TENNESSEE VALLEY AUTHORITY
KNOXVILLE, TENNESSEE 37902
400 West Summit Hill Drive, E3A8

November 21, 1985

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

Dear Mr. Denton:

Your letter to W. F. Willis dated September 26, 1985, requested copies of investigation reports and related documents dealing with potentially safety-related employee concerns on TVA's nuclear plants. Copies of the requested information as outlined in TVA's October 7, 1985, letter are enclosed and cover the period of November 15, 1985 through November 20, 1985. TVA has previously submitted copies of the requested information through November 14, 1985. We are also enclosing computer summaries of the information which we have transmitted to date.

If you have questions concerning the material transmitted, please contact M. S. Kidd or B. F. Siefken at FTS No. 856-2289 or 856-6230, respectively.

Sincerely,

K. W. Whitt

K. W. Whitt
Director, Nuclear Safety
Review Staff

Enclosures
cc (Enclosures):
Mr. James M. Taylor, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. J. Nelson Grace
Regional Administrator
U.S. Nuclear Regulatory Commission, Region II
101 Marietta Street, Suite 3100
Atlanta, Georgia 30323

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TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT
EMPLOYEE CONCERN PROGRAM
NUCLEAR REGULATORY COMMISSION LISTING

QTC NUMBER	SUBJECT	INVEST ORG	DATE REPORT	SUB?	DATE RESPONSE	AC?	DATE CLOSED	KEY WORD	#
** MILESTONE:									
IN-85-160-001	UNREPORTED FIRE	NSRS	11/07/85	.F.	/ /	.F.	11/12/85	CONSTRUCTI	1
WI-85-084-001	WELDER CERTIFICATION	ERT	11/12/85	.T.	/ /	.F.	11/12/85	WELDING	1
** Subtotal **									2
** MILESTONE: 1 FUEL LOAD									
EX-85-003-003	UNAUTH CHNG TO WDREC	ERT	07/09/85	.T.	07/24/85	.T.	07/24/85	WELDING	1
EX-85-049-001	NO SECURITY BARRIER	NSRS	10/17/85	.T.	/ /	.F.	/ /	SECURITY	1
IN-85-001-003	WELDS UNDER WATER	ERT	07/10/85	.T.	09/23/85	.T.	09/23/85	WELDING	1
IN-85-012-X02	TENSILE STRNG OF FIT	NSRS	08/05/85	.T.	/ /	.F.	08/05/85	MATERIAL	1
IN-85-018-004	SUPV NOT FOLLOW PROC	NSRS	11/14/85	.T.	/ /	.F.	11/20/85	ELECTRICAL	1
IN-85-021-X05	WELDER CERTIF FALSIF	ERT/OGC	10/24/85	.T.	/ /	.F.	11/04/85	WELDING	1
IN-85-024-001	DRWNS & 050 NOTES	NSRS	07/03/85	.T.	/ /	.F.	/ /	HANGERS	1
IN-85-031-001	ENBD PLTS NOT CORREC	ERT	08/20/85	.T.	/ /	.F.	/ /	DESIGN	1
IN-85-037-001	CONCRETE ANCHORS	ERT	07/09/85	.T.	09/11/85	.F.	/ /	CIVIL	1
IN-85-038-001	ANALYS OF LARGE PIPE	ERT	07/08/85	.T.	09/05/85	.T.	09/05/85	DESIGN	1
I[redacted]-039-001	THML STRS ON PIPING	ERT	07/09/85	.T.	09/05/85	.T.	09/05/85	DESIGN	1
I[redacted]-039-002	STRES&SUPPRT LD PROB	ERT	11/08/85	.T.	/ /	.F.	11/12/85	DESIGN	1
IN-85-052-001	DRWNGS & 050 NOTES	NSRS	07/03/85	.T.	07/30/85	.F.	/ /	HANGERS	1
IN-85-088-001	VACUM TEST ON DOORS	ERT	07/09/85	.F.	/ /	.F.	07/09/85	TESTING	1
IN-85-091-X02	NO NCR FOR LOST DOCU	ERT	08/26/85	.T.	/ /	.F.	10/03/85	DOCUMENT	1
IN-85-130-002	FIRE SEALS BREACHED	ERT	07/05/85	.T.	09/13/85	.T.	09/13/85	CONSTRUCTI	1
IN-85-169-001	SYS 62 VALVE CLASS	ERT	07/10/85	.T.	07/26/85	.T.	07/26/85	MATERIAL	1
IN-85-202-001	CRACK IN WELD	ERT	07/10/85	.T.	/ /	.F.	07/09/85	WELDING	1
IN-85-251-002	MAINT WITHOUT NCR	NSRS	10/31/85	.F.	/ /	.F.	11/05/85	QA	1
IN-85-260-003	WELD DOCUMNTATION	ERT	10/07/85	.F.	/ /	.F.	/ /	WELDING	1
IN-85-311-008	CR ENTRANCE FIREDOOR	ERT	08/19/85	.T.	09/24/85	.T.	10/10/85	OPERATIONS	1
IN-85-325-006	VALV CONT/OPER TRAN	NSRS	10/01/85	.F.	/ /	.F.	10/04/85	OPERATIONS	1
IN-85-393-003	FSAR REQ FOR SUPERV	NSRS	07/03/85	.T.	08/30/85	.F.	/ /	OPERATIONS	1
IN-85-406-001	UNAUTH CHNG TO WDREC	NSRS	07/09/85	.T.	07/24/85	.T.	07/24/85	WELDING	1
IN-85-413-001	"050"NOTES	NSRS	08/09/85	.T.	/ /	.F.	08/04/85	HANGERS	1
IN-85-424-011	INADEQ UPDT WELD CER	ERT	09/26/85	.T.	/ /	.F.	10/03/85	WELDING	1
IN-85-424-X13	FALSIF WELDER CERTIF	ERT/OGC	10/24/85	.T.	/ /	.F.	11/04/85	WELDING	1
IN-85-439-003	INADEQ CRAFT SUPV	NSRS	10/30/85	.F.	/ /	.F.	10/30/85	CONSTRUCTI	1
IN-85-445-008	PROC DIFFICULT TO KN	NSRS	10/23/85	.F.	/ /	.F.	10/30/85	CRAFT	1
IN-85-445-010	EYE TEST INADEQUATE	NSRS	10/28/85	.T.	/ /	.F.	/ /	INSPECTION	1
IN-85-445-013	47-050 HARD TO USE	NSRS	10/10/85	.T.	/ /	.F.	10/16/85	HANGERS	1
IN-85-457-001	INADQ REVIEW BY PORC	NSRS	10/17/85	.T.	/ /	.F.	/ /	OPERATIONS	1
IN-85-465-002	LOOSE CONDUIT	NSRS	09/09/85	.F.	11/14/84	.T.	11/20/85	HANGERS	1
IN-85-472-002	NO NCRS ON ERCW LINS	NSRS	10/03/85	.F.	/ /	.F.	/ /	QA	1
IN-85-534-005	FIRE PROTEC HYDRO TE	NSRS	10/02/85	.F.	/ /	.F.	/ /	TESTING	1
IN-[redacted]-544-001	WORK W/O WORKPLAN	ERT	10/22/85	.F.	/ /	.F.	/ /	QA	1
I[redacted]-544-002	VIOLATION OF PROCEDU	ERT	10/23/85	.T.	/ /	.F.	/ /	QA	1
IN-[redacted]-581-002	WLDRS NOT QUAL ELEC	NSRS	10/17/85	.T.	/ /	.F.	10/17/85	CONSTRUCTI	1
IN-85-612-X07	WELDER CERTIF FALSIF	ERT/OGC	10/24/85	.T.	/ /	.F.	11/04/85	WELDING	1

