

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE

400 Chestnut Street Tower II

October 15, 1980

Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Dear Mr. Denton:

In the Matter of the ) Docket Nos. 50-259  
Tennessee Valley Authority ) 50-260  
50-296

In response to D. G. Eisenhut's July 16, 1980, letter to H. G. Parris, a meeting was held on July 30, 1980, at the Browns Ferry Nuclear Plant to discuss NRC (Office of Research) plans to perform tests on fire protection systems in operating plants and to provide information to replicate a portion of the north wall (Elev. 593.0) of the Reactor Building for Browns Ferry. As committed in the July 30, 1980, meeting, TVA provided information to NRC Office of Research for the replication effort. This information was submitted on October 1, 1980.

Enclosure 1 provides the remaining information, the relative mix and fill in the cable trays and conduit of the area to be replicated and an additional contract specification, for use by the NRC Office of Research.

In order to prevent any misunderstandings between NRC and TVA, we have provided, in Enclosure 2, TVA's understanding of the test program and agreements made in the July 30, 1980, meeting with NRC Office of Research and NRC consultants.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager  
Nuclear Regulation and Safety

Subscribed and sworn to before  
me this 15<sup>th</sup> day of October 1980.

[Signature]  
Notary Public

My Commission Expires 9-5-82

Enclosures

*Handwritten:* A006 5/3/8

*Handwritten:* wact  
8010210481  
PDR

8010210481

*Handwritten:* F

ENCLOSURE 1

Remaining Information for Replication of  
Browns Ferry Nuclear Plant

ENCLOSURE 1  
CABLES INSTALLED IN RACEWAY

Cable Tray KS-ESII

<u>Quantity</u>	<u>No. Conductors</u>	<u>AWG</u>	<u>TVA Mark Ltr.</u>	<u>Type</u>	<u>Requisition or Specification</u>
8	2C	10	wfb	PJJ	TVA 25.013 ↓
1	4C	10	wfd	PJJ	
19	2C	12	wgb	PJJ	
5	3C	12	wgc	PJJ	
2	4C	12	wgd	PJJ	
3			wgk	PJJ	
1	5C	12	wge	PJJ	
1	7C	12	wgg	PJJ	
4	9C	12	wgi	PJJ	
9	2C	14	whb	PJJ	
1	3C	14	whc	PJJ	
2	5C	14	whe	PJJ	
1	Belden 8213		Mfr's Cable		
1	4C	12	wfc	PXMJ	
1	3C	10	wfc-1	PXMJ	
1	5C	14	whe-1	PXMJ	
1	7C	14	whg-1	PXMJ	
1	2C	12	wlb	CPJJ	

Cable Tray KT\*\*

<u>Quantity</u>	<u>No. Conductors</u>	<u>AWG</u>	<u>TVA Mark Ltr.</u>	<u>Type</u>	<u>Requisition or Specification</u>
6	2C	12	wgb	PJJ	TVA 25.013
1	5C	12	wge	PJJ	↓
1	12C	12	wgk	PJJ	
4	2C	14	whb	PJJ	
8	4C	14	whd	PJJ	
1	7C	14	whg	PJJ	
1	Twisted Pr	14	wto		Contract Spec 83451
1	Twisted Pr	18	wtr		Contract Spec 83451
1	7C Tw	16	wve		Contract Spec 74910
1	12C	16	wvg		↓
11	27C	16	wvi		
8	37C	16	wvj		Contract Spec 61985
2	8C	18	wvu-1		70C7-54042
2	1C	12	wvn		Contract Spec 61844
101	29C	Various*	wvr		

\*See master bill index for wvr.

Cable Tray VE

<u>Quantity</u>	<u>No. Conductors</u>	<u>AWG</u>	<u>TVA Mark Ltr.</u>	<u>Type</u>	<u>Requisition or Specification</u>
58	2C Tw Pr	16	wva		Contract Spec 85574 ↓
87	2C Tw Pr	18	wva-1		
19	3C	16	wvb		
10	4C	16	wvc		
1	Belden 8213		Mfr's (Belden 8213)		
19	2C Tw Pr	16	wva		***77K5-820991 BLN
3	2C Tw Pr	16	wva		***74C7-85574 BFN SQN
3	2C Tw Pr	18	wva-1		***77K5-821722 WBN
3	3C	16	wvb		***74C7-85259 WBN
3	8C	Various+	wwk		*** 85838 WBN SQN

+See Master bill index for wwk.

