSION AND SHALL BE CONNECTED TO THE BACK PLATE.
7. MOUNTING LUGS ARE PERMITTED FOR JUNCTION BOXES GROUP 1 ONLY, WITH A MAXIMUM SIZE OF 30"x30"x24".
8. SHIMS UP TO 1/4" THICK MAY BE PLACED BETWEEN BOX LUGS AND THE MOUNTING SURFACE TO PREVENT EXCESSIVE BENDING OF THE LUGS, IF REQUIRED.
9. 4"MIN x 4"MIN x 1/4" MAX THICK FILLER PLATES MAY BE USED BETWEEN JUNCTION BOX AND ITS SUPPORTING SURFACE IF REQUIRED.
10. THE MAXIMUM HOLE DIAMETER FOR THE FILLER PLATE SHALL BE THE NOMINAL BOLT DIAMETER + 1/4" INCH.
11. FOR RIGID CONDUIT CONNECTIONS TO THE JUNCTION BOX USE DETAILS 5 AND 6 DRAWING E1-1701 SH. 1; FOR FLEXIBLE CONDUIT CONNECTIONS USE DETAIL 2 DRAWING E1-1701 SH. 1.
12. FOR VENT HOLE REQUIREMENTS IN JUNCTION BOX SEE CPES-E-2004.

13. NO GROUTING TO THE BACK PLATE OF THE JUNCTION BOX IS REQUIRED.

14. ALL JUNCTION BOX SIZES ARE SHOWN AS LENGTH x WIDTH x DEPTH (L x W x D). L=0, H (L=0), L=12, W=10, D=8; SHOWN AS 12"x10"x8".

15. BOXES AND COVERS SHALL BE MADE FROM STEEL SHEET OF THICKNESS NOT LESS THAN THE FOLLOWING:
 LARGEST BOX DIMENSION LESS THAN 36" - 14 U.S. GAGE
 LARGEST BOX DIMENSION EQUAL TO OR GREATER THAN 36" AND LESS THAN OR EQUAL TO 48" - 12 U.S. GAGE
 LARGEST BOX DIMENSION GREATER THAN 48" - 10 U.S. GAGE



NOTICE

DESIGN CHANGE STATUS OF THIS DRAWING SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE.

REDRAWN FROM:
 DMC, SZ-0910 SH, PESD-4-1 REV. CP-1
 ORIGINAL ORGANIZATION: EBASCO

CLASS I

REGULATORY SAFETY RELATED
 SAFETY OF THE PUBLIC
 SAFETY OF THE ENVIRONMENT

TJ ELECTRIC

CPSES

GLEN ROSE, TEXAS

PRE-ENGINEERED, STANDARD DESIGN
 (PESD) FOR CATEGORY 1 CONDUIT
 SYSTEMS

CP-3
 SZ-0910 SH, PESD-4-1 REV. CP-3

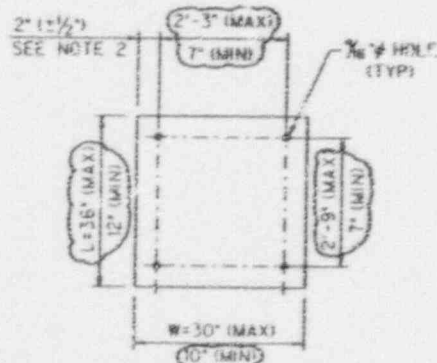
FINAL PRINT

80955C-413.DGN

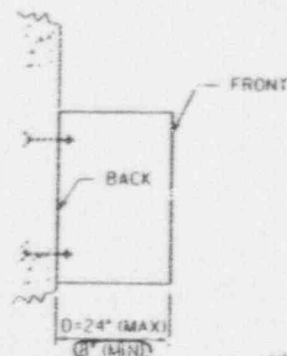
20-MAR-1991 14:02

I. JUNCTION BOX GROUP 1

(FROM 12x12x12
UP TO 36x30x24)

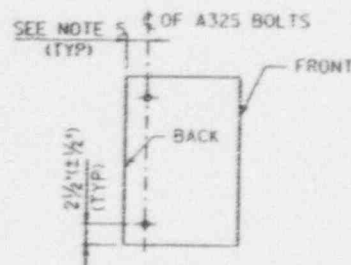


FRONT VIEW
ON BACK PLATE



SIDE VIEW

FOR JUNCTION BOX SUPPORT JBS-1 AND 4



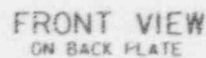
SIDE VIEW
FOR JUNCTION BOX SUPPORT JBS-2

NOTICE
DESIGN CHANGE STATUS OF THIS
DRAWING SHALL BE CHECKED AT A
COMPUTER TERMINAL PRIOR TO USE

REV	DATE	BY	CHK	APPD	REMARKS
CP-3	5-20-91	JS	JS	JS	REVISED AS NOTED
<p>DESIGN/INFORMATION</p> <p>REVISIONS INITIALS AND DATE</p>					
<p>NOTES:</p> <p>1. DELETED</p> <p>2. THIS DIMENSION IS APPLICABLE TO ALL FOUR SIDES.</p> <p>3. FOR TYPE AND SIZE OF BOLTS SEE SUPPORT DETAILS ON SH-PESD-5-1 TO SH-PESD-5-6.</p> <p>4. FOR MOUNTING DETAIL, SEE SH-PESD-4-4.</p> <p>5. FOR HOLE LOCATIONS, SEE SECTION 1-1 SH-PESD-5-3.</p>					
<p>REDRAWN FROM:</p> <p>DMC 52-090 SH-PESD-4-2 REV. CP-1</p> <p>ORIGINAL ORGANIZATION: EBASCO</p>					
<p>CLASS I</p> <p>NUCLEAR SAFETY RELATED</p> <p>SAFETY CLASS 1 - DESIGN CATEGORY 1</p> <p>SAFETY CLASS 2 - CLASS 1</p> <p>SAFETY CLASS 3 - DESIGN CATEGORY 1</p>					
<p>TO ELECTRIC</p> <p>CPSES</p> <p>GLEN ROSE, TEXAS</p>					
<p>PRE-ENGINEERED STANDARD DESIGN (PESD) FOR CATEGORY 1 CONDUIT SYSTEMS</p>					
<p>DMC 52-090 SH-PESD-4-2</p> <p>DMC 52-090 SH-PESD-4-2</p> <p>CP-3</p>					

FINAL PRINT

(FROM 24x12x12
UP TO 60x48x30)



SEE NOTE 4
(TYP)

1'-10" (MAX)

1'-12" (MAX)

2 1/2" (TYP)

FRONT

BACK

SIDE VIEW

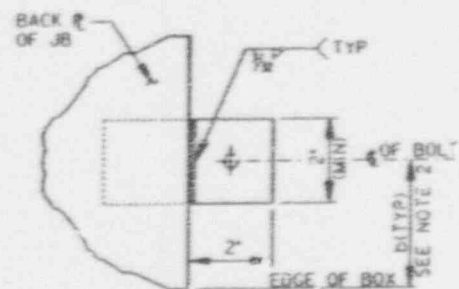
21 SIDE VIEW
FOR JUNCTION BOX SUPPORT JBS-2

NOTICE
DESIGN CHANGE STATUS OF THIS
DRAWING SHALL BE CHECKED AT A
COMPUTER TERMINAL PRIOR TO USE

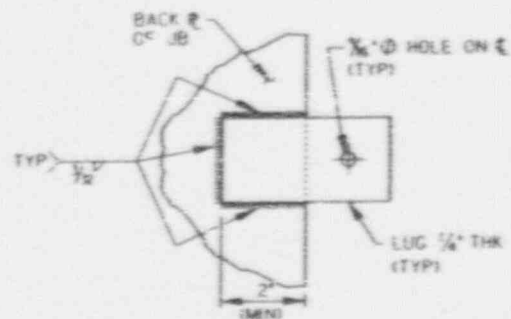
REV.	DATE CHG'D	BY	APPROV.	REMARKS
CP-3	SLF 03-20 1991	TO 1/27/91	GA 1/27/91	REVISED AS NOTED
<div style="display: flex; justify-content: space-between;"> <div>GROUP 1 ORGANIZATION PAGE</div> <div>GROUP 2 ORGANIZATION PAGE</div> <div>GROUP 3 ORGANIZATION PAGE</div> <div>GROUP 4 ORGANIZATION PAGE</div> <div>GROUP 5 ORGANIZATION PAGE</div> <div>GROUP 6 ORGANIZATION PAGE</div> <div>GROUP 7 ORGANIZATION PAGE</div> <div>GROUP 8 ORGANIZATION PAGE</div> <div>GROUP 9 ORGANIZATION PAGE</div> <div>GROUP 10 ORGANIZATION PAGE</div> </div>				
REVISIONS: INITIALS AND DATE 01/27/91				
NOTES: 1. DELETED <div style="border: 1px solid black; height: 80px; width: 90%; margin: 10px 0;"></div> 2. FOR TYPE AND SIZE OF BOLTS SEE SUPPORT DETAILS ON SH PESD-S-1 TO SH PESD-S-6. 3. FOR MOUNTING DETAIL, SEE SH PESD-4-4. 4. FOR HOLE LOCATIONS, SEE SECTION 1-1 SH PESD-S-3. 5. MAXIMUM JUNCTION BOX SIZE APPLICABLE FOR JBS-2 FROM GROUP 2 IS 4X4X24. 6. THIS DIMENSION IS APPLICABLE TO ALL FOUR SIDES.				
<div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> REDRAWN FROM: DWG. S2-0910 SH PESD-4-3 REV. CP-1 ORIGINAL ORGANIZATION: EBA/CO </div>				
CLASS I NUCLEAR SAFETY-RELATED SAFETY CLASS 1 SYSTEM CATEGORY 1 DIVISION 1 CLASS 1 DIVISION 1 CLASS 1 APPROXIMATE CONCRETE				
TU ELECTRIC CPS&S GLEN ROSE, TEXAS				
PRE-ENGINEERED STANDARD DESIGN (PESD) FOR CATEGORY 1 CONDUIT SYSTEMS				
DWG. NO.		S2-0910 SH PESD-4-3		SERIAL - REV. CP-3

FINAL PRINT

NO



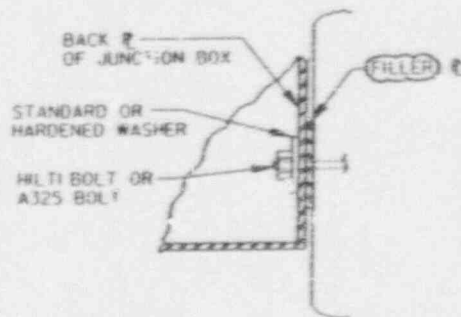
FRONT VIEW



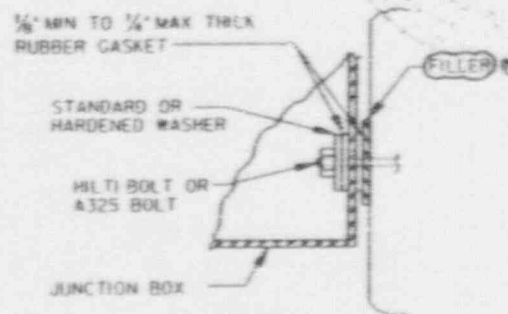
BACK VIEW

MOUNTING LUG DETAIL A

(FOR JUNCTION BOX GROUP 1 ONLY
WITH JUNCTION BOX SUPPORT JBS-3)



TYPICAL MOUNTING DETAIL B
FOR JBS-1 AND 4



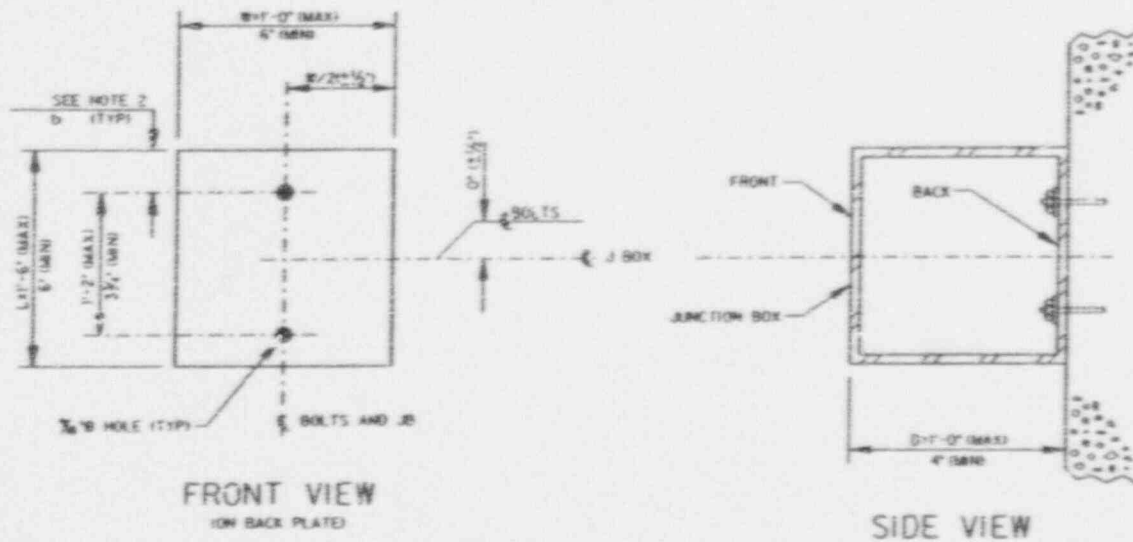
ALTERNATE MOUNTING DETAIL B
WITH RUBBER GASKET

REV	DATE	BY	CHKD	REMARKS
CP-3	SLF 03-79 1979 RSL	MS JF	TS 3-28 91	REVISED AS NOTED
<div>GROUP</div> <div>REVISIONS DETAILS AND DATE</div>				
<div>NOTES:</div> <div>1. PROVIDE $\frac{1}{8}$" TO $\frac{1}{4}$" THICK RUBBER GASKET AS REQUIRED ON JOINTION BOXES.</div> <div>PER SPECIFICATION CP-E-2004.</div> <div>S.E. ALTERNATE MOUNTING DETAIL B.</div> <div>2. SEE NOTE 2 ON SH-PSD-4-2.</div>				
<div>NOTICE</div> <div>DESIGN CHANGE STATUS OF THIS DRAWING SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE</div>				
<div> <div>REORDER FROM:</div> <div>OML S2-0910 SH-PSD-4-4 REV. CP-1</div> <div>ORIGINAL ORGANIZATION EBASCO</div> </div>				
<div> <div>CLASS I</div> <div>PRECEDENCE SAFETY RELATION</div> <div>SAFETY CLASS 1: GENERAL CATEGORY 1</div> <div>SAFETY CLASS 1: GENERAL CATEGORY 1</div> </div>				
<div> <div>TU ELECTRIC</div> <div>CPSES</div> <div>GLEN ROSE TEXAS</div> </div>				
<div> <div>PRE-ENGINEERED STANDARD DESIGN</div> <div>(PSD) FOR CATEGORY I CONDUIT SYSTEMS</div> </div>				
OML NO.	S2-0910 SH-PSD-4-4			CLASS I
				CP-3