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QTC NUMBER	SUBJECT	INVEST ORG	DATE REPORT	SUB ?	DATE RESPONSE	ACC ?	DATE CLOSED	KEY WORD	#
IN-85-676-001	DISAGREE W/TVA POLIC	NSRS	10/31/85	.T.	/ /	.F.	11/05/85	QA	1
IN-85-684-001	DEFECTIVE TUBE STEE0	NSRS	09/16/85	.F.	/ /	.F.	09/16/85	MATERIAL	1
IN-85-770-002	PROC FOR CER NOT PER	ERT	10/24/85	.T.	/ /	.F.	11/04/85	WELDING	1
IN-85-770-003	UNCERTIFIED WELDERS	ERT	09/26/85	.T.	/ /	.F.	10/03/85	WELDING	1
IN-85-770-X07	WELDERS CERT FALSIFI	ERT/OGC	10/24/85	.T.	/ /	.F.	11/04/85	WELDING	1
IN-85-778-X07	WELDER CERT CARD FAL	ERT/OGC	10/24/85	.T.	/ /	.F.	11/04/85	WELDING	1
IN-85-795-001	COMPRESS FITTING	ERT	08/07/85	.T.	10/07/85	.T.	10/30/85	INSTRUMENT	1
IN-85-795-002	COMPRESS FITTING	ERT	08/07/85	.T.	10/07/85	.T.	10/30/85	INSTRUMENT	1
IN-85-847-006	CRFT SUP ALW UNAP PL	NSRS	10/29/85	.T.	/ /	.F.	11/04/85	QA	1
IN-85-850-002	QUANTITY VS. QUALITY	NSRS	11/07/85	.F.	/ /	.F.	11/12/85	QA	1
IN-85-853-X02	VIOLAT TVA PROCEDURE	ERT	10/12/85	.F.	/ /	.F.	10/18/85	QA	1
IN-85-897-001	INEXP CRAFTSMEN	NSRS	11/07/85	.T.	/ /	.F.	11/12/85	CRAFT	1
IN-85-915-003	DRAWING CONTROL	NSRS	10/22/85	.T.	/ /	.F.	10/22/85	DOCUMENT	1
IN-85-965-001	WELDOR CER BACKDATED	ERT	10/24/85	.T.	/ /	.F.	11/04/85	WELDING	1
IN-85-977-001	TAPE NOT REPL ON RCS	NSRS	10/10/85	.F.	/ /	.F.	/ /	QA	1
IN-85-977-002	DOCUMENT OF TCS/SIS	NSRS	10/03/85	.T.	/ /	.F.	/ /	DOCUMENT	1
IN-86-055-003	HYDRAZINE SPILL	NSRS	10/17/85	.T.	/ /	.F.	/ /	OPERATIONS	1
I[illegible]-068-002	RETUBIN OF HEAT EXCH	ERT	11/05/85	.T.	/ /	.F.	11/12/85	MAINTENANC	1
I[illegible]-087-004	DIFFERENCE IN Q-LIST	NSRS	10/04/85	.T.	/ /	.F.	/ /	QA	1
IN-86-090-001	DIFFERENCE IN Q-LIST	NSRS	10/04/85	.T.	/ /	.F.	/ /	QA	1
IN-86-090-003	SIS APPROVAL W/O REV	NSRS	10/17/85	.T.	/ /	.F.	/ /	OPERATIONS	1
IN-86-102-001	REQ FOR CONDUIT INSU	NSRS	10/11/85	.T.	/ /	.F.	/ /	HANGERS	1
IN-86-102-002	NO ATTACH D/CONDUIT	NSRS	10/14/85	.F.	/ /	.F.	10/16/85	CONSTRUCTI	1
IN-86-103-002	REMOVAL OF INSULATIO	NSRS	11/13/85	.F.	/ /	.F.	11/15/85	CONSTRUCTI	1
IN-86-143-002	WELDER CERT BACKDATE	ERT	10/24/85	.T.	/ /	.F.	11/04/85	WELDING	1
IN-86-155-004	WELDS MAY NOT INSPEC	NSRS	10/22/85	.F.	/ /	.F.	10/22/85	WELDING	1
IN-86-167-005	WELDER REQUAL BACKDT	ERT	10/24/85	.T.	/ /	.F.	11/04/85	WELDING	1
IN-86-167-X06	WELDER CERT CARD FAL	ERT/OGC	10/24/85	.T.	/ /	.F.	11/04/85	WELDING	1
IN-86-210-001	HEAT EXCH TUBES INAD	ERT	11/05/85	.T.	/ /	.F.	11/12/85	DESIGN	1
IN-86-221-004	CLEANERS NOT APPVD	NSRS	10/10/85	.T.	/ /	.F.	/ /	MATERIAL	1
IN-86-226-001	HARAS FOR REP QC	NSRS	11/15/85	.T.	/ /	.F.	/ /	QA	1
IN-86-259-004	INADEQ CABLE PULL	NSRS	10/31/85	.T.	/ /	.F.	11/04/85	ELECTRICAL	1
NS-85-001-001	INACCUR WELD INSPECT	ERT	08/13/85	.T.	09/27/85	.F.	/ /	WELDING	1
PH-85-003-021	ENG EVAL NOT CONDUCT	NSRS	10/10/85	.T.	/ /	.F.	10/16/85	QA	1
PH-85-006-001	CHANGES TO 050 NOTES	NSRS	08/09/85	.F.	/ /	.F.	08/09/85	HANGERS	1
PH-85-012-001	INSPECT OF WELDS	ERT	07/19/85	.T.	/ /	.F.	07/19/85	WELDING	1
PH-85-018-001	AUDIT FINDS WITHHELD	ERT	07/10/85	.F.	/ /	.F.	07/10/85	QA	1
WI-85-003-001	FALSE WELD CERTF CRD	ERT	10/24/85	.T.	/ /	.F.	11/04/85	WELDING	1
WI-85-003-X02	WELDER CERT CARD FAL	ERT/OGC	10/24/85	.T.	/ /	.F.	11/04/85	WELDING	1
WI-85-013-003	INVALID TREND ANALYS	ERT	11/06/85	.T.	/ /	.F.	11/06/85	INSPECTION	1
WI-85-016-001	PROCEDURE VIOLATIONS	ERT	11/01/85	.F.	/ /	.F.	11/15/85	CIVIL	1
WI-85-055-001	WELDER RECERTIFICATI	ERT	09/24/85	.T.	/ /	.F.	10/02/85	WELDING	1
WI[illegible]-056-001	NOT FOLLOW CODE REQU	ERT	09/24/85	.T.	/ /	.F.	10/02/85	WELDING	1