\*\*\*Corresponding TVA standard spec or contract spec attached.

<u>Quantity</u>	<u>No. Conductors</u>	<u>AWG</u>	<u>TVA Mark Ltr.</u>	<u>Type</u>	<u>Requisition or Specification</u>
111	2C Tw	16	wub		Contract Spec 61959
17	2C Tw	16	wub-1		↓ Contract Spec 85574
3	2C Tw	16	wva		

\*\*All cables in Tray TE are coated with Flamemastic 71A.

Conduit: 3A-ES50-I

3	1C	2/0 (5Kv)	wnb	CPSJ	TVA 25.016
---	----	-----------	-----	------	------------

ATTACHMENT 3  
CABLES INSTALLED IN RACEWAY

Conduit 1-1/2A-A1751

<u>Quantity</u>	<u>No. Conductors</u>	<u>AWG</u>	<u>TVA Mark Ltr.</u>	<u>Type</u>	<u>Requisition or Specification</u>
1	2C	16	wva		77K5-820991
1	2C	16	wva		↓
1	2C	16	wva		
1	2C	16	wva		

Conduit 3A-E550-I

2	1C	2/0 (5kV)	wmb	CPSJ	TVA 25.016
---	----	-----------	-----	------	------------

Conduit 1PC312-I \*

1	9C	14	whl	PJJ	TVA 25.013
---	----	----	-----	-----	------------

\*For Division I Conduits 3A-ES501-I and IPC312-I, there is not redundancy between these Division I conduits and Division II cables within 6 feet of the verticle cable trays and below elevation 610.

Conduit 3A-ES2501-II

3	1C	2/0 (5kV)	wmb	CPSJ	TVA 25.016
---	----	-----------	-----	------	------------

Conduit 1A-FE799

1	2C	16	wva		77KS-820991
1	2C	14	whb		TVA 25.013
1	1C	10	wwc		70C7-54042

Conduit 1A-FE929

1	2C	12	wgb		TVA 25.013
1	2C	18	wva-1		77K5-821772
1	2C	16	wva		74C7-85574
1	1C	10	wwc		70C7-54042

Conduit 2A-FE930

2	1C	12	wbb		TVA 25.013
---	----	----	-----	--	------------

Conduit 1A-FE3017

2	1C	2	wdg		TVA 25.016
---	----	---	-----	--	------------

<u>Quantity</u>	<u>No. Conductors</u>	<u>AWG</u>	<u>TVA Mark Ltr.</u>	<u>Type</u>	<u>or Specification</u>
Conduit 1-1/2A-FE3374					
2	1C	14	wca		TVA 25.013
2	1C	14	wca		TVA 25.013
2	1C	14	wca		TVA 25.013
2	1C	14	wca		TVA 25.013
1	18 PR	19	wtc		72C7-83451

Conduit 1-1/2A-FE3603

2	1C	14	wca		TVA 25.013 ↓
5	1C	14	wca		
5	1C	14	wca		
2	1C	14	wca		
2	1C	14	wca		
2	1C	14	wca		
1	2C	12	wgt		
2	1C	14	wca		

Conduit 1A-1LT70

1 TWPR	2	14 (120V)	wtr		Contract Spec 83451
1 TWPR	2	18	wto		Contract Spec 83451

Conduit 1/2A-1LT71

1 TWPR	2	14	wtr		Contract Spec 83451
--------	---	----	-----	--	---------------------

Conduit 1A-1LT72

1 TWPR	2	14 (120V)	wtr		Contract Spec 83451
1 TWPR	2	18	wto		Contract Spec 83451

Conduit 1-1/2A-1PL809

3	1C	2 (600V)	wdg	CPJ	TVA 25.016
---	----	----------	-----	-----	------------

Conduit 1-1/2A-1PL810

3	1C	2 (600V)	wdg	CPJ	TVA 25.016
---	----	----------	-----	-----	------------

Conduit 1-1/2A-1PL812

3	1C	2 (600V)	wdg	CPJ	TVA 25.016
---	----	----------	-----	-----	------------

<u>Quantity</u>	<u>No. Conductors</u>	<u>AWG</u>	<u>TVA Mark Ltr.</u>	<u>Type</u>	<u>or Specification</u>
Conduit 3A-1PP285					
3	1C	2/0	wnb	CPSJ	TVA 25.016
Conduit 1RM108					
1	5C	18	wvu		72C7-74910-2
Conduit 1-1/2A-1RM109					
1	8C	18	wvu-1		Contract Spec 61985 70C7-54042
1	1C	12	wwn		
Conduit 1RM112					
1	3C	16	whs	PNJ	TVA 25.013
Conduit 1/2A-1RM113					
4	1C	14	wca		TVA 25.013
Conduit 2A-1RP419					
2	1C	14	wca		TVA 25.013