FINAL PRINT

V JUNCTION BOX GROUP 3

(FROM 6x6x4 UP
TO 18x12x12)



FOR JUNCTION BOX SUPPORT JBS-1

REV	DATE	BY	CHK	APPV	REMARKS
CP-1	03-20-1991	[Signature]	[Signature]	[Signature]	INITIAL ISSUE
<p>GROUP IDENTIFICATION</p> <p>REVISIONS INITIALS AND DATE</p>					
<p>NOTES:</p> <p>1. SEE NOTE 2 ON PESD-4-2 FOR DIMENSIONS.</p> <p>2. FOR TYPE AND SIZE OF BOLT, SEE SUPPORT DETAILS ON PESD-5 SERIES.</p> <p>3. FOR MOUNTING DETAILS, SEE SH, PESD-4-4.</p>					
<p>NOTICE</p> <p>DESIGN CHANGE STATUS OF THIS DRAWING SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE.</p>					
<p>CLASS I</p> <p>HAZARDOUS SAFETY RELATED</p> <p>SAFETY CLASS 1 - GROUP 1 CATEGORY 1</p> <p>SAFETY CLASS 2 - GROUP 2 CATEGORY 1</p> <p>SAFETY CLASS 3 - GROUP 3 CATEGORY 1</p>					
<p>TO: ELECTRIC</p> <p>CPSES</p> <p>GLEN ROSE, TEXAS</p>					
<p>PRE-ENGINEERED STANDARD DESIGN</p> <p>(PESD) FOR CATEGORY I CONDUIT SYSTEMS</p>					
<p>52-0910 SH, PESD-4-6</p> <p>CP-1</p>					

FINAL PRINT

20-MAR-1991 2:46

809400461.DGN

FILE PRINTS UNDER 809400461.DGN

COMANCHE PEAK STEAM ELECTRIC STATION UNIT 2 DESIGN CHANGE AUTHORIZATION

1 DCA NO./REVISION: 94244 1.0
12 PAGE 1 OF 2

1 LOCATION: BLDG/ROOM/ELEVATION/ATMUTH
UNIT 2 & COMMON
2 EQUIPMENT/COMPONENT I.D. NO.: N/A
34 SYSTEM/SUBSYSTEM/AREA NO.: GENERIC
35 INITIATING DOCUMENTS I.D. NO.: N/A
36 PROBLEM DESCRIPTION/PROMISED CHANGE (OPTIONAL): DRAWING NO. 52-0910 SH. PESD-4-6, REV. CP-1
DOES NOT SHOW DIMENSION FOR 'b (TYP)'. ALSO NOTE 1 IS NO LONGER VALID.

37 DISCIPLINE: ☐ MECH. ☒ ELECT. ☐ CIV. ☐ I&C ☐ HVAC ☐ OTHER (SPECIFY)
38 A. AHOJANI
ORIGINATED BY: J. B. JAWAN DATE: 4-1-91 ORGANIZATION: ABB IMPELL DATE: 5007
39 APPROVAL: D. S. REWINKER DATE: 4-2-91

76 DETAILS OF CHANGE: SEE PAGE 2 FOR DETAIL.

"MEL IS NOT AFFECTED BY THIS DESIGN CHANGE"

77 ENGINEERING BASIS: ADD DIMENSION FOR 'b (TYP)' AND DELETE NOTE 1 AS SHOWN ON PAGE 2. CHANGES ARE MADE FOR CLARIFICATIONS. NO CALCULATION IS REQUIRED.
"MEL IS NOT AFFECTED BY THIS DESIGN CHANGE"

8 AFFECTED DOCUMENT NUMBERS: INCORPORATION REQUIRED?
DWC NO. 52-0910 SH. PESD-4-6
REV. CP-1
YES NO
✓
12 REFERENCE DOCUMENTS: N/A

RECEIVED
APR 05 1991

21 REMARKS: CPMNA
DCC
11 9-1 IMPACT: ☐ YES ☒ NO
12 THE HIGHEST CLASS OF AFFECTED DOCUMENT(S) IS: ☒ CLASS I OR II ☐ NON-SAFETY

25 ADDITIONAL DISTRIBUTION: N/A
13 LGH NO.: N/A
14 DOES DESIGN CHANGE CHANGE GENERIC REQUIREMENT?
☒ YES ☐ NO
IF YES, IS BACKFIT REQUIRED? ☐ YES ☒ NO
15 RESPONSIBLE ENGINEER: A. AHOJANI
J. Ahojani DATE: 4/02/91

16 DESIGN VERIFIER: T. S. ALI DATE: 4/3/91
METHOD: DESIGN CALCULATION REVIEW

17 LEAD DISCIPLINE ENGINEER: D. C. PANDYA DATE: 4/3/91
18 DESIGN REPRESENTATIVE: DATE: 4/3/91
19 PROJECT ENGINEER: DATE: 4/3/91
10 INTERDISCIPLINARY REVIEW (IDR):
GROUP CODE: CONST. AC
INITIALS (REVIEWER): 48 120
DATE: 4/3/91

4 DCA NO. / REVISION: 94244, 0

76 PAGE 2 OF 2

FROM 6x6x4 UP
TO 18x12x12



1. DELETED

2. FOR TYPE AND SIZE OF BOLT, SEE
SUPPORT DETAILS ON PESD-9 SERIES.

3. FOR MOUNTING DETAILS, SEE SM, PESD-4-4

4. $L \leq 10''$; $b = 1\frac{1}{8}'' (-\frac{1}{4}, +0)$
 $L > 10''$; $b = 2'' (\pm \frac{1}{2})$

S2-0910 SH. PESSD-4-6
Rev. Cp-1

5.0 JUNCTION BOX SUPPORT DETAILS

1. FOR GENERAL NOTES SEE SECTION 1.0.
2. WORK THESE DETAILS WITH SECTION 4.0.
3. THE LOAD ON JUNCTION BOX FROM THE ATTACHED CONDUIT IS EQUAL TO HALF THE SPAN FROM THE FACE OF BOX TO THE FIRST CONDUIT SUPPORT TIMES THE UNIT WEIGHT OF THE CONDUIT (TABLE A, SHA, PESD-2-2).
4. FOR CAPACITY OF JUNCTION BOX SUPPORTS, JBS-2 AND JBS-3, THE TOTAL MAXIMUM LOAD DUE TO THE CONNECTION OF RIGID AND FLEXIBLE CONDUIT TO THE BOX SHALL NOT EXCEED THE JUNCTION BOX WEIGHT. SEE SHA, PESD-4-5.
5. DELETED
6. WHEN NELSON STUDS ARE USED TO MOUNT A JUNCTION BOX, USE A 1/4" FILLER PLATE BETWEEN BACK OF JUNCTION BOX AND MOUNTING SURFACE. FILLER PLATE MAY BE 0'-4" WIDE BY LENGTH OF JUNCTION BOX (L ± 1/4") OR A MINIMUM OF 0'-2" x 0'-2" CENTERED OVER EACH NELSON STUD. USE OVERSIZED HOLES FOR NELSON STUDS. SLOTTED FILLER PLATES MAY BE USED AS SHOWN ON SHA, PESD-5-12.

REV	DATE	BY	CHKD	DESCRIPTION
CP-1	5/15/91	MA	MS	REVISED AS NOTED
<p>DESIGN CHANGE STATUS OF THIS DRAWING SHALL BE CHECKED AT A COMPUTED TERMINAL PRIOR TO USE</p>				
<p>NOTICE</p>				
<p>DESIGN CHANGE STATUS OF THIS DRAWING SHALL BE CHECKED AT A COMPUTED TERMINAL PRIOR TO USE</p>				
<p>REVISION FROM:</p> <p>ORIG. 52-0900 SHA, PESD-5-11 REV. CP-1</p> <p>ORIGINAL ORGANIZATION (BASED)</p>				
<p>CLASS I</p> <p>NEELSON SAFETY SYSTEMS</p> <p>1700 E. 10TH AVE. SUITE 100</p> <p>IRVING, TEXAS 75039</p> <p>TEL: (214) 343-1111</p> <p>FAX: (214) 343-1112</p> <p>TO: ELECTRIC</p> <p>CPSES</p> <p>GLEN ROSE, TEXAS</p>				
<p>PRE-ENGINEERED STANDARD DESIGN (PESD) FOR CATEGORY I CONDUIT SYSTEMS</p>				
DATE	REV	DESCRIPTION	DATE	REV
52-0900	SHA, PESD-5-11	CP-1	5/15/91	MA

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FINAL PRINT



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• B

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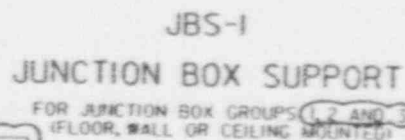
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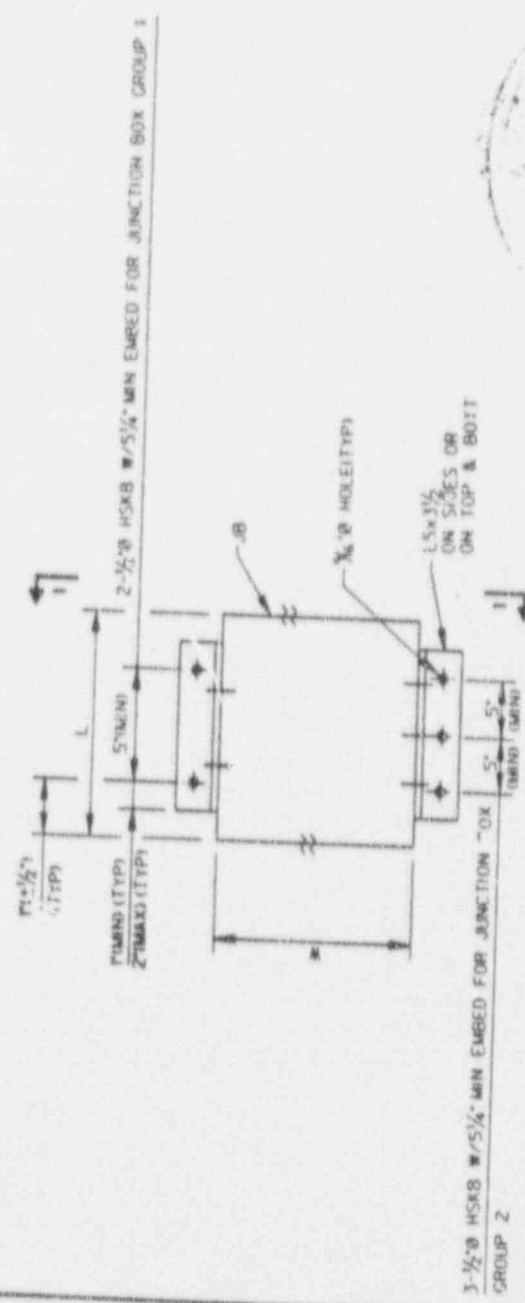
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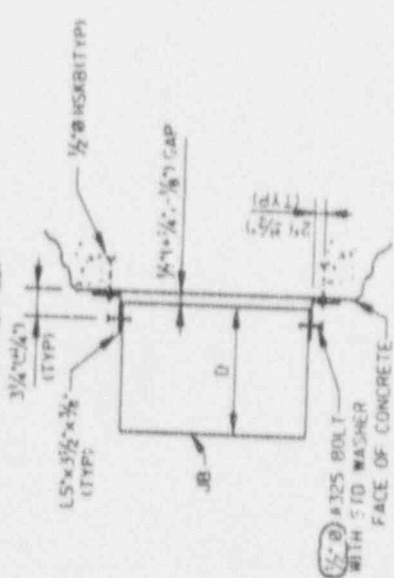
NOTICE
DESIGN CHANGE STATUS OF THIS
DRAWING SHALL BE CHECKED AT A
COMPUTER TERMINAL PRIOR TO USE

FINAL PRINT



JBS-2 JUNCTION BOX SUPPORT DETAIL

FOR JUNCTION BOX GROUPS 1 & 2 (SEE NOTE 1)
(FLOOR, WALL OR CEILING MOUNTED)



SECTION 1-1

NOTICE
DESIGN CHANGE STATUS OF THIS
DRAWING SHALL BE CHECKED AT A
COMPUTER TERMINAL PRIOR TO USE

REV	DATE	BY	CHKD	REVISIONS
1	10-1-80	SP	SP	REVISED AS NOTED
<p>DESIGNED BY: SP</p> <p>CHECKED BY: SP</p> <p>APPROVED BY: SP</p>				

NOTES:

1. MAXIMUM JUNCTION BOX SIZE FOR JBS-2 IS 48"x42"x24" FROM GROUP 2
2. SEE SH. PFSO-4-3 FOR BOLT SPACING OF BOX TO ANGLE
3. NO GROUT IS REQUIRED ON THE BACK OF THE ANGLES.

