

# CONAX buffalo corporation

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February 23, 1988



U.S. NRC  
NRR/DRIS  
M/S OWFN 9D4  
11555 Rockville, MD 20852

Attention: Mr. Richard C. Wilson

Subject: Historical Examples of EPAs, AMs and ECSAs Provided Exclusive  
of Polyolefin Heat Shrink Tubing Covering Kapton Insulated  
Conductors

Reference: U.S. NRC Inspection at Conax Buffalo on February 10-11, 1988

Dear Mr. Wilson:

As per your request of February 11, 1988, Conax historical project records have been researched for the subject information, with the attached results. It should be emphasized that this information should not be considered to be all inclusive, but rather exemplary.

If Conax may be of further service in clarification of the issue of the use of Kapton insulation in nuclear power plants, please feel free to contact us.

Sincerely,

CONAX BUFFALO CORPORATION

T. P. Schaefer  
Chief Engineer  
Nuclear Products Division

R. E. Dulski  
Technical Manager  
Nuclear Products Division

TPS/RED/ct

Attachment

cc: W. C. Federick  
R. E. Farchmin  
R. L. Nikander - Engr. File

B/7

### ADAPTER MODULE ASSEMBLIES

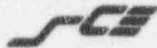
<u>Plant</u>	<u>Year Shipped</u>	<u>Remarks</u>
Millstone 2	1978	No heat shrink tubing covering conductor pigtails. Existing enclosures both ends. Some terminations shown on pictorial drawings as being made in enclosures although some conductor pigtails supplied are approximately 2-1/2 feet longer than the enclosures
Callaway	1981	Same as Millstone 2 above.
Shoreham	1981	Heat shrink tubing covering conductor pigtails. Existing enclosures both ends. Some terminations shown on pictorial drawings as being made in enclosures although some conductor pigtails supplied are approximately 1 foot longer than the enclosures.

### ELECTRIC CONDUCTOR SEAL ASSEMBLIES (ECSA)

Arkansas 1 & 2	1977/1978	No heat shrink tubing covering conductor pigtails which are 6 feet and 20 feet in length away from the device.
Diablo Canyon 1 & 2	1979	Heat shrink tubing covering conductor pigtails which are 6 feet in length away from the device.
Fitzpatrick	1979	Heat shrink tubing covering conductor pigtails which are 8 feet in length away from the device.
Indian Point 3	1979	Heat shrink tubing covering conductor pigtails which are 8 feet in length away from the device.
Millstone 2	1979	Heat shrink tubing covering conductor pigtails which are 5 and 8 feet in length away from the device.
Salem 1 & 2	1979	Heat shrink tubing covering conductor pigtails which are 6 feet in length away from the device.
San Onofre 2 & 3	1979	Heat shrink tubing covering conductor pigtails which are 20 feet in length away from the device.

ELECTRIC PENETRATION ASSEMBLIES

<u>Plant</u>	<u>Year Shipped</u>	<u>Remarks</u>
Browns Ferry 1-3	1977	No heat shrink tubing on conductor bundles, pigtails 6 feet in length. No enclosures supplied. Similar prototype penetrations were tested without heat shrink tubing on the pigtails and with borated chemical spray, pH of approximately 8.7.
Enrico Fermi 2	1975	No heat shrink tubing supplied on conductor bundles which are terminated in supplied enclosures.
Millstone 3	1977	No heat shrink tubing supplied on conductor bundles which are terminated in supplied enclosures.
North Anna 1 & 2	1973	Heat shrink tubing supplied as loose equipment for the conductor pigtails.
Watts Bar 1 & 2	1976	No heat shrink tubing supplied on conductor bundles which are terminated in supplied enclosures inside containment. Some conductors are terminated in supplied enclosures outside containment while others have pigtails 6 feet in length.



Southern California Edison Company



**INTERIM DESIGN CHANGE  
NOTICE (IDCN) / DESIGN  
CHANGE NOTICE (DCN)**  
(For SONGS 1, 2 & 3)

CDM/DDC USE ONLY

PFC NO.

IDCN NO.

DCP NO.

DOCUMENT

REV. NO.

CS-E03

17

SHEET

DCN CONVERSION NO.

4

REV. NO.

17

ORIGINATOR

1. Ron Kudla

FAX  
X87321DATE  
3/30/88

DOCUMENT TITLE

Cable Splicing, Termination, and Supports

DRAWM

CN-05

GC

SR &amp; NSR

DESCRIPTION OF CHANGE

1) Add precautions for working near Kapton pigtaills.

## 2. Other Affected Documents



None



Specific affected documents are listed on the CC(123) 184 associated with the source document checked below:



This DCP (Forms CC(123) 183 and CC(123) 184 attached)



This FIDCN/DCN (Forms CC(123) 183 and CC(123) 184 attached)



The following document:

3. Affected Systems N/A

## 4. SCE Design Approvals

NUCLEAR GENERATION SITE DEPARTMENT		ENGINEERING AND CONSTRUCTION DEPARTMENT NES & L	
OTHER	DATE	OTHER	DATE
OTHER	DATE	CHECKER	DATE
CHECKER	DATE	INDEPENDENT REVIEW ENGINEER	DATE
INDEPENDENT REVIEW ENGINEER	DATE	RESPONSIBLE ENGINEER	DATE
RESPONSIBLE ENGINEER	DATE	DISCIPLINE GROUP LEADER	DATE
GROUP SUPERVISING ENGINEER	DATE	DISCIPLINE SUPERVISOR	DATE
SUPERVISING ENGINEER I	DATE	PROJECT ENGINEER	DATE
MANAGER, STATION TECHNICAL	DATE	DESIGN CHIEF	DATE
QUALITY ASSURANCE	DATE	QUALITY ASSURANCE	DATE
Conversion to DCN Date <u>9/29/88</u>		<u>A. Carson</u> <u>8-8-88</u> <u>Sigley Bristant</u> SCE PROJECT ADMINISTRATOR	

INTERIM DESIGN CHANGE  
NOTICE (IDCN)/DESIGN  
CHANGE NOTICE (DCN)  
SUPPLEMENTAL PAGE

IDCN NUMBER					
DRAWING NO.	SHEET NO.	REV. NO.	DCN CONV.		QUALITY CLASS
			DATE	DCN NO.	
CS-E03	—	17	17	4	SR & NSR
			SEP 29 1988		

Date 3/30/88 Page 2 of 2

By Ron Kudla *RAC*

DESCRIPTION OF CHANGE

1) AFTER: ("Before" condition does not exist)

1.4 Precautions When Working Near Kapton Pigtails

When working near Conax Penetrations or raceways containing Kapton pigtails, the RWO shall take the following precautions:

- 1.4.1 Notify Maintenance Planning prior to starting any work in the vicinity of Conax Penetrations or raceways containing Kapton pigtails and implement any special precautions that Maintenance Planning requires.
- 1.4.2 In addition, to protect exposed Kapton pigtails from damage, the following precautions shall be implemented:
  - a) Do not stand, sit, or lean on exposed Kapton pigtails.
  - b) Provisions must be taken to prevent setting or dropping any tools or materials on exposed Kapton pigtails (for example, lanyards, catch blankets, barriers).
  - c) When removing or replacing tray covers, take extreme care not to contact exposed Kapton pigtails with the tray covers.
  - d) When handling Kapton pigtails, avoid scraping pigtails against tray or tray cover edges and avoid excessive pigtail tension.