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QTC NUMBER	SUBJECT	INVEST ORG	DATE REPORT	S U B ?	DATE RESPONSE	A C C ?	DATE CLOSED	KEY WORD	#
** Subtotal **									82
** MILESTONE: 2 CRITICALITY									
IN-85-016-003	TUBING NOT CLAMPED	NSRS	09/03/85	.T.	/ /	.F.	/ /	HANGERS	1
IN-85-025-001	INCORE THERMO TEST	NSRS	07/03/85	.F.	/ /	.F.	/ /	TESTING	1
IN-85-064-002	SHUTDN BDS TOP OPEN	NSRS	06/28/85	.T.	07/22/85	.T.	07/22/85	ELECTRICAL	1
IN-85-069-001	INADEQUATE INSPECTS	ERT	07/10/85	.T.	10/10/85	.F.	/ /	HANGERS	1
IN-85-106-001	MN STM LOADS SUPPORT	ERT	07/11/85	.F.	/ /	.F.	07/11/85	DESIGN	1
IN-85-109-002	BOLTS REPLAC BY WELD	NSRS	11/07/85	.T.	/ /	.F.	11/12/85	DESIGN	1
IN-85-186-002	INSL ON CONDT & CABL	ERT	07/10/85	.F.	09/24/85	.T.	10/10/85	ELECTRICAL	1
IN-85-216-001	WELDING SEQUENCE	ERT	07/10/85	.T.	08/05/85	.F.	/ /	WELDING	1
IN-85-217-001	CONDENS POTS, #1	ERT	07/15/85	.T.	/ /	.F.	07/14/85	DESIGN	1
IN-85-246-001	INSUFFNT MOVEMT/NVR	NSRS	08/09/85	.F.	/ /	.F.	08/09/85	DESIGN	1
IN-85-281-001	DIFFUSER FLOW	ERT	07/05/85	.T.	07/25/85	.T.	07/25/85	DESIGN	1
IN-85-281-003	TRNSM NOT READ SAME	NSRS	08/15/85	.T.	09/17/85	.T.	09/17/85	DESIGN	1
IN-85-415-002	CONCRETE ERCW LINES	NSRS	07/11/85	.F.	/ /	.F.	07/11/85	MECHANICAL	1
I[redacted]-439-006	SUBSTD WEAK CONCRETE	NSRS	11/07/85	.F.	/ /	.F.	11/12/85	CIVIL	1
I[redacted]-460-003	GOUGE IN LINE, 1#	ERT	08/29/85	.T.	09/24/85	.T.	10/17/85	MECHANICAL	1
IN-85-460-X05	EXCAV ARC STRK SYS72	ERT	10/21/85	.T.	/ /	.F.	10/21/85	WELDING	1
IN-85-485-X01	SOFT CONCRETE	NSRS	11/07/85	.F.	/ /	.F.	11/12/85	CIVIL	1
IN-85-534-001	FIRE PROTECT SYSTEM	NSRS	10/08/85	.F.	/ /	.F.	/ /	DESIGN	1
IN-85-601-001	INADEQ SURVL INSTRUC	NSRS	10/09/85	.T.	/ /	.F.	10/09/85	QA	1
IN-85-802-001	TARGET ROCK VALVES	NSRS	10/25/85	.T.	/ /	.F.	/ /	DESIGN	1
IN-86-122-001	CRACKS IN WF 33 BEAM	NSRS	10/10/85	.T.	/ /	.F.	10/16/85	MATERIAL	1
** Subtotal **									21
** MILESTONE: 3 5% POWER									
IN-85-001-002	WELD ROD CONTROL	ERT	07/10/85	.F.	/ /	.F.	07/06/85	WELDING	1
IN-85-016-001	BROKN CONCRE AT PLAT	NSRS/ERT	08/05/85	.F.	/ /	.F.	08/04/85	CIVIL	1
IN-85-021-003	BACKDATE CERTF CARDS	ERT	08/19/85	.T.	/ /	.F.	/ /	WELDING	1
IN-85-027-002	COMPUTER ANALYSIS	ERT	08/01/85	.T.	10/08/85	.T.	10/04/85	DESIGN	1
IN-85-052-008	PROCED FOR WELD RODS	ERT	07/10/85	.T.	09/24/85	.F.	/ /	WELDING	1
IN-85-064-001	SPRAY ON SHUTDN BDS	NSRS	06/28/85	.T.	/ /	.F.	06/28/85	ELECTRICAL	1
IN-85-086-001	STM GEN MATERIALS	ERT	07/10/85	.F.	/ /	.F.	07/10/85	MATERIAL	1
IN-85-108-001	SYS 68 PIPING	ERT	07/12/85	.F.	/ /	.F.	07/12/85	MATERIAL	1
IN-85-113-003	WELDER CERTIFICATION	ERT	07/10/85	.T.	11/12/85	.T.	11/20/85	WELDING	1
IN-85-140-001	OPER WATCH VS PAPER	NSRS	08/30/85	.T.	10/16/85	.T.	10/16/85	OPERATIONS	1
IN-85-186-004	BOARDS IN ELEC PANEL	ERT	07/05/85	.F.	09/23/85	.T.	09/23/85	ELECTRICAL	1
IN-85-211-001	ERCW LINE LEAK	NSRS	06/27/85	.F.	/ /	.F.	06/27/85	MECHANICAL	1
IN-85-221-001	IMPROPER VALVE OPER	ERT	07/05/85	.T.	09/23/85	.T.	09/23/85	OPERATIONS	1
IN[redacted]-346-003	WELD CERTIFICATIONS	ERT	09/26/85	.T.	/ /	.F.	10/03/85	WELDING	1
I[redacted]-352-001	UPDATE WELD CERTIFIC	ERT	09/26/85	.T.	/ /	.F.	10/03/85	WELDING	1
IN[redacted]-388-006	HEAT CODE TRACEABILI	NSRS	07/03/85	.T.	07/26/85	.T.	07/26/85	MATERIAL	1
IN-85-453-007	INADEQ CERTF OF WELD	ERT	08/19/85	.T.	/ /	.F.	/ /	WELDING	1