DESIGNED FROM:
DWG. S2-0340 SH. PFSO-5-3 REV. CP-1
ORIGINAL ORGANIZATION EMBLCO

CLASS 1
MAXIMUM SAFETY RELIABILITY
100% TESTING REQUIRED

TO ELECTRIC
CONCRETE
GLEN ROSE, TEXAS

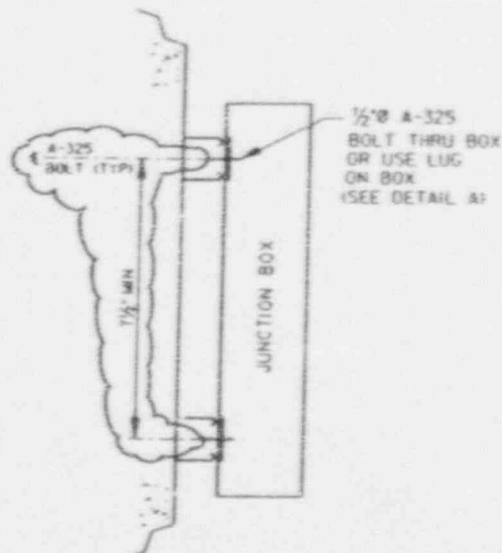
PRE-ENGINEERED STANDARD
DESIGN (PFSO) FOR
CATEGORY 1 CONDUIT SYSTEMS

DATE: 10-1-80
S2-0340 SH. PFSO-5-3
PAGE: 1
REV: CP-3

FINAL PRINT

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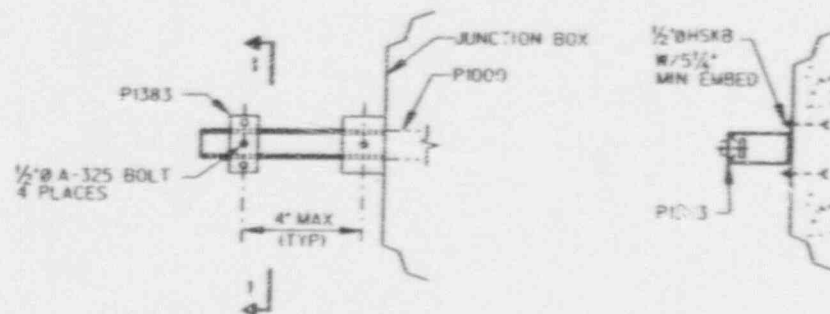
21-MAR-1981 11:17



JBS-3

JUNCTION BOX SUPPORT DETAIL

FOR JUNCTION BOX GROUP 10M: * (SEE NOTE 1)
(FLOOR, WALL OR CEILING MOUNTED)



DETAIL A

SECTION 1-1

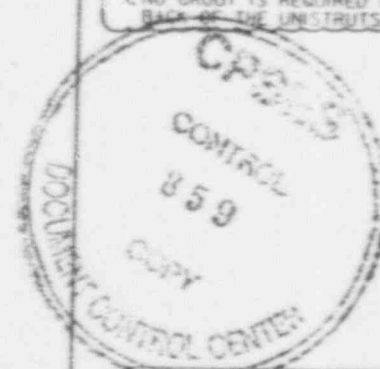
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DRAWING SHALL BE CHECKED AT A
COMPUTER TERMINAL PRIOR TO USE.

REV	DATE	BY	CHK	APP	REMARKS
CP-3	12-21-1991	CP	CP	CP	REVISED AS NOTED

GROUP ORGANIZATION	CLASS	DATE	BY	CHK	APP
REVISIONS INITIALS AND DATE					

NOTES:

1. MAXIMUM JUNCTION BOX SIZE FOR JBS-3 IS 30"x30"x24" FROM GROUP
2. FOR BOLT SPACING THRU BACK OF BOX, SEE SH. PESD-4-2.
3. NO GROUT IS REQUIRED ON THE BACK OF THE UNSTRUTS.



REVISIONS FROM
DWC 52-0990 SH. PESD-5-4 REV. CP-1
ORIGINAL ORGANIZATION: EBASCO

CLASS I
FLEXIBLE SAFETY-RELATED
ELECTRIC SYSTEMS
ELECTRIC SYSTEMS

TIU ELECTRIC
CPSES
GLEN ROSE, TEXAS

PRE-ENGINEERED STANDARD
DESIGN (PESD) FOR
CATEGORY I CONDUIT SYSTEMS

DWC NO.	52-0990 SH. PESD-5-4	DATE	REV.	CP-3
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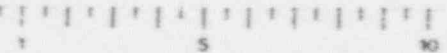
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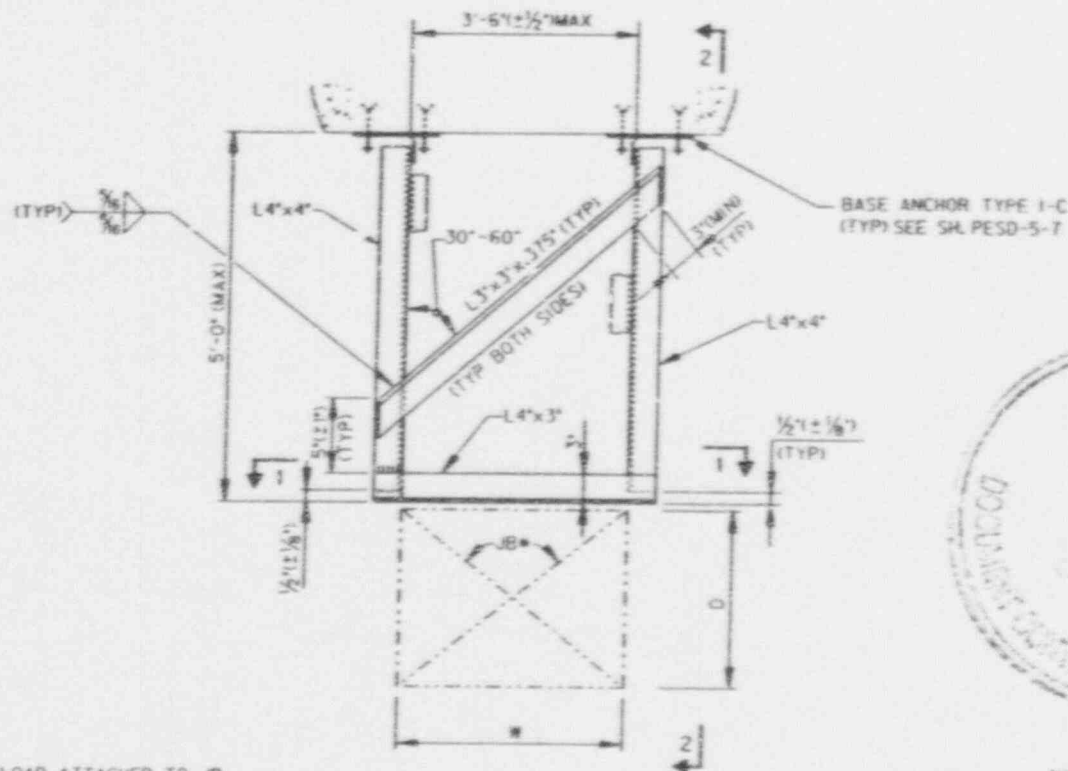
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JBS-4 JUNCTION BOX SUPPORT

(FOR JUNCTION BOX GROUPS 1 & 2
FLOOR, WALL OR CEILING MOUNTED)



PLAN OR ELEVATION

* MAXIMUM JUNCTION BOX SIZE
48"x42"x24"

* CONDUIT LOAD ATTACHED TO JB

* CAPACITY (LBS)
150

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REV	DATE	BY	CHK	APP	REVISION
CP-3	11-12-90	RB	W	5-20-91	REVISED AS NOTED

GROUP / ORGANIZATION	REVISIONS INITIALS AND DATE

NOTES:
1. FOR SECTION 1-1 AND 2-2, SEE DWG. S2-0910 SH. PESD-5-6.

REDRAWN FROM:
DWG. S2-0910 SH. PESD-5-5 REV. CP-1
ORIGINAL ORGANIZATION: EBASCO

CLASS I
MEDIUM SAFETY-RELATED
SAFETY CLASS 1 - SYSTEMS CATEGORY 1
SAFETY CLASS 1 - SYSTEMS CATEGORY 1
SAFETY CLASS 1 - SYSTEMS CATEGORY 1

TO: ELECTRIC
CPSES
GLEN ROSE, TEXAS

PRE-ENGINEERED STANDARD DESIGN
(PESD) FOR CATEGORY I CONDUIT
SYSTEMS

DWG. NO. S2-0910 SH. PESD-5-5 SCALE: 1"=1'-0" CP-3

FINAL PRINT

THIS IS A PRELIMINARY DRAWING

NOTICE
DESIGN CHANGE STATUS OF THIS
DRAWING SHALL BE CHECKED AT A
COMPUTER TERMINAL PRIOR TO USE.

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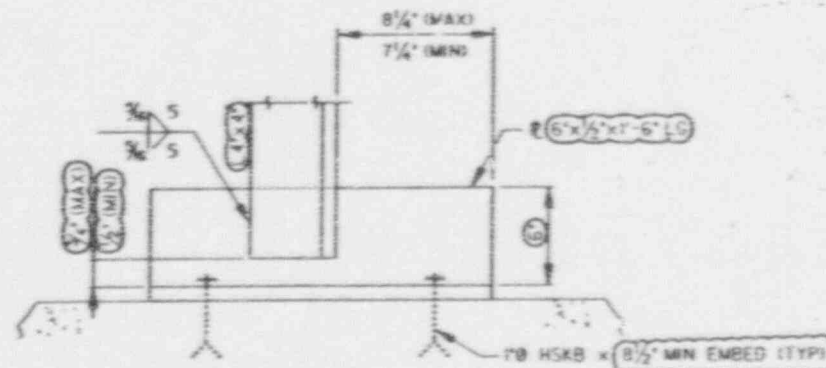
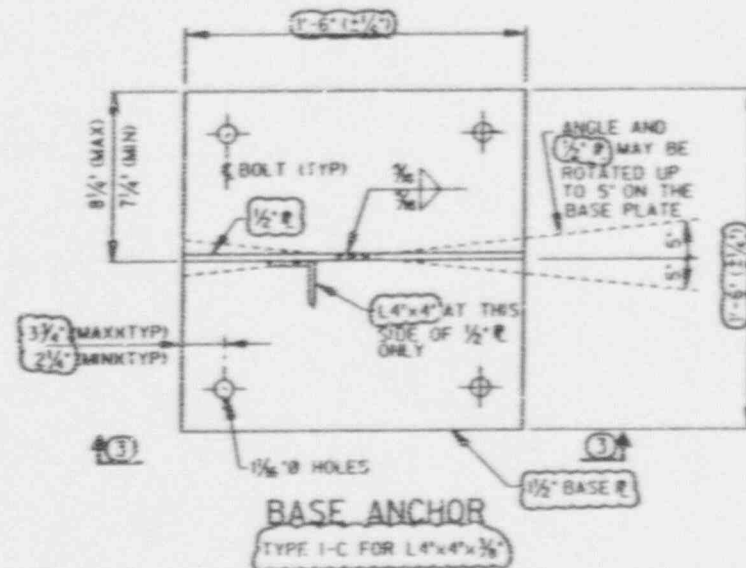
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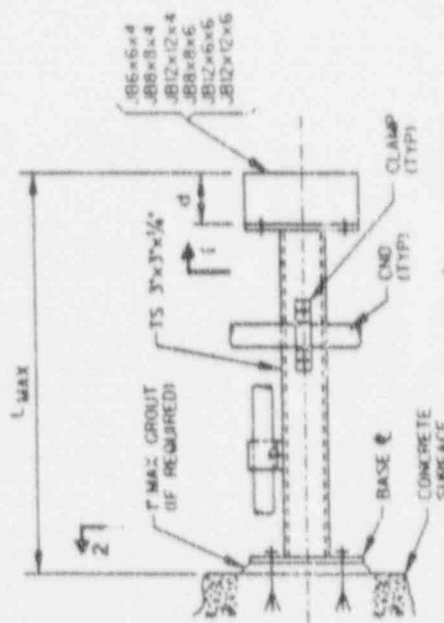
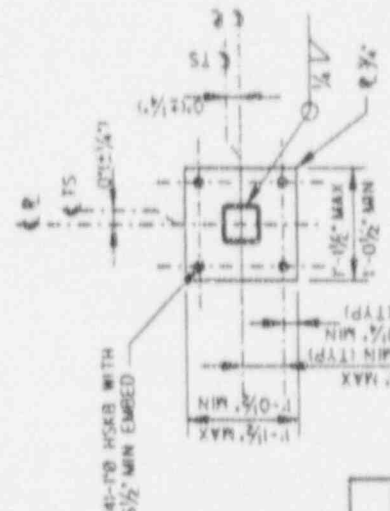
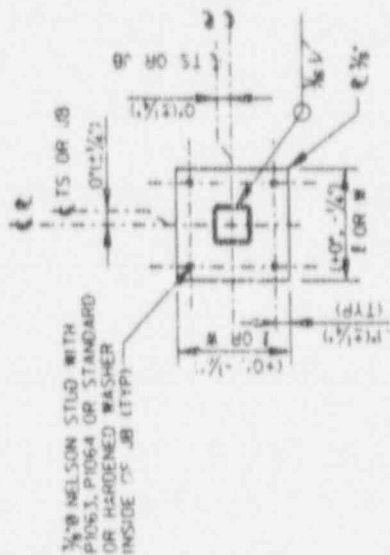
JBS-4 (CONT-2)