JUNCTION BOXES AND MISCELLANEOUS EQUIPMENT

Box 376      Junction Box - 8" high x 8" wide x 4" deep, surface mounted screw cover, Type D. Mark JOF

Terminal Box - 4 points, 600V, 30 amp, GE 6422482G4. Mark PMA

Speaker Amp - For surface mounting, 12w, Gia-Tronics model 651C. Mark PJM

Speaker - 8 ohms, 250-1300HZ, 30w IPM, 10-1/4 x 9 dia, University 1B-A8. Mark PJY

F Service Head - 1/2" with 6-hole composite cover C-H F186. Mark FGP

Connector - 5/4" straight connector, male thread, rubber bushing, 0.375"-0.500" dia cable. Mark GRP

Box 2576      Junction Box - 24" wide x 44" high x 8" deep, Type D. Mark KBV

Box 3188      Junction Box - 24" high x 12" wide x 12" deep, surface mounted, screw cover, Type D. Mark JUJ

Box 4509      Junction Box - 12" high x 12" wide x 4" deep, surface mounted, screw cover, Type D. Mark JOK

Fuse - Fuse block, 1P, 250V, 0-30 amp, barrier type, porcelain base. Mark PNC (or BVC)

Acct. No. N1-39

TENNESSEE VALLEY AUTHORITY  
DIVISION OF PURCHASING  
Chattanooga, Tennessee 37406

ORIGINAL

Contract

Reference No. 7-7-54042

Registration

Ref. No. N1E-220

Project Browns Ferry Nuclear Plant

Telephone Code 615-265-3331

Contract Date March 24, 1970

INVITATION, BID, AND ACCEPTANCE

INVITATION Date March 6, 1970

A quotation IN DUPLICATE is requested on the items listed, subject to the conditions herein. Quotations will be received at this office until 10 A.M., MST, March 20, 1970, and will be opened and read in public. Bids not so marked will be returned unopened to the bidder.

TENNESSEE VALLEY AUTHORITY, by W. S. Wilson  
Purchasing Agent

BID Date March 20, 1970 Bidder's Reference number 487

In compliance with the invitation for bids, and subject to all the conditions thereof, the undersigned offers and agrees if this bid be accepted within 30 days (30 days unless otherwise stated from the date of the opening, to furnish the services and/or sell and deliver the articles listed in an invoice on the items at the price quoted opposite each. This may not be withdrawn after bid opening. A large amount of the Contracting Officer.

Payment will be allowed for payments as follows: 23-30 Days  
The bidder agrees to pay by the bidder on this form: (1) discounts will be deducted from the gross invoice price, and (2) time in connection with discounts offered will be computed from date of delivery of the supplies at destination, or from date of receipt of correct bill, whichever date is later.

ARTICLES OR SERVICES AND ATTACHMENTS WHICH FORM PART OF CONTRACT

- Grounding Cable
- Schedule of Prices (including Shipping Data)
- Special Conditions
- General Conditions (Form 5)

TYA USE ONLY. DO NOT USE THIS SPACE.

- CS 3
- Kelleghan 4
- CAB
- TB
- PAB
- Sherod
- Specs. 5

RECEIVED	
MAR 31 1970	
DESKIN-ELECTRICAL	
NOTE	DATE
SPHONRE	
NO TOLP	
CRPAST	
POSTER	
HERPHON	
HERPHON	
LEWIS	
L MOE	
LUALLEN	
MAXWELL	
WILSON	
WYK	
NIR	
D SPEN	
PHOCE	
LAVERE	
STANSTON	
CLERE	

B41 (10)

The bidder represents that he is a small business concern as defined in Code of Federal Regulations, Title 48, Chapter 1, Part 121, Section 121.3-5. In connection with supply contracts, if bidder is a small business concern, he agrees that the goods to be furnished hereunder will be produced, manufactured, processed, or constructed in the United States. In construction and construction-related contracts, the bidder agrees that the work to be performed will be performed in the United States.