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IN-85-465-001	LINES CLOSE TO HANGR	NSRS	07/30/85	.T.	08/09/85	.T.	09/08/85	MECHANICAL	1
IN-85-493-004	INADEQ WELD CERTIFIC	ERT	09/26/85	.T.	/ /	.F.	10/03/85	WELDING	1
IN-85-501-001	UNUSED WLD RDS DISPO	ERT	09/03/85	.T.	/ /	.F.	/ /	WELDING	1
IN-85-532-004	WELDER RECERTIFICATE	ERT	09/26/85	.T.	/ /	.F.	10/03/85	WELDING	1
IN-85-532-005	RECERT W/O VERIFICAT	ERT	09/26/85	.T.	/ /	.F.	10/03/85	WELDING	1
IN-85-534-002	FIRE PROT LINES	NSRS	10/22/85	.F.	/ /	.F.	10/22/85	DESIGN	1
IN-85-540-001	INADE WELD CERTIFICA	ERT	09/26/85	.T.	/ /	.F.	10/03/85	WELDING	1
IN-85-543-002	INADEQ WELD CERTIFIC	ERT	09/26/85	.T.	/ /	.F.	10/03/85	WELDING	1
IN-85-554-001	INCOMP STAIN STEL LN	NSRS	09/03/85	.F.	/ /	.T.	09/03/85	CONSTRUCTI	1
IN-85-612-006	INADEQ WELD CERTIFIC	ERT	09/26/85	.T.	/ /	.F.	10/03/85	WELDING	1
IN-85-671-004	WELDS NOT PROP INSPE	NSRS	10/22/85	.T.	/ /	.F.	10/22/85	WELDING	1
IN-85-705-001	UNQUALIFIED PERSONNE	ERT	09/28/85	.T.	/ /	.F.	/ /	CONSTRUCTI	1
IN-85-725-X14	INADQ RECERT PROG	ERT	11/05/85	.F.	/ /	.F.	11/12/85	WELDING	1
IN-85-725-X15	TEST PLATES INADQ	ERT	11/05/85	.F.	/ /	.F.	11/12/85	WELDING	1
IN-85-778-001	WELDER CERTIFICATION	ERT	09/26/85	.T.	/ /	.F.	10/15/85	WELDING	1
IN-85-824-002	UNAPPROV BEND PROCED	ERT	08/23/85	.T.	10/18/85	.T.	10/30/85	QA	1
IN-85-845-004	IMPROPER WELDING	ERT	10/10/85	.F.	/ /	.F.	10/16/85	WELDING	1
I[redacted]-119-001	INADEQUATE CONDUITS	NSRS	10/09/85	.T.	/ /	.F.	/ /	ELECTRICAL	1
I[redacted]-173-001	DESIGN CALCULATIONS	NSRS	10/28/85	.T.	/ /	.F.	/ /	DESIGN	1
IN-86-259-006	INADQ SEPAR OF CABLE	NSRS	11/01/85	.T.	/ /	.F.	11/04/85	ELECTRICAL	1
IN-86-262-003	EXCEED MAX PULL TENS	NSRS	10/31/85	.T.	/ /	.F.	11/04/85	ELECTRICAL	1
IN-86-268-003	IMPROPER INSTAL CABL	NSRS	11/01/85	.T.	/ /	.F.	11/04/85	ELECTRICAL	1
PH-85-001-002	INST LNS SLOPE PROB	ERT	07/06/85	.T.	09/20/85	.T.	09/23/85	INSTRUMENT	1
WI-85-053-003	IMPORP WELDING DOCUM	NSRS	11/14/85	.T.	/ /	.F.	11/20/85	CONSTRUCTI	1
WI-85-053-006	TEST DIR NOT QUAL	NSRS	10/25/85	.F.	/ /	.F.	/ /	CONSTRUCTI	1
** Subtotal **									42
** MILESTONE: 5 100% POWER									
IN-85-010-004	FIRE PROT PIPNG DESN	ERT	09/16/85	.F.	/ /	.F.	09/24/85	DESIGN	1
IN-85-021-002	SYS77 DRAINS IN FLR	ERT	08/23/85	.T.	/ /	.F.	08/30/85	DESIGN	1
IN-85-218-001	APPROVAL OF AS-BUILT	ERT	07/29/85	.T.	08/22/85	.T.	08/22/85	INSTRUMENT	1
IN-85-407-001	INACCURATE Q-LIST	NSRS	10/04/85	.T.	/ /	.F.	/ /	DESIGN	1
IN-85-688-003	VALIDITY OF CRIT SYS	NSRS	10/04/85	.T.	/ /	.F.	/ /	DESIGN	1
IN-85-945-001	ELEC MANHOLES DISORG	NSRS	10/22/85	.T.	/ /	.F.	10/22/85	ELECTRICAL	1
** Subtotal **									6
** MILESTONE: 6 01/01/86									
EX-85-012-001	UNQUALIFIED PERSONNE	ERT	09/28/85	.T.	/ /	.F.	/ /	CONSTRUCTI	1
IN-85-078-001	UO/SAFTY RELATE SYST	NSRS	10/14/85	.F.	/ /	.F.	10/16/85	OPERATIONS	1
IN-85-196-003	VALVE OPER INADEQ	ERT	08/24/85	.T.	/ /	.F.	/ /	OPERATIONS	1
IN[redacted]-496-002	LINER OF ERCW PIPING	NSRS	10/03/85	.F.	/ /	.F.	/ /	MECHANICAL	1
I[redacted]-618-004	DAMAGED INST TUBING	NSRS	08/12/85	.T.	/ /	.F.	/ /	CONSTRUCTI	1
IN[redacted]-825-002	CLAIRTY IN PROCEDURE	NSRS	10/22/85	.F.	/ /	.F.	10/22/85	OPERATIONS	1