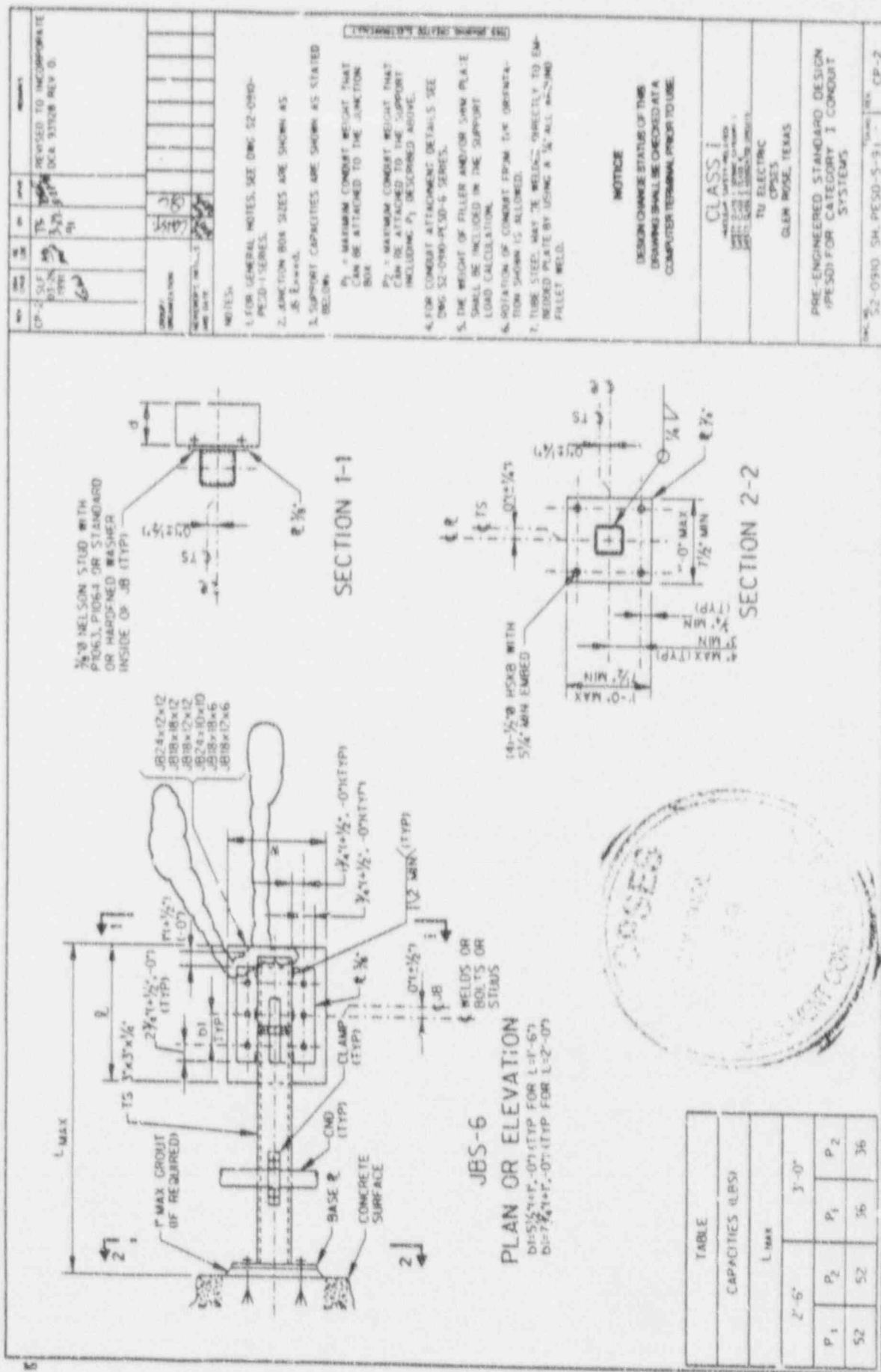
SECTION 3-3

REV	DATE	BY	CHKD	REMARKS
CP-2	12-18-1990	AB	AB	REVISED AS NOTED
<p>GROUP 1 ORGANIZATION</p> <p>REVISIONS SERIAL AND DATE</p> <p>NOTES</p> <p>1. THIS SHEET IS A CONTINUATION OF DWG. S2-0910 SAL PESD-S-S.</p>				
<p>NOTICE</p> <p>DESIGN CHANGE STATUS OF THIS DOCUMENT SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE</p>				
<p>REDRAWN FROM</p> <p>DWG. S2-0910 SAL PESD-S-T REV. CP-1</p> <p>ORIGINAL ORGANIZATION: LBASCO</p>				
<p>CLASS I</p> <p>NUCLEAR SAFETY RELATED</p> <p>SAFETY CLASS 1 - SYSTEM CATEGORY 1</p> <p>SAFETY CLASS 2 - SYSTEM CATEGORY 2</p> <p>SAFETY CLASS 3 - SYSTEM CATEGORY 3</p>				
<p>TU ELECTRIC</p> <p>CPSES</p> <p>GLEN ROSE, TEXAS</p>				
<p>PRE-ENGINEERED STANDARD DESIGN (PESD) FOR CATEGORY I CONDENSER SYSTEMS</p>				
DWG. NO. S2-0910 SAL PESD-S-7		SCALE		REV. CP-2

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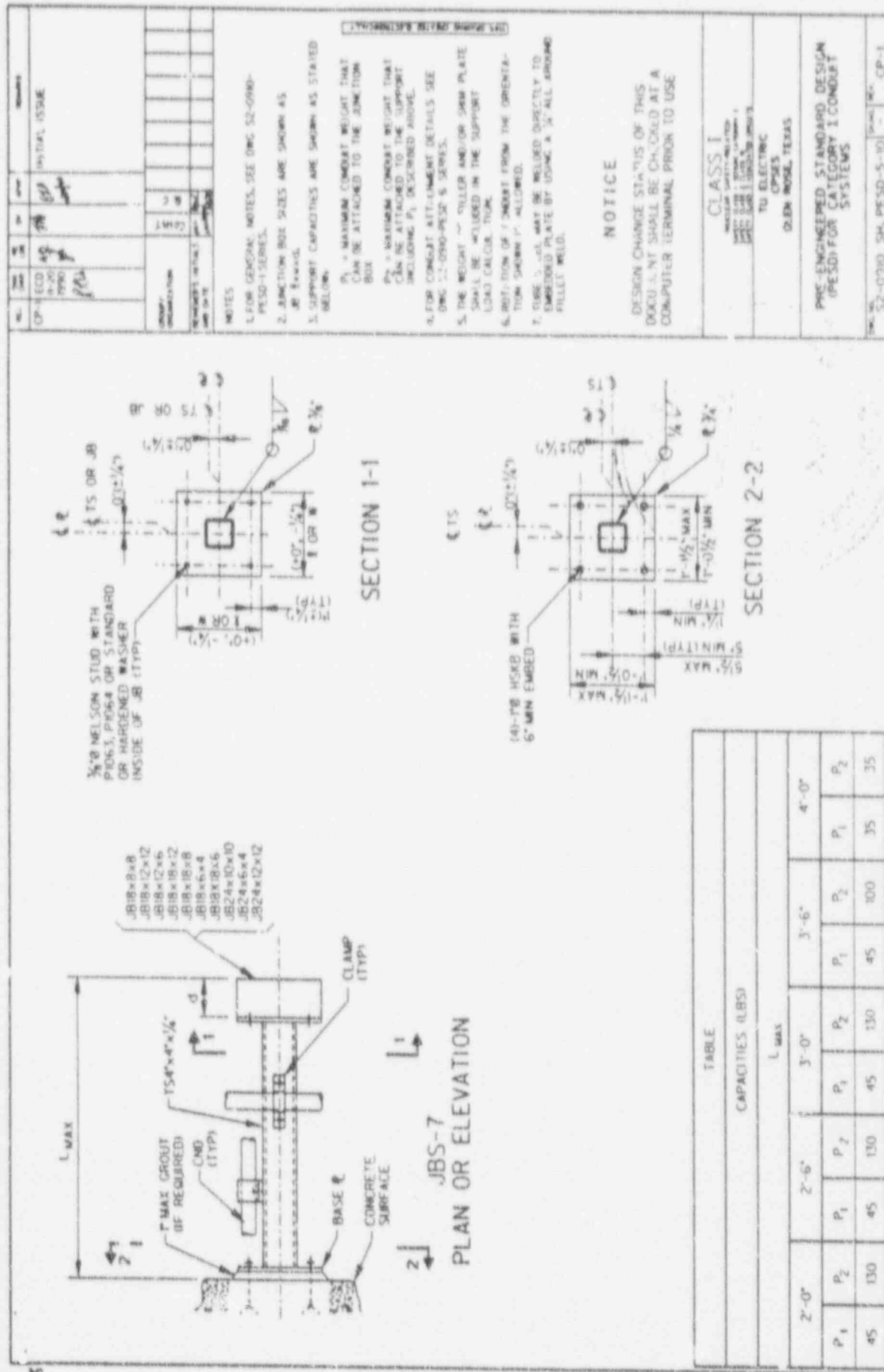


CAPACITIES (LBS.)									
L. MAX.									
2'-0"		2'-6"		3'-0"		3'-6"		4'-0"	
P ₁	P ₂	P ₁	P ₂	P ₁	P ₂	P ₁	P ₂	P ₁	P ₂
81	137	81	108	75	75	45	45	38	36



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FINAL PRINT



52-0900-1082 2448

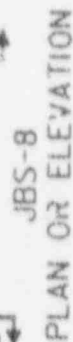


TABLE		CAPACITIES (LBS)					
L MAX							
2'-0"		2'-6"		3'-0"		3'-6"	
P ₁	P ₂	P ₁	P ₂	P ₁	P ₂	P ₁	P ₂
100	350	100	225	100	125	50	50

NOTICE

DESIGN CHANGE STATUS OF THIS DOCUMENT SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE.

CLASS

TV ELECTRIC
CORP.
GLENN ROUSE, TEXAS

PRE-ENGINEERED STANDARD DESIGN
(PESD) FOR CATEGORY I CONCRETE
SYSTEMS

0910 SH. PESD-5-II	VALUED REV.	CP-1
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FINAL PRINT

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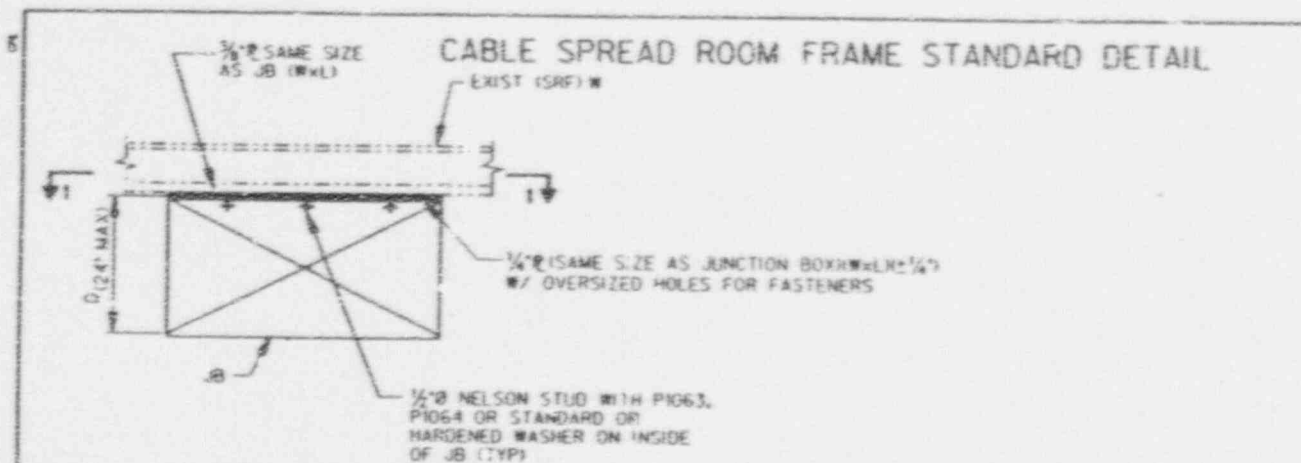
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10



JBS-10
ELEVATION

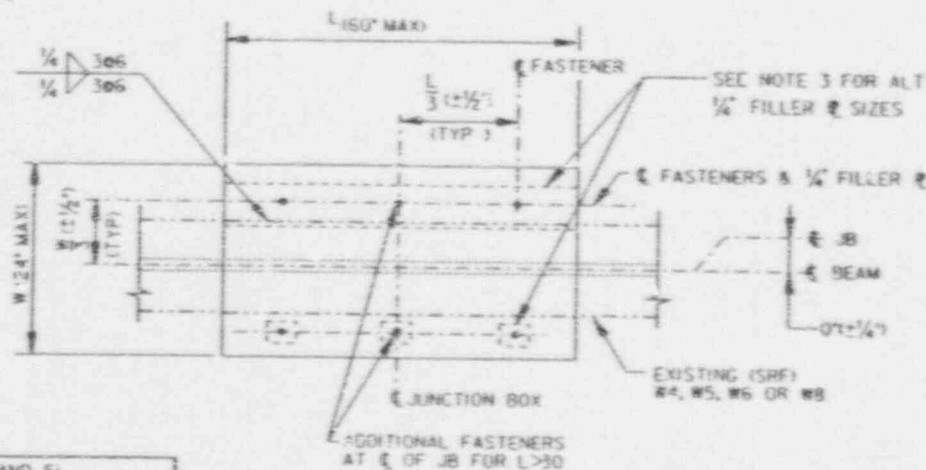


TABLE 1 (SEE NOTE 4 AND 5) ALLOWABLE JUNCTION BOX SUPPORT CAPACITY	
JUNCTION BOX SIZE	CAPACITY (LBS)
36 ≤ L ≤ 60 12 ≤ W ≤ 24 12 ≤ D ≤ 24	230