The bidder agrees to pay for all material or supplies quoted upon herefor, and to pay for all taxes and duties on such material or supplies for sale to the general public of articles, and to pay for all duties on such material or supplies of that or those upon which he bids.

The bidder agrees to pay for all advertising in response to advertising is \$25,000 or more, and to pay for all advertising in response to advertising is more than \$1,000.

This contract is subject to the terms and conditions of the contract maintained by the bidder (or contractor) for the sale of the goods to be furnished hereunder, and to the terms and conditions of the contract maintained by the bidder (or contractor) for the sale of the goods to be furnished hereunder, and to the terms and conditions of the contract maintained by the bidder (or contractor) for the sale of the goods to be furnished hereunder.

Bidder	General Electric Supply Company A Division of General Electric Company	P. O. Box Number	1679
Street	2800 Annicola Highway	P. O. Box Zip Code	37401
City, State, and Zip Code	Chattanooga, Tennessee 37406	Telephone	624-0961
Signature and title of person authorized to sign bid	W. S. Wilson, Purchasing Agent		

ACCEPTANCE - Items 1, 2, and 3.  
Ship by prepaid motor freight.

CONSIGN TO TENNESSEE VALLEY AUTHORITY  
Browns Ferry Project, near  
Athens, Alabama  
7007-54042  
MARK: Contract  
For Browns Ferry Nuclear Plant  
Ans. Chief Storekeeper

MAIL INVOICE IN DUPLICATE to -  
TENNESSEE VALLEY AUTHORITY  
Construction Accounting Branch  
Knoxville, Tennessee 37902

Delivery is required at destination  
April 17, 1970.  
Total Amount \$ 382.00 approx.

TENNESSEE VALLEY AUTHORITY  
W. S. Wilson, Purchasing Agent

Invoices must show contract number, discounts or terms of payment applicable, item description, quantity, unit price, and total amount.

TYA USE ONLY I certify that the articles or services listed above have been received in quantity and quality specified except as noted. TYA 5050 (DP-12-67)	Person receiving material	Date Material Received	G.S. No. (Carrier's Charges: Paid \$ Collect \$)	Purchase Cost
	Approved as reported above	Truck	Common Carrier	Cash Discount
		Vehicle	Rate	Carrier's Charges

Contract File Purchasing A File Accounting Office Consignee

ITEM NO.		QUANTITY	UNIT	UNIT PRICE	AMOUNT
<u>F.O.B.</u> Browns Ferry Project, near Athens, Alabama, by Motor Freight					
The following 600-volt cable on manufacturer's standard length reels:		<u>Approx.</u>			<u>Approx.</u>
1	No. 8 Awg, stranded copper, 1/c, type TW, green. Mark wwp  Make & Type <u>Anacanda Type TW</u>  Point of Manufacture <u>Watkinsville, Ga.</u>	4,000	foot	.0595	238.00
2	No. 10 Awg, stranded copper, 1/c, type TW, green. Mark wwo  Make & Type <u>Anacanda Type TW</u>  Point of Manufacture <u>Watkinsville, Ga.</u>	10,000	foot	.0378	378.00
3	No. 12 Awg, stranded copper, 1/c, type TW, green. Mark wwn  Make & Type <u>Anacanda Type TW</u>  Point of Manufacture <u>Watkinsville, Ga.</u>	10,000	foot	.02668	266.80
Total					892.80

Bid Based on all or none.

General Electric Supply Co.  
A Division of General Electric Co.

Schedule of Prices

ITEM NO.	QUANTITY	UNIT	UNIT PRICE <small>(Quote unit price and complete instructions)</small>	AMOUNT
<u>SHIPPING DATA.</u> Bidder must state:				
Number of calendar days after award for delivery		14	days.	
Point of shipment <u>Forest Park, Georgia</u>				
Method of shipment and name of first carrier <u>Air Motor Freight.</u>				
Shipping weight <u>1,022 Lbs.</u>				
<p><u>REEL DATA.</u> If bidder is bidding on non-returnable reels this paragraph does not apply. If he is bidding on returnable reels, the deposit on reels shall not be included in bid price, but shall be added to invoice as a separate item. TVA will return empties at vendor's expense by method specified below. Bidder shall furnish the following information:</p>				
<p>Returnable reels will be added to invoice at the prices stated below and full credit will be allowed for return in good condition:</p>				
<p>Size _____ \$ _____ each; Size _____ \$ _____ each; Size _____ \$ _____ each          Number required _____; Number required _____; Number required _____</p>				
<p>Time limit if any for return of empties in good condition _____ days</p>				
<p>If reels are not returned within the time specified above, state amount of credit which will be allowed for return within:</p>				
<p>Two years \$ _____ each    Three years \$ _____ each    Four years \$ _____ each</p>				
<p>Consignment for return of empties _____</p>				
<p>Method of shipment for return of empties _____</p>				

General Electric Supply Co.  
 A Division of General Electric Co.