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT
EMPLOYEE CONCERN PROGRAM
NUCLEAR REGULATORY COMMISSION LISTING

QTC NUMBER	SUBJECT	INVEST ORG	DATE REPORT	SUB ?	DATE RESPONSE	ACC ?	DATE CLOSED	KEY WORD	#
** Subtotal **									6
** MILESTONE: 6 09/02/85									
IN-85-020-001	IMPROP INSTAL REDHDS	NSRS/ERT	08/15/85	.T.	/ /	.F.	/ /	CIVIL	1
** Subtotal **									1
** MILESTONE: 6 1ST REFUEL									
IN-85-211-002	ERCW LINE NOT STAINL	NSRS	10/03/85	.F.	/ /	.F.	/ /	MECHANICAL	1
** Subtotal **									1
** MILESTONE: 6 I85-166WBN									
IN-86-145-002	CONCRETE LINING APAR	NSRS	10/03/85	.F.	/ /	.F.	/ /	MECHANICAL	1
** Subtotal **									1
** MILESTONE: 6 IN85-113003									
EX-85-021-002	VERIFI PROCESS/WELD	ERT	09/26/85	.T.	/ /	.F.	10/03/85	WELDING	1
IN-85-426-002	INADEQ WELD CERTIFIC	ERT	09/26/85	.T.	/ /	.F.	10/03/85	WELDING	1
IN-85-815-001	CERTIFICATI OF WELDR	ERT	09/26/85	.T.	/ /	.F.	10/03/85	WELDING	1
IN-85-835-002	WELDING CERTIFICATIO	ERT	09/26/85	.T.	/ /	.F.	10/03/85	WELDING	1
** Subtotal **									4
** MILESTONE: 6 IN85-406001									
IN-85-445-002	UNAUT ACCS TO WLD SY	ERT	08/27/85	.T.	/ /	.F.	08/27/85	WELDING	1
IN-85-458-007	CHNG OF WELD STATUS	ERT	08/27/85	.T.	/ /	.F.	08/27/85	WELDING	1
** Subtotal **									2
** MILESTONE: 6 IN85-415002									
IN-85-196-004	INPROP INSTAL PIPING	NSRS	10/11/85	.F.	/ /	.F.	10/16/85	MATERIAL	1
IN-85-442-X12	LINING LOSS IN PIPE	NSRS	10/03/85	.F.	/ /	.F.	/ /	MECHANICAL	1
IN-85-589-001	LINER ON ERCW LINE	NSRS	10/03/85	.F.	/ /	.F.	/ /	MECHANICAL	1
IN-85-713-004	CONCRETE LIN IN PIPE	NSRS	10/03/85	.F.	/ /	.F.	/ /	MECHANICAL	1
IN-85-846-002	GOUT LINER/SAFTY HAZ	NSRS	10/03/85	.F.	/ /	.F.	/ /	MECHANICAL	1
** Subtotal **									5
** MILESTONE: 6 NO DATE									
EX-85-039-003	DESIGN DEFICIENCY	NSRS	11/07/85	.T.	/ /	.F.	11/12/85	DESIGN	1
E[redacted]042-003	WELDERS REQUALIFICAT	ERT	10/23/85	.T.	/ /	.F.	10/30/85	WELDING	1
IN[redacted]-103-001	IEB 79-02	NSRS	08/09/85	.T.	/ /	.F.	08/09/85	DESIGN	1
IN-85-279-005	NO TRACKING SYSTEM	NSRS	11/13/85	.T.	/ /	.F.	11/15/85	DESIGN	1

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT
EMPLOYEE CONCERN PROGRAM
NUCLEAR REGULATORY COMMISSION LISTING

QTC NUMBER	SUBJECT	INVEST ORG	DATE REPORT	SUB ?	DATE RESPONSE	ACC ?	DATE CLOSED	KEY WORD	#
IN-85-337-001	ERCW LN W/CEMENT LIN	NSRS	10/03/85	.F.	/ /	.F.	/ /	MECHANICAL	1
IN-85-373-001	DAMAGED CABLE	NSRS	06/28/85	.T.	07/25/85	.T.	07/25/85	ELECTRICAL	1
IN-85-532-006	OVERSIZED WELDS	NSRS	08/16/85	.T.	/ /	.F.	/ /	HANGERS	1
IN-85-543-004	DETERORIATE STEEL	NSRS	07/29/85	.F.	09/26/85	.T.	07/29/85	CONSTRUCTI	1
IN-85-915-002	DRAWING CONTROL	NSRS	10/17/85	.F.	/ /	.F.	10/17/85	DOCUMENT	1
IN-86-108-001	DRAWINGS NOT CURRENT	NSRS	11/01/85	.F.	/ /	.F.	11/04/85	DOCUMENT	1
IN-86-110-001	INADQ ICE LOADING	NSRS	10/25/85	.T.	/ /	.F.	10/30/85	DESIGN	1
IN-86-190-003	ANCHOR NOT TEST INDI	NSRS/ERT	10/24/85	.T.	/ /	.F.	10/30/85	CIVIL	1
IN-86-199-001	CAB PULL/REQ PER QCI	NSRS	10/31/85	.T.	/ /	.F.	11/04/85	ELECTRICAL	1
IN-86-201-001	CAB PULL LIMIT EXCEE	NSRS	10/31/85	.T.	/ /	.F.	11/04/85	ELECTRICAL	1
IN-86-232-001	REPAIR ERCW VIOLAT	NSRS	10/03/85	.F.	/ /	.F.	/ /	MECHANICAL	1
IN-86-259-001	FAILURE USE FUSE LIN	NSRS	10/31/85	.T.	/ /	.F.	11/04/85	ELECTRICAL	1
IN-86-259-005	OVERFILLED CABLE TRA	NSRS	11/14/85	.T.	/ /	.F.	/ /	ELECTRICAL	1
IN-86-259-X11	TVA PROC NO IEEE STD	NSRS	11/14/85	.F.	/ /	.F.	11/20/85	DESIGN	1
IN-86-262-002	OVERCROWDING CABLES	NSRS	11/14/85	.T.	/ /	.F.	11/20/85	ELECTRICAL	1
IN-86-266-X09	LACK OF COVERAGE	NSRS	10/31/85	.F.	/ /	.F.	11/04/85	ELECTRICAL	1
IN-86-266-X10	PROCE REQ FOR CABLES	NSRS	11/01/85	.T.	/ /	.F.	11/04/85	ELECTRICAL	1
** [redacted]total **									21
** MILESTONE: 6 PH85-001002									
IN-85-119-001	IMPROPER LINE INSTAL	ERT	09/18/85	.T.	10/22/85	.T.	10/30/85	INSTRUMENT	1
** Subtotal **									1
** MILESTONE: 6 U2 FUEL LD									
IN-85-173-001	LEAK IN SPRINK SYS	ERT	08/13/85	.F.	/ /	.F.	08/13/85	MATERIAL	1
IN-85-189-002	ACCESS TO VALVES/#2	NSRS	10/04/85	.F.	/ /	.F.	10/04/85	DESIGN	1
IN-85-246-005	RUSTED WELDS/#2/RB	ERT	10/24/85	.T.	/ /	.F.	/ /	WELDING	1
IN-85-530-001	WLDS NOT ACCRD PROCD	NSRS	08/15/85	.F.	/ /	.F.	08/15/85	WELDING	1
IN-85-615-001	OBSTRUCTED ACCESS	NSRS	10/04/85	.F.	/ /	.F.	10/04/85	DESIGN	1
** Subtotal **									5
** MILESTONE: 7 N/A									
EX-85-008-001	UNQUAL SUBJOURNEYMEN	ERT	09/28/85	.T.	/ /	.F.	/ /	CONSTRUCTI	1
EX-85-009-001	SUBSTN WK BY SUBJRMN	ERT	09/28/85	.T.	/ /	.F.	/ /	CONSTRUCTI	1
EX-85-010-002	UNQAUL SUBJOURNEYMEN	ERT	09/28/85	.T.	/ /	.F.	/ /	CONSTRUCTI	1
IN-85-021-001	TUBE BENDERS	ERT	07/27/85	.T.	10/22/85	.T.	10/30/85	CONSTRUCTI	1
IN-85-091-001	LOST DOCUMENTATION	ERT	09/16/85	.T.	/ /	.F.	/ /	DOCUMENT	1
IN-85-130-001	UNQUILIFIED PERSONNE	ERT	09/28/85	.T.	/ /	.F.	/ /	CONSTRUCTI	1
IN-85-411-001	SAFTY HAZ ON PLATFRM	NSRS	07/23/85	.T.	08/09/85	.T.	09/08/85		1
IN[redacted]-514-001	CONTAM DURING CUTTIN	ERT	08/22/85	.T.	/ /	.F.	/ /	CONSTRUCTI	1
I[redacted]-541-001	REQ WELD ON 2 SIDES	NSRS	08/15/85	.F.	/ /	.F.	08/15/85	DESIGN	1
IN[redacted]-556-001	SUBJ DOING JOUR WORK	ERT	09/28/85	.T.	/ /	.F.	/ /	CONSTRUCTI	1
IN-85-589-002	SUBJ DOING JOURN WRK	ERT	09/28/85	.T.	/ /	.F.	/ /	CONSTRUCTI	1