SECTION 1-1

NOTICE
DESIGN CHECK THE STATUS OF THIS
DRAWING SHALL BE CHECKED AT A
COMPUTER TERMINAL PRIOR TO USE

REV	DATE	BY	CHK	APPD	REMARKS
CP-2	5/1/80	WJ	TS	TS	REVISED AS NOTED
1	5/1/80	WJ	TS	TS	
2	5/1/80	WJ	TS	TS	
3	5/1/80	WJ	TS	TS	
4	5/1/80	WJ	TS	TS	
5	5/1/80	WJ	TS	TS	
6	5/1/80	WJ	TS	TS	
7	5/1/80	WJ	TS	TS	
8	5/1/80	WJ	TS	TS	
9	5/1/80	WJ	TS	TS	
10	5/1/80	WJ	TS	TS	
11	5/1/80	WJ	TS	TS	
12	5/1/80	WJ	TS	TS	
13	5/1/80	WJ	TS	TS	
14	5/1/80	WJ	TS	TS	
15	5/1/80	WJ	TS	TS	
16	5/1/80	WJ	TS	TS	
17	5/1/80	WJ	TS	TS	
18	5/1/80	WJ	TS	TS	
19	5/1/80	WJ	TS	TS	
20	5/1/80	WJ	TS	TS	

NOTES

1. FOR GENERAL NOTES SEE DWG. S2-0910-PESD-1-SERIES.
2. JUNCTION BOX MAY BE PLACED ON TOP OR BOTTOM OF BEAMS.
3. FILLER PLATE MAY BE 0'-4" WIDE BY LENGTH OF JUNCTION BOX $1/4 \times 1/4$ OR A MINIMUM OF 0'-2" \times 0'-2" CENTERED OVER EACH NELSON STUD. USE OVERSIZED HOLES FOR NELSON STUDS. SLOTTED HOLES MAY BE USED AS SHOWN ON S2-PESD-5-12.
4. THE LOAD ON THE JUNCTION BOX FROM THE ATTACHED CONDUITS SHALL BE LESS THAN OR EQUAL TO THE JUNCTION BOX SUPPORT CAPACITY. SEE DWG. S2-0910-S2-PESD-5-1, NOTE 3, FOR CALCULATION OF LOAD ON JUNCTION BOX.
5. SRF INDICATES SPREAD ROOM FRAME.

CLASS I

MAXIMUM SAFETY FACTOR
CLASS I: 1.5
CLASS II: 1.75
CLASS III: 2.0

TU ELECTRIC
CPSES
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PRE-ENGINEERED STANDARD DESIGN
(PESD) CATEGORY I CONDUIT
SYSTEMS

DWG. NO. S2-0910-S2-PESD-5-13 (SHEET 1 OF 1) CP-2

FINAL PRINT

6.0 CONDUIT CLAMP MOUNTING DETAILS

1. FOR GENERAL NOTES SEE SECTION 1.0.
2. A $\frac{1}{8}$ " TO 1" THICK FILLER PLATE OR FILLER PLATES (IF MAXIMUM TOTAL THICKNESS SHALL BE PROVIDED SUCH THAT THE WELD AREA OF THE STUD DOES NOT INTERFERE WITH PROPER BEARING OF CONDUIT AND CLAMP.
- FILLER PLATE MAY BE BEVELED OR GROUNDED TO ACHIEVE FULL BEARING OF CONDUIT. MAXIMUM BEVELING SHALL BE $\frac{1}{8}$ " MINIMUM THICKNESS OF FILLER PLATE AFTER BEVELING OR GRINDING SHALL BE $\frac{1}{8}$ ".
- MAXIMUM WIDTH OF BEVELING OR GRINDING SHALL BE 1". CENTERED WITH CENTERLINE OF CONDUIT.
- SLOTTED HOLES MAY BE PROVIDED ON FILLER PLATES. HOLE SIZES AND OTHER DIMENSIONS SHALL BE AS SHOWN ON SH. PESD-6-4 (U.O.N.L.).
- FILLER PLATE MAY BE CONTINUOUS FOR A SERIES OF CONDUITS.
- FOR FILLER AND SHIM PLATE COMBINATION DETAILS, SEE DETAIL B ON SH. PESD-6-2.
- FILLER PLATE MUST BEAR ON CONDUIT SUPPORT STEEL FOR A MINIMUM LENGTH OF $\frac{1}{2}$ " ON BOTH SIDES OF THE CENTERLINE OF THE CONDUIT.
- SHIM PLATES SHALL CONFORM TO ASTM A36 AND SHALL NOT BE STACKED TO ACHIEVE THE THICKNESS REQUIREMENT.
- STANDARD FILLER PLATE AND SHIM PLATE LENGTH IS CLAMP LENGTH $\pm \frac{1}{2}$ ". ON
- THE WIDTH OF STANDARD FILLER PLATES AND SHIM PLATES ARE TO BE 1 $\frac{1}{2}$ " TO 3".
- PROVIDE SHIM PLATE $\frac{1}{2}$ " MINIMUM TO 1" MAXIMUM THICKNESS WHEN REQUIRED. SHIM PLATES ARE OPTIONAL.
- MAXIMUM TOTAL THICKNESS OF SHIM PLUS FILLER PLATES SHALL BE $\frac{1}{4}$ ".
- CONDUIT AS A MINIMUM SHALL HAVE CONTACT ON THE FILLER PLATE, SHIM PLATE OR SUPPORT SURFACE AT ITS ATTACHMENT POINT, HOWEVER, SINGLE POINT CONTACT IS NOT ALLOWED (SINGLE POINT IS $\frac{1}{8}$ " OR LESS).
- WHEN USING UNISTRUT BOLTS OR HIGH STRENGTH BOLTS TO FASTEN THE CLAMP ON UNISTRUT MEMBERS, THE USE OF WASHER IS OPTIONAL.
- CONDUIT CLAMPS SHALL BE INSTALLED USING NELSON STUDS, HILTI BOLTS, (3/5/444) BOLTS OR UNISTRUT BOLT, AS APPROPRIATE. FOR NELSON STUDS, HILTI BOLTS, (3/5/444) BOLTS AND UNISTRUT BOLT SIZES, REFER TO TABLES B.1, B.2 OR B.3 ON SH. PESD-2-3, PESD-2-4 OR PESD-2-5 RESPECTIVELY.

NOTICE

DESIGN CHANGE STATUS OF THIS DRAWING SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE.

REV	DATE	BY	CHKD	REVISIONS
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REVISION 10/1/80
DWG. 12-0910 SH. PESD-6-1 REV. CP-3
ORIGINAL INCL. IN DRAWING SET

CLASS I
UNCLASSIFIED
EXCLUDED FROM AUTOMATIC
DOWNGRADING AND
DECLASSIFICATION

TO ELECTRIC
CPSES
OLEN ROSEL, TEXAS

PRE-ENGINEERED STANDARD
DESIGN (PESD) FOR
CATEGORY I CONDUIT SYSTEMS

12-0910 SH. PESD-6-1 CP-3

FINAL PRINT

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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B

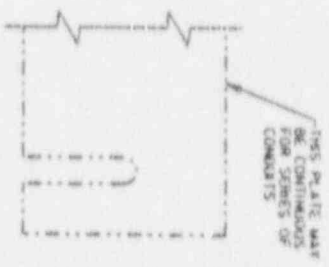
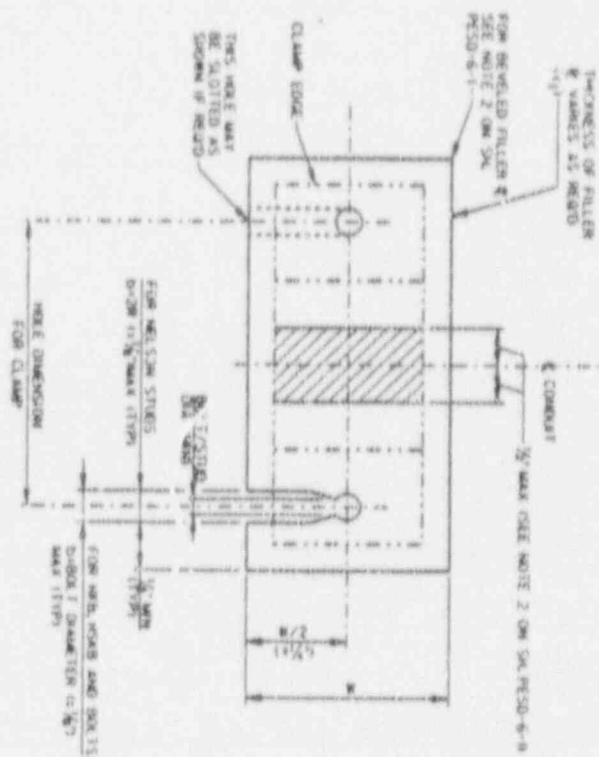
10/1/80

10/1/80



26 MAR 1981 14:20M

W. SLOTTED FILLER PLATE DETAIL



NO.	DATE	BY	CHKD	REVISION
1	10/1/80	WJ	WJ	1. INITIAL ISSUE
2	10/1/80	WJ	WJ	2. HAS DRAWING WAS WORKED AND IS BEING RE-INSTATED.

NOTES:
1. FOR CABLES, NOTES, SEE DWG. 52-090-PEISO-1-SHEETS.
2. SEE DWG. 52-090-54-PEISO-6-1-FOR MORE INFORMATION.
3. RATING GRADUS OF THE HOLE REQUIRED TO BE SLOTTED SUCH THAT THE HOLE IS SLOTTED IN A SLOTTED HOLE INTERFERES WITH THE PROPER BEARING OF THE CLAMP.

DESIGN CHANGE STATUS OF THIS DRAWING SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE

CLASS 1	
MILITARY STANDARD	
TO ELECTRIC	
CP-955	
GLEN ROUSE, TEXAS	
PRE-ENGINEERED STANDARD	
DESIGN (PEISO) FOR	
CATEGORY I CONDUIT SYSTEMS	
52-090-54-PEISO-6-1	CP-1

FINAL PRINT

COMANCHE PEAK STEAM ELECTRIC STATION UNIT 2 DESIGN CHANGE AUTHORIZATION

DESIGN REVIEW

PAGE 1 OF 1

1. LOCATION	2. ROOM/ELEVATION/DEPTH UNIT 2 - COMMON	3. EQUIPMENT/COMPONENT LB NO.
4. SYSTEM/SUBSYSTEM/AREA NO.	5. REVISION GENERIC	6. INITIATING DOCUMENTS LB NO.

7. PROBLEM DESCRIPTION/PROPOSED CHANGE (OPTIONAL)

SEE PAGE 2

8. DISCIPLINE ☐ MECH ☒ ELEC ☐ CIV ☐ ISO ☐ HVAC ☐ OTHER (SPECIFY)

9. A. BHOJANI

ORIGINATED BY

DATE 4-23-91

ORGANIZATION

ADD IMPELL EXT 8007

APPROVAL

DATE 4/23/91

10. DETAILS OF CHANGE

SEE PAGE 4 TO 11 FOR DETAIL

"MEL IS NOT AFFECTED BY THIS DESIGN CHANGE"

11. ENGINEERING BASIS

SEE PAGE 3

RECEIVED

APR 25 1991

12. AFFECTED DOCUMENT NUMBERS		13. INCORPORATION REQUIRED?		14. REFERENCE DOCUMENTS	
		YES NO		N/A	
Dwg. No. 92-0910 SU. PESP-2-A, R/CP-3		<input checked="" type="checkbox"/>			
PESP-2-G, R/CP-2		<input checked="" type="checkbox"/>			
PESP-2-7, R/CP-1		<input checked="" type="checkbox"/>			
PESP-3-1, R/CP-3		<input checked="" type="checkbox"/>			
PESP-3-2, R/CP-3		<input checked="" type="checkbox"/>			
15. REMARKS				16. THE HIGHEST CLASS OF AFFECTED DOCUMENTS IS <input checked="" type="checkbox"/> CLASS I OR II <input type="checkbox"/> NON-SAFETY	
N/A				17. LOST NO. N/A	
18. ADDITIONAL DISTRIBUTION				19. DOES DESIGN CHANGE CHANGE GENERIC REQUIREMENT?	
N/A				<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
				IF YES, IS SAFETY REQUIRED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
				20. RESPONSIBLE ENGINEER A. BHOJANI	
				DATE 4/23/91	
21. INTERDISCIPLINE REVIEW (N/A)				22. DESIGN VERIFIED C.G. PVGM R/S	
				DATE 4/24/91	
				23. DESIGN CALCULATION REVIEW	
				24. LEAD DISCIPLINE ENGINEER D. L. CANDIA	
				DATE 4/23/91	
				25. DESIGN REPRESENTATIVE N/A	
				26. ORGANIZATION	
				27. SIGNATURE	
				DATE	
				28. PROJECT ENGINEER D. S. RAVIN	
				DATE 4-23-91	

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

4 DCA NO./REVISION: 94-446 0
16 PAGE 2 OF 11

3c. (CONT.) PROBLEM DESCRIPTION/PROPOSED CHANGE (OPTIONAL):