SPECIAL CONDITIONS

Rejection of Bids. In order to make a fair and equitable comparison of the bids it is very important that all bids be based upon the same contract terms and conditions. Bids may be rejected if they (or any transmittal letter, attachment, form or paper which is made a part of the bid) contain any exception, condition, restriction, or term:

- (1) which is in conflict in any way with the general or special contract conditions, terms or provisions contained in TVA's invitation to bid or in any addenda thereto;
- (2) which, although not in conflict with any specific condition, term or provision of the invitation, introduces a new condition, term or provision which is unacceptable to TVA.

Shipping Information and Marking. The Contractor and each subcontractor making shipments shall mark each piece, bundle or container (inside and outside) in each shipment with the TVA contract number and other items of identification required by the COMSIG TO instructions on the face of the contract and shall furnish copies of shipping bills or memoranda for each shipment giving the contract number; description; number of pieces; total weight; and, if shipped by railroad freight, the car initials and number to:

Chief Storekeeper, Browns Ferry Nuclear Plant, TVA, P.O. Box 2000 Decatur, Al 35601  
1 copy

W. S. Wilson, TVA, 321 Lupton Building, Chattanooga, TN 37401  
1 copy

Furnishing of Information. Bidder shall furnish all information requested in the schedule, specifications, and data questionnaires if any. TVA reserves the right to reject any bid that does not comply with this requirement.

Guaranteed Shipping Weights. The shipping weight stated by the bidder is the guaranteed shipping weight for the products quoted upon. This weight shall be considered the guaranteed maximum shipping weight and the bid evaluation factor of freight charges on f.o.b. origin prices will be based thereon. If a contract is awarded on prices f.o.b. origin and actual weight exceeds the weight given in the bid, the excess transportation costs will be deducted from contractor's invoice unless such excess weight is the result of a contract change made by TVA.

State Sales and Use Taxes. State sales and use taxes are not applicable to materials, supplies, or equipment sold to TVA and such taxes shall not be included in the price quoted in response to this invitation.

Bidder hereby certifies as a part of his bid that no state sales or use tax has been included in the price or prices quoted in the bid.

Patents and Copyrights. The Contractor shall hold and save TVA, its officers, agents, servants, and employees harmless from liability of any nature or kind, including costs and expense, for or on account of any copyrighted or uncopyrighted composition, secret process, trademark, patented or unpatented invention, articles or appliance manufactured or used in the performance of this contract, including their use by TVA.

Technical Engineer. Chief Electrical, Tennessee Valley Authority, 303 Union Building, Knoxville, Tennessee 37902, will represent TVA in the fulfillment of the technical requirements of this contract. Communications relative to all technical matters other than shop inspection and testing should be directed to him. Shop drawings and samples, when required, are sent to him for approval.

Small Business Assistance. Small business companies, especially manufacturers, are encouraged to call upon the Small Business Administration office nearest to their place of business for guidance in securing management, financial, or technical assistance.

Terms of Payment. Payments less such discounts as entitled by the contract will be made upon receipt of material or equipment in acceptable condition at the specified delivery point, and after receipt of correct invoice(s) and shipping documents by TVA at the designated accounting office. The Contractor's invoice will be paid as soon as the voucher can be prepared and approved by TVA.

Special Marking of Shipments. The contractor and each subcontractor making shipments shall mark each item as shown in the schedule or drawings. Each piece of every item need not be marked separately, but all pieces of each item shall be packed or bundled together, and these packages and bundles marked. This marking is in addition to that required under the clause Shipping Information and Marking.