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT
EMPLOYEE CONCERN PROGRAM
NUCLEAR REGULATORY COMMISSION LISTING

QTC NUMBER	SUBJECT	INVEST ORG	DATE REPORT	SUB ?	DATE RESPONSE	AC ?	DATE CLOSED	KEY WORD	#
IN-85-748-001	TIE-IN OF SEAL DRAIN	ERT	08/16/85	.F.	/ /	.T.	08/16/85	DESIGN	1
NS-85-002-001	BFN/SUPTS ON RHR SYS	ERT	10/12/85	.T.	/ /	.F.	/ /	OPERATIONS	1
XX-85-013-001	SQN/WRONG WELD ROD	ERT	08/22/85	.F.	/ /	.F.	08/27/85		1
XX-85-019-001	BLN/AUDIT FINDINGS	ERT	07/10/85	.F.	/ /	.F.	07/10/85	QA	1
** Subtotal **									15
*** Total ***									215

TENNESSEE VALLEY AUTHORITY
WATTS BAR EMPLOYEE CONCERN PROGRAM
NUCLEAR REGULATORY COMMISSION
WEEKLY K-FORM LISTING

QTC NUMBER	SUBJECT	KEY WORD	KEY WORD	MAY 16 LETTER	#
IN-85-299-002	ROD PERFORMANCE	WELDING	ROD	- -	1
IN-85-299-003	WELD JOINTS	WELDING	WORKMANSHI	- -	1
IN-85-302-001	SUPERINTENDENT WASTE	CIVIL	BACKFILL	- -	1
IN-85-312-001	TRAY OVERLOAD	ELECTRICAL	CABLES	- -	1
IN-85-313-001	CONDUIT OVERLOAD	ELECTRICAL	CABLES	- -	1
IN-85-313-002	SAFETY CONCERNS	QA	EFFECT	- -	1
IN-85-318-001	CABLE DAMAGE	ELECTRICAL	CABLES	- X -	1
IN-85-318-002	CABLE TENSION	ELECTRICAL	CABLES	- X -	1
IN-85-318-003	CABLE INSTALLATION	ELECTRICAL	CABLES	- X -	1
IN-85-323-001	GENERATOR TESTING	TESTING	PREOP	- X -	1
IN-85-323-002	CABLE DAMAGE	ELECTRICAL	CABLES	- X -	1
IN-85-323-003	FUEL RACK DEFECTS	MECHANICAL	FUEL RACK	- X -	1
IN-85-341-001	CONDUIT TORQUE	ELECTRICAL	INSTALL	- -	1
IN-85-889-002	DIFFUSER MONITORIN	INSTRUMENT	INSTALL	- -	1
IN-86-011-001	RECEIVING INSPECTION	MATERIAL	CONTROL	- X -	1
IN-86-011-002	DOCUMENTATION	QA	DOCUMENTAT	- X -	1
IN-86-011-003	QA REQUIREMENTS	QA	EFFECT	- -	1
IN-86-011-004	TRAINING/QUALIFICATI	CONSTRUCTI	PERSONNEL	- -	1
IN-86-036-001	CONDUIT OVERLOAD	ELECTRICAL	CABLES	- X -	1
IN-86-036-002	PROCEDURE VIOLATED	ELECTRICAL	CABLES	- X -	1
IN-86-046-003	WELDING TECHNIQUE	WELDING	WORKMANSHI	- -	1
PH-85-035-007	SYSTEM 68 DRAIN	CIVIL	ANCHORS	- -	1
*** Total ***					22

BSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50188

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # IN-85-299-002

Category: 15 Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO NUCLEAR SAFETY RELATED _YES_

Concern: Weld rods do not perform well. Excessive porosity occurs and the Flux falls off the rod. This had been noticed for the past 6 years at Watts Bar. CI expressed this as a general concern. CI has no specific information. Construction dept concern.

O. L. Thero 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ✓ Per Telecon G. Brantley/O. Thero

NSRS/ERT _____

NSRS _____

OTHERS (SPECIFY) _____

Welding Rod

_____
NSRS DATE

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50188

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # IN-85-299-003

Category: 33 Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO NUCLEAR SAFETY RELATED _YES_

Concern: SS welds seem to have excess metal removed at butt weld joints, also the welds exhibit excessive shrinkage at joints. This concern is generic but have examples. This has been noticed for the past 6 years in both units. Details known to QTC, withheld due to confidentiality. Construction dept concern.

D K Theno 11/12/85

MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS _____

OTHERS (SPECIFY) _____

Welding Workmanship

_____

NSRS DATE

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50188

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 3 Concern # IN-85-302-001

Category: 86 Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO NUCLEAR SAFETY RELATED _YES_

Concern: Craft superintendent, (name known) ordered craft personnel to intentionally bypass QA inspection holdpoints relating to backfill operations. Result was a significant amount of wasted effort and rework. The individual could not provide specific locations/times. Units 1 & 2. Construction dept concern. CI has no further information.

O K Theno 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS _✓___

OTHERS (SPECIFY) _____

Civil Backfill

Burnett Sutton 11/18/85
NSRS DATE

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50188

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # IN-85-312-001

Category: 52 Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO NUCLEAR SAFETY RELATED _YES_

Concern: Cable trays in conduits are overfilled with cable. The cables could be damaged and not discovered until it shorts out. Location 737' Aux Building and 741' and 749' Control Building and Spread Room. CI could not provide any specific conduit or cable tray numbers. No additional information available. Construction concern. Unit 1 & 2.