- I. DRAWING NO. 52-0910 SH. PESD-1-A, REV. CP-3, DOES NOT ADDRESS THE BACKFIT REQUIREMENT DUE TO LATEST REVISIONS ON PESD DRAWINGS.
- II. DRAWING NO. 52-0910 SH. PESD-2-6, REV. CP-2, DOES NOT DEFINE THE ITEMS TO BE CONSIDERED AS OVERHANG WHILE USING K=1.25.
- III. DRAWING NO. 52-0910 SH. PESD-2-7, REV. CP-1, DOES NOT CLARIFY THE MAXIMUM SPAN BETWEEN LBD (W/UNION IN BETWEEN), AND FACE OF THE WALL (W/RIGID PENETRATION).
- IV. DRAWING NO. 52-0910 SH. PESD-3-1, REV. CP-3, DOES NOT CLARIFY THE LOCATION OF VENT HOLE.
- V. DRAWING NO. 52-0910 SH. PESD-3-9, REV. CP-3, REFERS TO NOTE 4 IN BASE ANCHOR DETAIL, INSTEAD OF NOTE 2.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

5	DCA NO./REVISION
	94446 0
16	PAGE 3 OF 11

7b: (CONT.) ENGINEERING BASIS:

- i. ADD CLARIFICATION AS SHOWN ON PAGE 4 , REGARDING BACKFIT REQUIREMENT ON DRAWING NO. 92-0910 SH. PESD-1-A, REV. CP-3. NO CALCULATION IS REQUIRED.
- ii. ADD ITEMS TO BE CONSIDERED AS OVERHANG AS SHOWN ON PAGE 5 , FOR DRAWING NO. 92-0910 SH. PESD-2-6 , REV. CP-2. NO CALCULATION IS REQUIRED.
- iii. ADD DIMENSION BETWEEN ELBD AND FACE OF THE WALL AS SHOWN ON PAGE 6 . FOR DRAWING NO. 92-0910 SH. PESD-2-7, REV. CP-1. IMPELL CALCULATION NO. 0218-CO-0012 REV. 1 ALREADY JUSTIFIES THESE DIMENSIONS. NO FURTHER CALCULATION IS REQUIRED.
- iv. ADD NOTE NO. 10 ON DRAWING NO. 92-0910 SH. PESD-3-1 REV. CP-3 TO CLARIFY THE LOCATION OF VENT HOLE, AS SHOWN ON PAGE 7 NO CALCULATION IS REQUIRED.
- v. REPLACE "4" WITH "2" AS SHOWN ON PAGE 8 , FOR DRAWING 92-0910 SH. PESD-3-9, REV. CP-3. NO CALCULATION IS REQUIRED.

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

DES. NO. / REVISION:
944416 / 0
PAGE 4 OF 11

7a. DETAILS OF CHANGE, (Continued):

Revise Impact of revisions on DRAWING S2-0910 SH. PESD-I-A, Rev. CP-3 to read:

IMPACT OF REVISIONS:

DRAWING REVISIONS NOTED ON THIS DRAWING DO NOT HAVE IMPACT ON PREVIOUS WORK.

NO BACKFIT IS REQUIRED ON WORK COMPLETED ON OR BEFORE MARCH 27, 1991, FOR COVER PLATES AND JUNCTION BOX SUPPORTS THAT WERE BUILT BUT NOT INSPECTED PRIOR TO THIS DATE. THE FOLLOWING SHALL APPLY:

- o COVER PLATES ALREADY INSTALLED ON SUPPORT TYPES SC-1, SC-2, SC-3, SC-4, SC-5, SC-8, MS-1, SR-7, SR-8, SR-9 AND JBS-6 DO NOT CONTRIBUTE TO THE STRUCTURAL CAPACITY OF THE SUPPORTS. THEREFORE, INSPECTION OF THESE COVER PLATES AND THEIR ASSOCIATED WELDS IS NOT REQUIRED.
- o COVER PLATES ALREADY INSTALLED ON THE END OF THE SECOND CA/TILEVER OF SUPPORT TYPES DC-1, DC-2, DC-3 AND DC-4 DO NOT CONTRIBUTE TO THE STRUCTURAL CAPACITY OF THE SUPPORTS. THEREFORE, INSPECTION OF THESE COVER PLATES AND THEIR ASSOCIATED WELDS IS NOT REQUIRED.
- o JUNCTION BOX SUPPORTS THAT WERE INSTALLED BUT NOT INSPECTED PRIOR TO MARCH 27, 1991, MAY BE INSPECTED TO THE DETAILS SHOWN IN THIS DCA. A LIST OF THE APPLICABLE JUNCTION BOX DRAWINGS IS SHOWN IN THE TABLE BELOW.

S2-0910 SH. PESD-

DCA PAGE

4-2

9

4-3

10

5-2

11

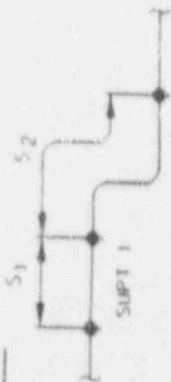
**COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET**

DEA NO. REVISION

944416

PAGE 5 OF 11

TABLE C - CONDUIT SUPPORT LOADS



CONDUIT LOAD AT SUPPORT 1 PER CONDUIT, $L_1 = L_1 + K S_1 + N_2 W_C + L_5 (W_F + F) + W_{FITTING} + W_{PTC} + W_{PLATE}$

WHERE: L_1 = SUPPORT LOAD IN THE LONGITUDINAL DIRECTION OF THE CONDUIT

L_2 = SUPPORT LOAD PERPENDICULAR TO THE CONDUIT LONGITUDINAL AXIS (TWO DIRECTIONS)

$K = 0.5$ FOR STRAIGHT SPANS

L_1 = 1.0 FOR SINGLE BEND OR DOUBLE BEND SPANS

L_2 = 1.25 FOR OVERHANG SPANS (I.E. SPAN WITH FLEXIBLE CONDUIT/AIRDROP, SPAN FROM JUNCTION BOX AND FIRST SUPT)

S_1, S_2 = TOTAL LENGTH OF SPANS ADJACENT TO SUPPORT

W_C = UNIT CONDUIT WEIGHT (TABLE A, SH. PESD-2-2)

W_F = WEIGHT OF AIRDROP (TABLE A, SH. PESD-2-2)

W_F = UNIT WEIGHT OF FLEXIBLE CONDUIT (TABLE A, SH. PESD-2-2)

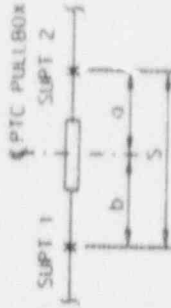
F = TOTAL LENGTH OF FLEXIBLE CONDUIT (FEET)

$W_{FITTING}$ = WEIGHT OF FITTING (LBD, BC, UNION) (TABLE A, SH. PESD-2-2)

W_{PTC} = EMPTY WEIGHT OF APPLETON PTC PULLBOX

$K_1 = 0.5$ FOR SUPT 1, $K_1 = 0.5$ FOR SUPT 2

W_{PLATE} = WEIGHT OF FILLER/SHIM PLATES PLUS P2558 CONDUIT CLAMP (TABLE A, SH. PESD-2-2)



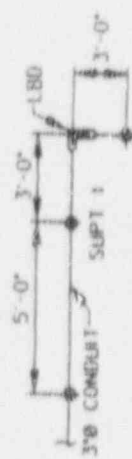
LIMITATIONS:

1. SUPPORTS ARE EVENLY SPACED AS MUCH AS POSSIBLE. HOWEVER, A CONTIGUOUS SPAN SHALL NOT BE LESS THAN HALF OF ANY ADJACENT SPAN.
2. SPAN ADJACENT TO OVERHANG SPAN SHALL BE AT LEAST TWICE AS LONG AS THE OVERHANG SPAN BUT NOT LESS THAN 1'-6".
3. SPAN REQUIREMENTS SHOWN IN TABLES B.1, B.2 AND B.3 SHALL BE MET.
4. SPAN ADJACENT TO SPAN WITH LBD SHALL BE STRAIGHT RUN.
5. DELETED
6. DELETED

(SEE CONTINUATION ON SH. PESD-2-2)

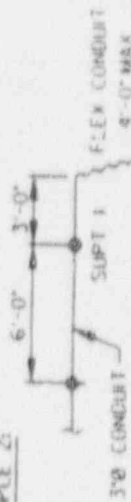
FOR INFORMATION NOT SHOWN. SEE
PWG. 52.0910 SH. PESD-2-6 REV. CP2

EXAMPLE 1:



LOAD AT SUPPORT 1, $L_1 = L_1 + K S_1 + N_2 W_C + L_5 (W_F + F) + W_{FITTING} + W_{PTC} + W_{PLATE}$

EXAMPLE 2:



LOAD AT SUPPORT 1, $L_1 = L_1 + K S_1 + N_2 W_C + L_5 (W_F + F) + W_{FITTING} + W_{PTC} + W_{PLATE}$

COMANCHE PEAK STEAM ELECTRIC STATION DESIGN CHANGE AUTHORIZATION CONTINUATION SHEET

DEA NO. / REVISION
74440
PAGE 6 OF 11

7a. (cont.)

LIMITATIONS (CONT.)

A. FITTING ON OVERHANG SPAN:

AI STRAIGHT OVERHANG:

- II FOR UNION ON STRAIGHT OVERHANG, REDUCE ALLOWABLE SPAN FOR OVERHANG BY:
 - 6' FOR 3/4" TO 1 1/2" CONDUIT
 - 8' FOR 2" TO 5" CONDUIT

BI BENT OVERHANG:

- II NO FITTINGS ARE ALLOWED ON THE OVERHANG PORTION BETWEEN THE FIRST SUPPORT AND THE BEND.

III FOR UNION ON OVERHANG PORTION BETWEEN THE BEND AND THE FREE END, REDUCE ALLOWABLE SPAN FOR OVERHANG BY:

- 6' FOR 3/4" TO 1 1/2" CONDUIT
- 8' FOR 2" TO 5" CONDUIT

CI BC OR LBD IS NOT ALLOWED ON OVERHANG SPAN.

DI UNION OR BC IS ALLOWED ON THE ADJACENT SPAN TO OVERHANG ONLY WHEN THE OVERHANG IS STRAIGHT. IN SUCH CASE, REDUCE ALLOWABLE SPAN (FOR SPAN ADJACENT TO OVERHANG) BY:

- 6' FOR 3/4" TO 1 1/2" CONDUIT
- 12' FOR 2" TO 5" CONDUIT

NOTE: APPLETON PTC PULLBOXES ARE NOT ALLOWED ON OVERHANG OR SPAN ADJACENT TO IT.

B. TWO FITTINGS IN A SPAN:

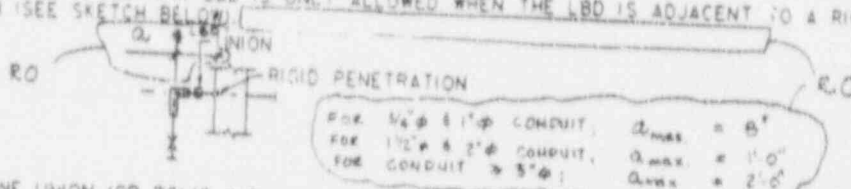
- II COMBINATION MAY ONLY INCLUDE:
 - BC AND UNION
 - LBD AND UNION (SEE NOTE IV)
 - UNION AND UNION

III CONDUIT SHALL BE CONTINUOUS ON BOTH SIDES OF A SPAN WITH TWO FITTINGS.

III FOR SPANS WITH TWO FITTINGS, REDUCE ALLOWABLE SPANS FOR "OTHER SPANS" BY:

- 6' FOR 3/4" TO 1 1/2" CONDUIT
- 8' FOR 2" TO 5" CONDUIT

IV. A COMBINATION OF UNION AND LBD IS ONLY ALLOWED WHEN THE LBD IS ADJACENT TO A RIGID PENETRATION (SEE SKETCH BELOW)



NOTE: IF CENTERLINE UNION (OR BC) IS WITHIN 6' OF SUPPORT, NO REDUCTION IN ALLOWABLE SPAN IS REQUIRED.

FOR INFORMATION NOT SHOWN, SEE

DWG. NO. 52-0910 SH. PESD-2-7 REV CP-1

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

6 DCA NO. REVISION:
94446 0
16 PAGE 7 OF 11

7a. (cont.)

3.0 CONDUIT SUPPORT DETAILS

1. FOR GENERAL NOTES SEE SECTION 1.0.
2. FOR CONDUIT ATTACHMENT DETAILS SEE SECTION 6.0.
3. FOR MATCHED BOX CONNECTIONS BETWEEN TUBE STEEL MEMBERS, PROVIDE $\frac{1}{4}$ " THICK COVER PLATE AT THE OPEN END OF THE MAIN TUBE STEEL MEMBER (U.O.N.). COVER PLATE WIDTH SHALL BE EQUAL TO THE OUTER DIMENSION OF THE MAIN TUBE STEEL PLUS A MINIMUM OF $\frac{1}{2}$ " (1" MAXIMUM) ON EACH SIDE (U.O.N.). PROVIDE ALL AROUND $\frac{3}{16}$ " FILLET WELD (U.O.N.).
4. PROVIDE A $\frac{1}{4}$ " Ø TO $\frac{1}{2}$ " Ø VENT HOLE IN TUBE STEEL WITH COVER PLATES. VENT HOLES ARE OPTIONAL FOR SUPPORTS OUTSIDE THE REACTOR BUILDING.
5. DIAGONAL BRACES IN THE VERTICAL PLANE CONNECTED TO HORIZONTAL FRAMES MAY BE REVERSED SUCH THAT ANY BRACE MAY BE ABOVE OR BELOW THE PLANE OF A HORIZONTAL FRAME.
6. DIAGONAL BRACES CONNECTED TO THE VERTICAL LEGS OF A CONDUIT OR JUNCTION BOX SUPPORT MAY BE PLACED ON EITHER SIDE OF THE SUPPORT. THAT IS, ONE BRACE COULD KICK IN ONE DIRECTION AND THE OTHER IN THE OPPOSITE DIRECTION.
7. SRF INDICATES SPREAD ROOM FRAMING. SUPPORT DETAIL INDICATING ATTACHMENT TO SRF CANNOT BE ATTACHED TO ANY OTHER STEEL, UNLESS APPROVED BY ENGINEERING.
8. ROTATION (SKEWING) OF TUBE STEEL FROM ORIENTATION SHOWN IS ALLOWED AS NOTED.
9. ATTACHMENTS TO STRIP AND SHEET PLATES SHALL MEET THE REQUIREMENTS OF CPES-S-2001 AND 2323-S-0786 DRAWING.
10. VENT HOLE SHALL BE AT LEAST $\frac{1}{2}$ " (+ $\frac{1}{2}$ " - 0") AWAY FROM THE EDGE OF ANY WELD ON TUBE STEEL.