Delivery. Delivery is required before April 17, 1970. Bidder shall state its best possible delivery date(s). Bids offering later delivery than the date(s) in line one will be considered in relation to the probable added cost to TVA. TVA intends to award a contract to the responsive bidder offering earliest delivery and not taking exception to the Late Delivery clause. Upon award of a contract the delivery date(s) offered by the successful bidder shall be the contract performance date(s) and the delivery deadline date(s) stated in sentence one hereof shall no longer be of any effect. If the bidder fails to give its delivery date(s) for any item, group of items, or schedule, the bid will be considered as having offered delivery on the delivery deadline date(s) stated in this invitation and bidder agrees to accept award of a contract on that basis. Bids offering delivery in a manner other than as a number of days, weeks, or months after award or as a specific date may be rejected as nonresponsive for indefiniteness.

Late Delivery. The Contractor was not the low bidder on this contract, but the award was made upon the basis of the delivery promised by the Contractor which was \_\_\_\_\_ days earlier than the delivery promised by the low bidder. The Contractor's bid was \$ \_\_\_\_\_ higher than the low bid. Therefore, if the Contractor fails to perform the contract within the time or times specified in the contract, or any extension thereof by the Contracting Officer as provided in the Delays and Remedies provision, the contract price shall be reduced as follows:

- (1) If the total unexcused delay equals or exceeds (a) \_\_\_\_\_ days, the contract price shall be reduced by \$ (b) \_\_\_\_\_.
- (2) If the total unexcused delay is less than (a) \_\_\_\_\_ days, the contract price shall be reduced by \$ (c) \_\_\_\_\_ per day for each day of such delay.

The price adjustment provided by this provision shall not prevent TVA from collecting liquidated or actual damages because of the Contractor's unexcused delay in delivery.

- (a) Difference in calendar days between low bidder and bidder to whom award is being made.
- (b) Difference in bid prices between low bidder and bidder to whom award is being made.
- (c) Divide (b) by (a).

To: Director, Division of Purchasing, Lupton Building, Chattanooga  
From: Specifications Section, Division of Engineering Design, Knoxville  
Date:

Subject: INSULATED CONDUCTOR - TYPE TW (FOR GROUNDING)

Project: BROWNS FERRY NUCLEAR PLANT

Ref. No.: NLE-220

Spec. No.:

Reqn. No.: 54042

Est. Cost: \$150

Date Wanted: March 15, 1970

Inspection:  Chief Materials Engineer

Bid Review:  Yes

Engineer: Chief Electrical

Destination

No

See Below

See Below

Transmitting

Reqn: 2  
Specifications:  
Print(s):  
Sched of Prices:

Please furnish copies  
as follows to:

SPECIFICATIONS SECTION  
503 UB - Knoxville

Invitation & Addenda \_\_\_\_\_

Contract (Transfer Order) \_\_\_\_\_

Suggested bidders

Carl W. Troy

CC:  W. C. Adkins, 500 HFB  
 W. F. Baker, 501 UA  
 R. H. Dunham, 204 UB  
 F. P. Lacy, 405 UB  
 J. C. McCraw, 709 UB  
 H. H. Mull, 603 UB  
 W. Nixon, 520 UB  
 M. N. Sprouse, 303 UB

1 C. R. Einfalt, 116 UB

W. W. Aydelott, Cumberland City  
 W. W. Aydelott, Gallatin  
 Chas. Bonine, Jr., Daisy  
 Frank Kane, Golden Pond  
 W. P. Kelleghan, Decatur  
 G. S. Mauney, Paducah  
 A. H. Weber, Winchester  
 L. H. Carlock, Chattanooga  
 Fred Chambers, Chattanooga  
 J. P. DeLong, Nashville  
 L. E. Lam, Jackson  
 E. V. Raffalovich, 4200 Greenway Drive  
 E. F. Thomas, Chattanooga



# TENNESSEE VALLEY AUTHORITY

PERMANENT MATERIAL  
Design Ref NIE-220

## Purchase Requisition

No. 54042

Location Knoxville, Tennessee Date February 19, 1970

Project <u>Browns Ferry Nuclear Plant</u>	Ship To <u>Tennessee Valley Authority</u>
Organization <u>Construction (by DEO)</u>	<u>Attention Chief Storekeeper</u>
Acctg. Office <u>Construction</u>	
App. No. <u>N1-39</u>	Ship By <u>Best Way</u> Date Wanted <u>Mar. 15, 1970</u>