O K Theno 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS ✓

OTHERS (SPECIFY) _____

Electrical Cables

Bruce R. Leftwich 11/18/85
NSRS DATE

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50188

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # IN-85-313-001

Category: 52 Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO NUCLEAR SAFETY RELATED _YES_

Concern: Overloading of conduits- wire is being pulled thru conduit that is loaded with wire such that it is difficult to push a pencil thru. Wire is being stretched when pulling thru these conduits. Unit 2 annulus area. CI could not provide specific conduit numbers. Construction concern. No additional information available.

O K Theno 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS __✓___

OTHERS (SPECIFY) _____

Electrical Cables

Bruce L. Siegler 11/18/85
NSRS DATE

FSK

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50189

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 4 Concern # IN-85-313-002

Category: 86 Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO NUCLEAR SAFETY RELATED _YES_

Concern: Foremen/Supervisors respond to employee quality/safety concerns with "Will look into it" but nothing is done. CI could provide no specific details. Construction concern. Unit 2.

O K Theis 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS __✓___

OTHERS (SPECIFY) _____

QA Effect

Bruce P. Siegler 11/19/85
NSRS DATE

May 16

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50189

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # IN-85-318-001

Category: 52 Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO NUCLEAR SAFETY RELATED _YES_

Concern: Cable pull exceeds max. tension due to having to pull so many feet in one shift. Units 1 & 2. CI could not provide any specific locations of defective work. CI has no further information. Construction concern. Unit 1 & 2.

O R Theis 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS ___✓___

OTHERS (SPECIFY) _____

Electrical
Cables

Bruce L. Stephen 11/18/85
NSRS DATE

Wayne

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50189

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # IN-85-318-002

Category: 52 Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO NUCLEAR SAFETY RELATED _YES_

Concern: Cable pulled so tight white nylon rope broke and was black from rubbing against cable. Manhole outside of Service Building at big drive-in doors. Max. tension exceeded. Cable was being pulled by truck. Two years ago. Construction concern. Unit 1. CI has no further information.

O K Theno 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS _✓___

OTHERS (SPECIFY) _____

electrical
Cables

Bruce L. Siefken 11/18/85
NSRS DATE

may 16

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50189

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # IN-85-318-003

Category: 19 Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO NUCLEAR SAFETY RELATED _YES_

Concern: Pulling 750 KV cable under a tight schedule to do so many feet of cable per shift. Cable was defective with a 7" - 8" split in insulation. Called QC. QC inspector said go ahead and pull it and it would be corrected later. No Hold Tag was hung and CI does not know if an NCR was later written. Unit #2 Reactor Building 703' elevation. Cable went to Reactor Cooling Fan (See 4' square can on outside wall). CI could not provide any additional information. Construction concern. Unit 1.

O K Thero 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS ✓

OTHERS (SPECIFY) _____

Electrical Cables

Bruce L. Stephen 11/18/85
NSRS DATE

may 16

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50189

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 3 Concern # IN-85-323-001

Category: 43 Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO NUCLEAR SAFETY RELATED _YES_

Concern: Continuous starting/stopping of Diesel Generators (due to testing) is detrimental to engine parts. Test program requires increased number of tests after a certain number of failures. CI feels that increased frequency is contrary to vendor recommendations. CI could not provide specific test numbers. No additional information available. Nuc Power concern. Units 1 & 2.

O R Thero 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS _✓___

OTHERS (SPECIFY) _____

Testing

Bruce L. Siegfried 11/18/85
NSRS DATE

Prep

May 16

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50189

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # IN-85-323-002

Category: 52 Confidentiality: _YES _NO (I&H)

Supervisor Notified: ___YES _X_NO NUCLEAR SAFETY RELATED _YES_

Concern: Cable pulled thru already overloaded conduit may be damaged due to excessive force. This concern was expressed as second-hand information to ERT as a generic concern. Intake Pumping Station cables to power block were pulled with excessive force causing damage to cables. CI doesn't know if cables were repaired. Nuc Power concern. Unit 1 & 2. CI has no additional information.

O K Thero 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS _✓___

OTHERS (SPECIFY) _____

Electrical Cables

Bruce A. Siefken 11/18/85
NSRS DATE

May 16

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50188

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # IN-85-323-003

Category: 52 Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO NUCLEAR SAFETY RELATED _YES_

Concern: Spent Fuel Racks have shoddy workmanship. Racks exhibit defects such as out of verticality, protruding edges (which could catch on fuel grid straps), and the leveled edges are not correct. Nuc Power concern. Unit 1 & 2. CI has no additional information available.

O K Theis 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS ___✓___

OTHERS (SPECIFY) _____

Mechanical Fuel Rack

Bruce L. Stephen 11/18/85
NSRS DATE

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER TS0189

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # IN-85-341-001

Category: 39 Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO NUCLEAR SAFETY RELATED _YES_

Concern: Flexible stainless steel conduit from various equipment and penetrations inside the containment is not torqued enough at the flex and fitting attachment points. QC accepted the work. Stainless steel flexible conduit can be pulled apart after being accepted by QC. All penetrations and electrical equipment inside containment. Unit 1 & 2 are affected. Construction concern. CI has no additional information.

O K Thero 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS _✓___

OTHERS (SPECIFY) _____

Electrical Install

Bruce L Crofton 11/18/85
NSRS DATE

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50189

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # IN-85-889-002

Category: 53 Confidentiality: _YES _NO (I&H)

Supervisor Notified: ___YES _X_NO NUCLEAR SAFETY RELATED _YES_

Concern: CI stated that the present WBNP cooling water diffuser outlet to the river has inadequate flow monitoring instrument to measure the possible contaminated plant water discharge. The pipe line is 4'-6" diameter. The flow sensor is an annubar which is a differential flow meter. The CI added that WBNP has an EPA commitment for installing a workable flow meter about a year ago. Construction dept concern. CI has no further information.

O K Theo 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS ✓

OTHERS (SPECIFY) _____

Bruce L Lieftan 11/18/85
NSRS DATE

Instrument Install

May 16 PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50189

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # IN-86-011-001

Category: 70 Confidentiality: _YES _NO (I&H)

Supervisor Notified: ___YES _X_NO NUCLEAR SAFETY RELATED _YES_

Concern: No receiving inspection group was in existence prior to April 1982. CI is concerned that "Q" materials received prior to this time may have not met purchase specifications, and may have been installed in the field. CI expressed that no documentation/hardware verification was performed of received material. Construction dept concern. Units 1 & 2. CI has no further information.

O B Theo 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS _✓___

OTHERS (SPECIFY) _____

material control

Bruce L. Siefken 11/18/85
NSRS DATE

May 16

PSF

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50188

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # IN-86-011-002

Category: 56 Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO NUCLEAR SAFETY RELATED _YES_

Concern: QA documentation received from the vendors prior to 1982 has not been forwarded to the QA vault. The documents are stored in the warehouse in non-fireproof file cabinets. Construction dept concern. Unit 1 & 2. CI has no additional information.