RQ

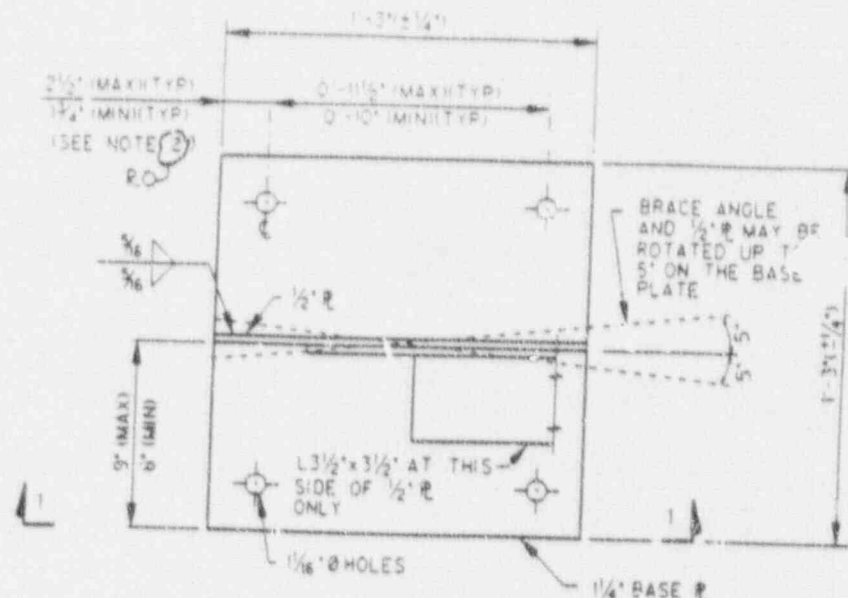
FOR INFORMATION NOT SHOWN, SEE

DWG. NO. 92-0910 SH. PESD-3-1 REV. CP-3

COMANCHE PEAK STEAM ELECTRIC STATION
DESIGN CHANGE AUTHORIZATION
CONTINUATION SHEET

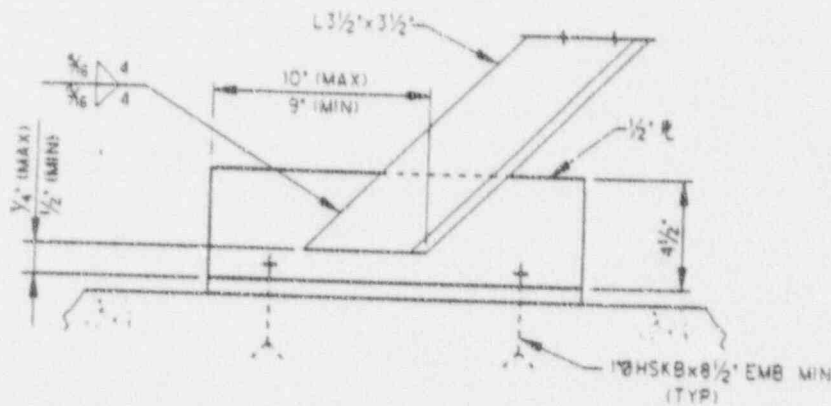
DEA NO. REVISION: 94446 0
PAGE 8 OF 11

7a. (cont.)



BASE ANCHOR

TYPE 1-B FOR BRACING: L3 1/2\" x 3 1/2\" x 1/8\"

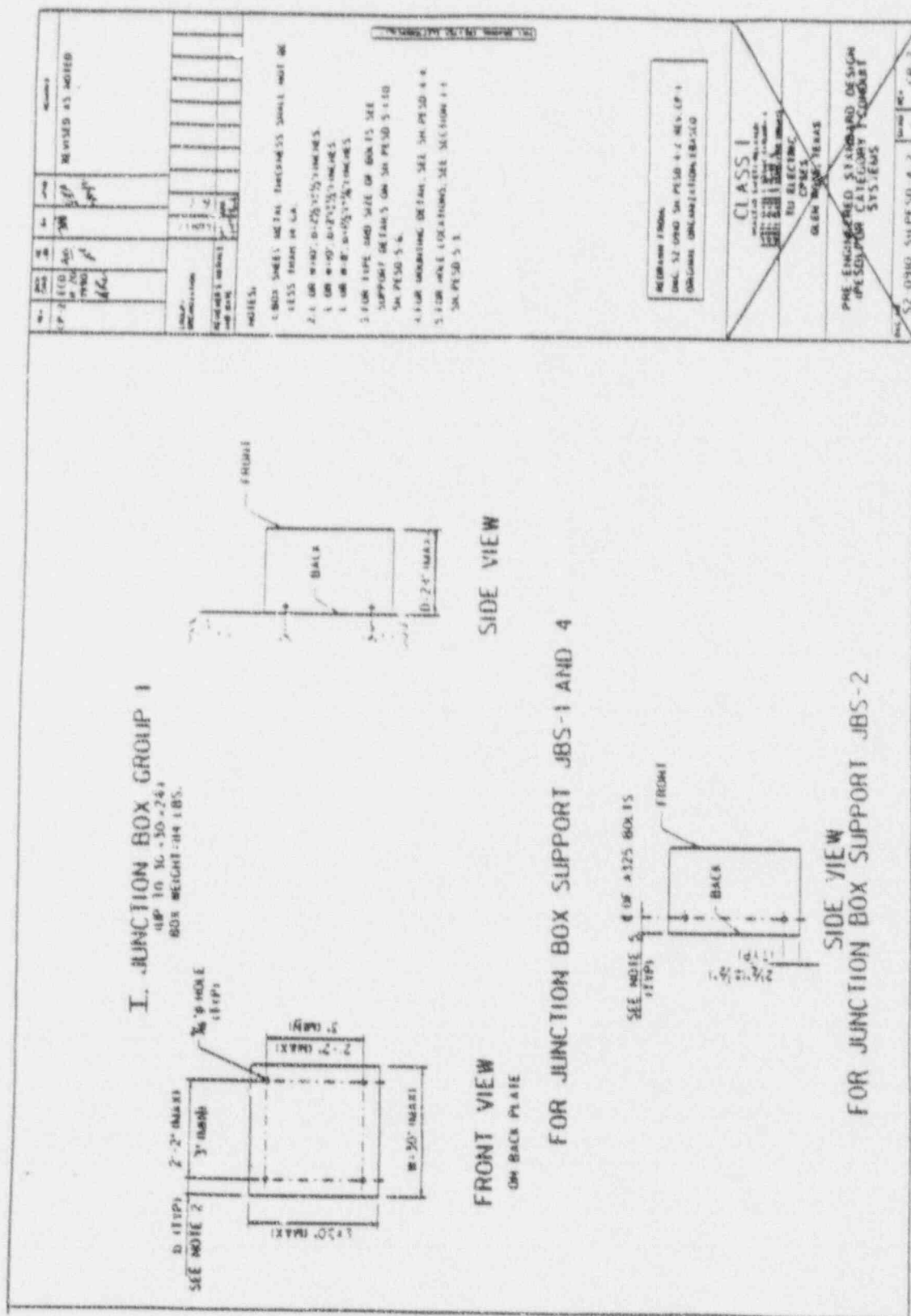


SECTION 1-1

FOR INFORMATION NOT SHOWN, SEE
DWG. 52-0910 PESD-3-9 REV. CP-3

7 day trip 10

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COMANCHE PEAK STEAM ELECTRIC STATION DESIGN CHANGE AUTHORIZATION CONTINUATION SHEET

DCA NO. REVISION

94446

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REV	DATE	BY	CHK	DESCRIPTION
1	10/15/90	AB	AB	REVISED AS NOTED

REVISIONS	REVISIONS	REVISIONS	REVISIONS
1	2	3	4

NOTES:

1. BOX SHEET METAL THICKNESS SHALL NOT BE LESS THAN 1/8".
2. LARGEST BOX DIMENSION LESS THAN 36" I.D. - LARGEST BOX DIMENSION EQUAL TO OR GREATER THAN 36" I.D. -
3. FOR TYPE AND SIZE OF BOXES SEE SUPPORT DETAIL 5 ON SHEET 5-110.
4. FOR MOUNTING DETAIL, SEE SHEET 5-4.
5. FOR HOLE LOCATIONS, SEE SECTION 1-1.

REWORK FROM:
DNL 52 0980 SHEET 4-3 REV 1P-1
ORIGINAL ORGANIZATION (EASCO)

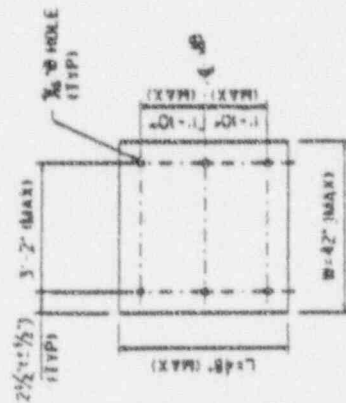
CLASS I
NUCLEAR SAFETY CLASSIFICATION
TO ELECTRIC SYSTEMS
GEN. WORK AREA

PRE-ENGINEERED STANDARD DESIGN
PRESSURE CATEGORY 1-2 URBAN
SYSTEMS

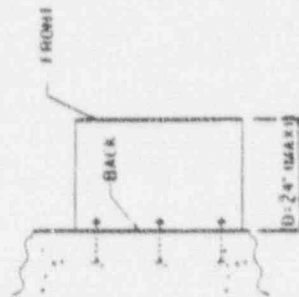
52 0980 SHEET 4-3 CP-2

II. JUNCTION BOX GROUP 2

8 1/2" TO 48" x 42" x 24"
BOX WEIGHT - 26 LBS.

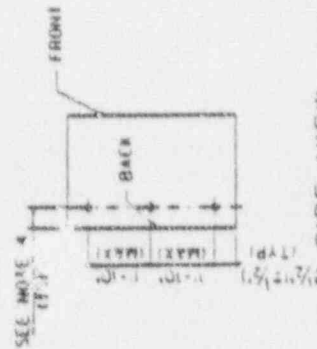


FRONT VIEW
ON BACK PLATE



SIDE VIEW

FOR JUNCTION BOX SUPPORT JBS-1 AND 4



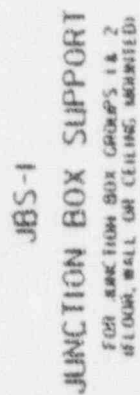
FRONT VIEW
ON BACK PLATE

SIDE VIEW

FOR JUNCTION BOX SUPPORT JBS-2

DECLASS. REVISION: 94446 0

18 PAGE 11 OF 11

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CLASS I
LIMITED POWER
TO ELECTRIC
COPIES
GEN COPIERS
THE ENGINEERED STANDARD DESIGN
TYPE SOLUTION CATEGORY FOR
SYSTEMS

	N	V	M
S-2	0.286	0.445	0.500

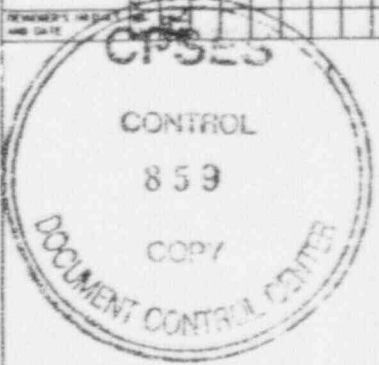
THE PURPOSE OF THIS DOCUMENT IS TO
 PROVIDE A CONDENSED AND SIMPLIFIED DESIGN
 PROCEDURE AND DETAILS TO ROUTE NEW
 UNIT 2 CONDUIT SYSTEMS IN UNIT 2 AND COMMON AREAS.

THIS IS A SELF-CONTAINED DOCUMENT AND COMPLIES WITH
 ALL OF THE EXISTING DESIGN CRITERIA. IT CAN BE
 USED AS A SUPPLEMENT TO THE 2323-S-0910
 AND 2323-S2-0910 DRAWINGS.

COMPLIANCE WITH THIS DOCUMENT ENSURES THAT
 CONDUIT INSTALLATION MEETS SEISMIC CATEGORY I
 REQUIREMENTS. THIS DOCUMENT IS ALSO APPLICABLE
 TO SEISMIC CATEGORY II INSTALLATIONS.

FOR GENERAL INFORMATION NOT COVERED IN THIS
 DOCUMENT REFER TO THE GENERAL NOTES (G-SERIES) OF
 2323-S-0910 AND 2323-S2-0910 DRAWINGS.

REFERENCED DOCUMENTS 2323-S-0910 AND 2323-SS-30
 ARE APPLICABLE TO NEW UNIT 2 CONDUIT INSTALLATIONS
 IN COMMON AREAS.