ITEM NO.	ARTICLES OR SERVICES <small>(Give Complete Description or Catalog Number)</small>	QUANTITY	UNIT	UNIT PRICE*	AMOUNT
	BROWNS FERRY NUCLEAR PLANT INSULATED CONDUCTOR - TYPE TW (FOR GROUNDING)				
	Furnish the following:				
1	No. 8 Awg, stranded copper, 1/c, type TW, green, 600-volt cable. Mark wwp	4,000	foot		
2	No. 10 Awg, stranded copper, 1/c, type 1w, green, 600-volt cable. Mark wwo	10,000	foot		
3	No. 12 Awg, stranded copper, 1/c, type TW, green, 600-volt cable. Mark wwn	10,000	foot		
	Estimated cost				\$1150
	Inspection at destination.				
	Bids not to be reviewed by DEO before award.				
	Initiated by <u><i>W. M. Siefert</i></u> Sponsor Engineer				

\*If not indicated price, price used on previous Contract No.

Requested by *W. M. Siefert*  
Chief Electrical Engineer

Validated by *[Signature]*  
Chief Engineer

Authorized by *[Signature]*  
Director of Engineering Design

Approved *[Signature]*  
Reviewed for MET RES DESO  
Quality Assurance

## ENCLOSURE 2

### TVA'S UNDERSTANDING OF THE FIRE PROTECTION TEST PROGRAM BY NRC OFFICE OF RESEARCH

#### I. Scope of Test Program

Originally, a full-scale mockup of a section of the north wall, elevation 593.0, at Browns Ferry was to be constructed. TVA questioned the necessity of any test because of the remoteness of the location, and the extensive effort by TVA to have better fire protection than that required by the NRC. However, following a plant tour, Ron Feit, of the NRC Office of Research and the consultants agreed that to be meaningful, the initial test of the area would be a screening test, with further testing to follow if flame propagation was achieved in the screening test. NRC personnel agreed that the test program's main goal, as a result of the plant tour, would be confirmation of the effectiveness of the regulatory process.

In the screening phase, a minimum of two tests will be conducted using a flammable liquid spill to represent a transient fire load exposure type fire. In the first test the fire will burn until extinguished by the fixed suppression systems, or until the flammable liquid is consumed. In the second test it will be assumed that the fixed suppression will not function and the fire will be extinguished by the plant's fire brigade. Suitable delay times will be used in the lab to reflect the actual speed of a fire brigade's response.

#### II. Location of the Test Area

The NRC site team selected unit 1, elevation 593, north wall of the Reactor Building, at Browns Ferry for the full-scale replication test. The proposed plan is to replicate an area within a six-foot radius of the four vertical cable trays VE, TE, KS-ESII, and KT, between R6 and R7 at P line. These trays are within the zone of influence of the Browns Ferry 1975 fire.

The replication for the screening test will include only the vertical cable trays and conduit from elevation 593.0 to approximately elevation 610 (below the overhead horizontal cable trays). If a full replication test is conducted after the screening test, it shall include both the vertical and the horizontal trays plus all major pipes, ducts, etc., that might affect fire growth or spread.

#### III. Test Conditions

The screening test will consist of only the vertical cable trays within the test area. The cables will be installed in the trays and conduits with the same mix of type and size now found in the trays and conduit with the Flamemastic coating installed to the same level as at Browns Ferry. Fixed detection and suppression systems of the type now in service will be installed. The exposure fire will consist of a quantity of flammable liquid, heptane, being spilled in the area of the vertical trays and conduit. The volume of flammable liquid will be limited to the maximum quantity allowed for transportation within the Reactor Building at Browns Ferry.

Testing will be divided into two distinct phases. The first will test the ability of the fixed suppression system to prevent cable damage when exposed to the test fire. The second test will assume that the fixed detection system will operate; however, the fixed suppression system will be assumed to fail and the fire will be extinguished by the fire brigade. The failure criteria for both phases will be failure of both Trains A and B for a single system function. The screening test results will determine the need for additional tests.

NRC agreed to allow TVA review and comment privileges of the proposed test. TVA will also be allowed to examine the test setup, to witness the test, and to review and comment on the final report to the NRC Commissioners.

#### IV. Test Schedule

Ron Feit, NRC Office of Research, provided an initial schedule which gave a starting date of July 1980 with the final report being published in July 1982. However, according to Mr. Feit, the schedule will be revised and submitted to TVA.

#### V. Communication

While TVA has designated responsible individuals from several divisions to participate in the test program, all contacts between NRC or their consultants shall be through established formal channels. The TVA Nuclear Regulatory Staff shall coordinate all communications and responses.