REV	DATE	BY	APPV	REMARKS
CP-2	10/1/80	AB	JA	REVISED AS NOTED
GROUP	ORGANIZATION	UNIT	DATE	
<div style="text-align: center;">  </div>				
<p>NOTICE</p> <p>DESIGN CHANGE STATUS OF THIS DOCUMENT SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE</p>				
<p>REDRAWN FROM: DMC, S2-0910 SH, PESD-I REV. CP-1 ORIGINAL ORGANIZATION: EDASCO</p>				
<p>CLASS I NUCLEAR SAFETY REL. TEST SAFETY CLASS I: SEISMIC CATEGORY I SAFETY CLASS II: SEISMIC CATEGORY II SAFETY CLASS III: SEISMIC CATEGORY III</p>				
<p>TO ELECTRIC CPSES GLEN ROSE, TEXAS</p>				
<p>PRE-ENGINEERED STANDARD DESIGN (PESD) FOR CATEGORY I CONDUIT SYSTEMS</p>				
DMC NO.	S2-0910 SH, PESD-I	SCALE	REV	CP-2

FINAL PRINT

IV. INSTRUCTIONS TO USE THE PESD DOCUMENT

THE PURPOSE OF THIS SECTION IS TO PROVIDE GUIDELINES ON HOW TO USE THIS DOCUMENT EFFECTIVELY FOR SUPPORTING NEW UNIT 2 CONDUIT SYSTEMS

1. THE CONSTRUCTION ENGINEER SHALL INITIATE THE RACEWAY INSTALLATION CARD (RIOC) AS PER THE REQUIREMENTS OF PROCEDURE COP-EL-222.
2. CONSTRUCTION ENGINEER/FIELD ENGINEER AS NEEDED IN CONJUNCTION WITH CRAFT SHALL DETERMINE THE LOCATION OF CONDUIT SUPPORTS AND TYPES IN ACCORDANCE WITH THE REQUIREMENTS OF THIS DOCUMENT.
3. ENGINEERING SHALL THEN PREPARE THE CONDUIT DRAWING TO INDICATE THE SPAN LENGTHS AND SUPPORT TYPES.
4. CONSTRUCTION ENGINEER SHALL RESERVE THE SUPPORT LOCATIONS (AS NEEDED) BY UTILIZING THE SUPPORT RESERVATION PROGRAM (CDP-MS-506).
5. IN THE PROCESS OF DETERMINING THE SUPPORT LOCATIONS AND TYPES, THE FOLLOWING INSTRUCTIONS SHALL BE FOLLOWED:

(A) CONDUIT SPANS

THE CONDUIT SPAN LENGTH BETWEEN ADJACENT SUPPORTS SHALL BE EQUAL TO OR LESS THAN THE ALLOWABLE CONDUIT SPANS SHOWN ON TABLES B.1 (SH. PESD-2-3), B.2 (SH. PESD-2-4) OR B.3 (SH. PESD-2-5). HOWEVER, THE LIMITATIONS OF TABLE C (SH. PESD-2-6 AND SH. PESD-2-7) SHALL BE MAINTAINED. THE FOLLOWING ITEMS SHALL BE CONSIDERED IN USING THESE TABLES:

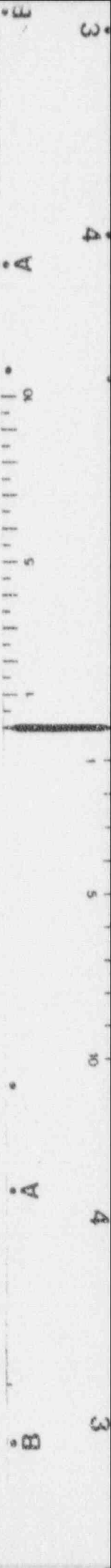
- I. BUILDING AND ELEVATIONS WHERE CONDUIT IS LOCATED
- II. CONDUIT SIZE
- III. SPAN CONFIGURATION BETWEEN ADJACENT SUPPORTS AND THE PRESENCE OF ELECTRICAL FITTINGS.
- IV. IN TABLES B.1 (SH. PESD-2-3) AND B.2 (SH. PESD-2-4), THE ALLOWABLE CONDUIT SPANS FOR "OTHER SPANS" ARE APPLICABLE TO SINGLE AND DOUBLE BEND WITH OR WITHOUT FITTINGS, AND STRAIGHT RUNS WITH FITTINGS.
- V. WHEN THE CONDUIT CLAMP IS DIRECTLY ANCHORED TO CONCRETE USING HILTI BOLTS (SEE SH. PESD-3-2), THE SPAN LENGTHS ON BOTH SIDES OF THE SUPPORT SHALL BE IN ACCORDANCE WITH TABLES B.1.2 AND B.2.2 ON SHEETS PESD-2-3 AND PESD-2-4 RESPECTIVELY.
- VI. FLEXIBLE CONDUITS SHALL BE USED WHEN CONDUITS ARE CROSSING OVER SECONDARY WALL GAPS OR BUILDING GAPS.
- VII. CONDUITS ATTACHED TO CABLE SPREAD ROOM FRAME (SRF) SHALL HAVE RIGID SPANS. ALLOWABLE SPANS FOR CONDUIT ATTACHED TO CABLE SPREAD ROOM FRAME ARE INCLUDED IN TABLE B.3 ON SH. PESD-2-5.
- VIII. BENDS IN SPANS SHALL BE MADE AS CLOSE TO MID-SPAN AS POSSIBLE.

REV	DATE	BY	APP	REVISIONS
CP-2	05-18-1991	RE		REVISED AS NOTED
<div style="display: flex; justify-content: space-between;"> <div> <p>CONSTRUCTION ENGINEER</p> <p>REVISIONS INITIALS AND DATE</p> </div> <div> <p>859</p> <p>CPSES</p> <p>CONTROL</p> <p>DOCUMENT CONTROL CENTER</p> </div> <div> <p>NOTICE</p> <p>DESIGN CHANGE STATUS OF THIS DRAWING SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE</p> </div> </div>				
<p>RECEIVED FROM</p> <p>DMC, S2-0910 SH. PESD-1-1 REV. CP-1</p> <p>ORIGINAL ORGANIZATION: EBASCO</p>				
<p>CLASS I</p> <p>NEEDS QUALIFICATION</p> <p>TO ELECTRIC</p> <p>CPSES</p> <p>GLEN ROSE, TEXAS</p>				
<p>PRE-ENGINEERED STANDARD DESIGN (PESD) FOR CATEGORY I CONDUIT SYSTEMS</p>				
DMC NO.	S2-0910	SH. PESD-1-4	REV.	CP-2

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18-048-1991 (147)

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(B) CONDUIT LOAD AT SUPPORTS

THE CONDUIT LOAD AT A SUPPORT SHALL BE DETERMINED IN ACCORDANCE WITH TABLE C ON SH.PESD-2-6. THE FOLLOWING ITEMS SHALL BE CONSIDERED IN USING THIS TABLE:

- I. THE LIMITATIONS NOTED SHALL BE STRICTLY OBSERVED.
- II. AS AN ALTERNATIVE TO TABLE C ON SH.PESD-2-6, CONDUIT LOADS MAY BE DETERMINED BY USING THE EQUATIONS CONTAINED IN 2323-S-0910 OR 2323-S2-0910 DRAWINGS, LS SERIES.
- III. DELETED

(C) CONDUIT SUPPORT

THE CONDUIT SUPPORT DETAILS AND THEIR CAPACITIES ARE SHOWN IN SECTION 3.0.

- I. WHERE A CONDUIT IS ATTACHED TWICE TO A SUPPORT OR WHERE TWO OR MORE CONDUITS ARE ATTACHED TO A SUPPORT, THE LOAD AT EACH ATTACHMENT POINT SHALL BE DETERMINED. IN SELECTING THE SUPPORT FOR INSTALLATION, THE LOAD AT ALL ATTACHMENT POINTS SHALL BE ADDED AND THEN COMPARED WITH THE SUPPORT CAPACITY FOR THE CONDUIT AT THE FARTHEST LOCATION.

II. THE FOLLOWING REDUCTION FACTORS SHALL APPLY TO CAPACITIES OF SUPPORTS AT THE FOLLOWING BUILDINGS AND ELEVATIONS:

BUILDING AND ELEVATION	CAPACITY REDUCTION FACTOR
CONTAINMENT BLDG. ABOVE EL 950'-7"	0.80
SERVICE WATER INTAKE STRUCTURE, ABOVE EL 817'-0"	0.83

NOTE: THIS DOCUMENT CANNOT BE USED FOR NEW UNIT 2 CONDUIT INSTALLATIONS AT THE FOLLOWING BUILDINGS AND ELEVATIONS:
AUXILIARY BUILDING, EL 886'-6" AND ABOVE
FUEL BUILDING, EL 899'-6" AND ABOVE

III. CONDUIT SUPPORT TYPES AND THEIR CAPACITIES CONTAINED IN 2323-S-0910 GENERIC DRAWINGS CAN BE USED IN CONJUNCTION WITH THIS DOCUMENT FOR THE FOLLOWING BUILDINGS AND ELEVATIONS:

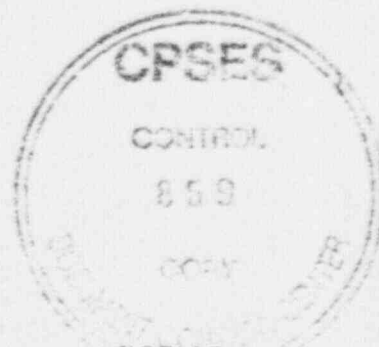
AUXILIARY BUILDING, EL 873'-6" AND BELOW
FUEL BUILDING, EL 841'-0" AND BELOW
ELECTRICAL BUILDING, ALL ELEVATIONS
SERVICE WATER INTAKE STRUCTURE, ALL ELEVATIONS

IV. CONDUIT SUPPORT TYPES AND THEIR CAPACITIES (FOR GROUP IV ONLY) CONTAINED IN 2323-S2-0910 GENERIC DRAWINGS CAN BE USED IN CONJUNCTION WITH THIS DOCUMENT.

V. UNISTRUT TYPE SUPPORT AS SHOWN ON SH.PESD-3-7, SHALL BE LIMITED TO CONDUIT SIZES $\frac{3}{4}$ " DIAMETER AND 1" DIAMETER.

VI. REFER TO SECTION 6.0 OF THIS DOCUMENT FOR CONDUIT CLAMP MOUNTING DETAILS

REV	DATE	BY	APPV	REMARKS
CP-1	11-13-1990	AS	MS	REVISED AS NOTED
GROUP / ORGANIZATION	CONT	LS		
REVIEWER'S INITIALS AND DATE				



DESIGN CHANGE STATUS OF THIS DOCUMENT SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE

REDRAWN FROM:
DWG. S2-0910 SH.PE.D-7-2 REV. CP-1
ORIGINAL ORGANIZATION: EBASCO

CLASS I
NUCLEAR SAFETY-RELATED
SAFETY CLASS 1 NUCLEAR CATEGORY 1
SAFETY CLASS 2 NUCLEAR CATEGORY 2
SAFETY CLASS 3 NUCLEAR CATEGORY 3

TO ELECTRIC
CPSES
GLEN ROSE, TEXAS

PRE-ENGINEERED STANDARD DESIGN
(PESD) FOR CATEGORY I
CONDUIT SYSTEMS

DWG. NO.	52-0910 SH.PE.D-1-5	SCALE	REV.	CP-1
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FINAL PRINT

(D) JUNCTION BOX AND JUNCTION BOX SUPPORT DETAILS

I. DELETED

II. WHEN JUNCTION BOX IS MOUNTED ON A CONCRETE SURFACE, THE WEIGHT OF CONDUITS ENTERING OR EXITING FROM THE BACK PLATE NEED NOT BE CONSIDERED IN DETERMINING THE CONDUIT LOADS ON THE JUNCTION BOX.

III. UNSUPPORTED JUNCTION BOXES REQUIRE PRIOR ENGINEERING APPROVAL.

IV. DELETED

V. UNSUPPORTED APPLETON PTC PULLBOXES, OF SIZES SHOWN ON TABLE A.1 ON SH, PESD-2-2, MAY BE INSTALLED ON CONDUITS. THEY SHALL BE INSTALLED ON STRAIGHT SPANS ONLY. HOWEVER, THE ALLOWABLE SPAN IS THE SAME AS FOR OTHER SPAN TABLES B.1 SH, PESD-2-3 AND B.2 SH, PESD-2-4).

VI. UNSUPPORTED APPLETON PTC PULLBOXES REQUIRE PRIOR ENGINEERING APPROVAL FOR CONDUITS ATTACHING TO THE CABLE SPREAD ROOM FRAME.

VII. REFER TO SECTIONS 4.0 AND 5.0 OF THIS DOCUMENT FOR MORE DETAILS.

NOTICE

DESIGN CHANGE STATUS OF THIS DRAWING SHALL BE CHECKED AT A COMPUTER TERMINAL PRIOR TO USE.

REV	DATE	BY	CHK	APP	REMARKS
CP-2	03-18-1991	SH	SH	SH	REVISED AS NOTED
<div style="display: flex; justify-content: space-between;"> <div> <p>GROUP 1: JUNCTION BOX</p> <p>REVISIONS:</p> <p>DATE: 03-18-1991</p> <p>BY: SH</p> <p>CHK: SH</p> <p>APP: SH</p> </div> <div> <p>2. TO STANDARD PRACTICE (SH, PESD-2-2)</p> </div> </div>					

REDRAWN FROM
DWG. 52-0910 SH, PESD-2-3 REV. CP-1
ORIGINAL ORGANIZATION ERASED

CLASS I

INDUSTRIAL SAFETY SYSTEMS
ELECTRIC SYSTEMS
TELEPHONE SYSTEMS
TELEVISION SYSTEMS
RADIO SYSTEMS
TV ELECTRIC
CPSES
GLEN ROSE, TEXAS

PRE-ENGINEERED STANDARD DESIGN
(PESD) FOR CATEGORY 1 CONDUIT
SYSTEMS

DWG. NO. 52-0910 SH, PESD-1-6

SCALE: REV. CP-2

FINAL PRINT



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