O K Thero 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS _✓___

OTHERS (SPECIFY) _____

QA Documentation

Bruce R. Leftwich 11/18/85
NSRS DATE

BR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50188

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # IN-86-011-003

Category: 05 Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO NUCLEAR SAFETY RELATED _YES_

Concern: TVA does not require material suppliers to involve QA requirements on sub-tier suppliers. (Details known to QTC, withheld to maintain confidentiality). Construction dept concern. Unit 1 & 2. CI has no additional information.

O K Theis 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT _✓_

NSRS/ERT _____

NSRS _____

OTHERS (SPECIFY) _____

Bruce L. Stephen 11/18/85
NSRS DATE

QA
Effect

PSRC

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50188

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # IN-86-011-004

Category: 07 Confidentiality: _YES _NO (I&H)

Supervisor Notified: ___YES _X_NO NUCLEAR SAFETY RELATED _YES_

Concern: A supervisor, in a position to perform an activity affecting quality, has not been properly trained, and is not qualified for the position. Details known to QTC, withheld due to confidentiality. Construction dept concern. CI has no further information.

O B Fleno 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT /

NSRS/ERT _____

NSRS _____

OTHERS (SPECIFY) _____

Construction Personnel

Bruce L Siffen 11/19/85
NSRS DATE

may 16

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50189

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # IN-86-036-001

Category: 52 Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO NUCLEAR SAFETY RELATED _YES_

Concern: Electrical conduits in Units 1 & 2 are overfilled. This may cause induction/heat problems. Some cables may also have been damaged by pulling in these tight conditions, and by using excessive force in installing the fishtape in the conduits. Details known to QTC, withheld due to confidentiality. Construction dept concern. CI has no additional information.

O.K. Thero 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS __✓___

OTHERS (SPECIFY) _____

Electrical
Cables

Bruce L. Siefken 11/18/85
NSRS DATE

may 16

P5

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50189

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # IN-86-036-002

Category: 52 Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO NUCLEAR SAFETY RELATED _YES_

Concern: Cable pulling procedures were violated by not using strain gauges/fuse links as required. Unit 2. Details known to QTC, withheld due to confidentiality. CI has no further information.

O K Theis 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS _✓_____

OTHERS (SPECIFY) _____

electrical
Cables

Bruce A. Leaffer 11/18/85
NSRS DATE

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50189

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # IN-86-046-003

Category: 33 Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO NUCLEAR SAFETY RELATED _YES_

Concern: Unapproved technique used in welding. Details known to QTC, withheld due to confidentiality. Unit #1, system - unknown (Stainless Steel), construction, craft - withheld, time frame - unknown. CI would not provide any additional information.

O.K. Theo 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS _____

OTHERS (SPECIFY) _____

Welding Workmanship

Bruce L. Lieffen 11/18/85
NSRS DATE

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50188

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 1 Concern # PH-85-035-007

Category: 52 Confidentiality: _YES _NO (I&H)

Supervisor Notified: ___YES ___NO NUCLEAR SAFETY RELATED _YES_

Concern: CI is concerned about using 3/8" red heads instead of 3/4" in System 68 drain, Reactor 1 at elevation 720 or 721, near RC pump 2. Construction dept concern. CI has no further information.

O.K. Theis 11/12/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS __V___

OTHERS (SPECIFY) _____

Civil
Anchors

Bruce L. Siefken 11/18/85
NSRS DATE

NRC

TVA 64 (OS-9-65) (OP-WP-5-85)

UNITED STATES GOVERNMENT

Memorandum TENNESSEE VALLEY AUTHORITY

TO : E. R. Ennis, Plant Manager, Watts Bar Nuclear Plant

FROM : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

DATE : NOV 15 1985

SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL

Transmitted herein is NSRS Report No. I-85-493-WBN

Subject NUCLEAR POWER CRAFT REPORT OF QUALITY CONCERNS

Concern No. IN-86-226-001

and associated recommendations for your action/disposition.

It is requested that you respond to this report and the attached recommendations by December 13, 1985. Should you have any questions, please contact A. M. Gentry at telephone 3777-WBN.

Recommend Reportability Determination: Yes _____ No X

Original signed by
M. S. Kidd
Director, NSRS/Designee

AMG:JTH
Attachment
cc (Attachment):
H. N. Culver, W12A19 C-K
QTC/ERT, Watts Bar Nuclear Plant
W. F. Willis, E12B16 C-K (4)

--Copy and Return--

To : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

From: _____

Date: _____

I hereby acknowledge receipt of NSRS Report No. I-85-493-WBN
Subject NUCLEAR POWER CRAFT REPORT OF QUALITY CONCERNS for action/disposition.

_____ Signature _____ Date

0206U

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS INVESTIGATION REPORT NO. I-85-493-WBN

EMPLOYEE CONCERN IN-86-226-001

MILESTONE 1 - FUEL LOAD

SUBJECT: NUCLEAR POWER CRAFT REPORT OF QUALITY CONCERNS

DATES OF INVESTIGATION: September 24-November 1, 1985

INVESTIGATOR: A. M. Gentry — Date: 11/11/85

REVIEWED BY: P. B. Border — Date: 11/11/85

APPROVED BY: for M. A. Harrison — Date: 11/11/85

BACKGROUND

NSRS has investigated Employee Concern IN-86-226-001 which the Quality Technology Company Employee Response Team identified during the Watts Bar Employee Concern Program. The concern stated: "The craft do not have the freedom to report quality concerns without expecting harassment. NUC PWR dept. concern."

II. SCOPE

The investigation was conducted by interviewing NUC PR Trades and Labor (T&L) and Annual Salary Policy personnel, reviewing the site standard practice for employee concerns, and reviewing the implementation of the standard practice.

III. SUMMARY OF FINDINGS

A. Applicable Requirements, Commitments, and Procedures

1. Standard Practice WB2.1.10, dated 1/19/81

2. Standard Practice WB2.1.10, Revision 0, dated 11/19/84

3. Standard Practice WB2.1.10, Revision 1, dated 7/26/85

4. WBN AI-3.1, Revision 10

5. Memo T16 850731 665, "WBNP - Employee Concern Program Training"

6. Standard Practice WB2.1.10, Revision 2, dated 10/18/85

B. The investigation was initiated by determining the mechanism by which an employee could express a concern. Two mechanisms available are:

1. direct verbal communication; or,

2. WBN Standard Practice WB2.1.10 on employee concerns.

C. The versions of Standard Practice WB2.1.10 issued on 1/19/81 and 11/19/84 were policy in nature and did not require a training program to ensure that all personnel were aware of the program. As a result it was left to line management to advise employees. This had not been fully accomplished and apparently resulted in this concern being expressed.

D. Standard Practice WB2.1.10 was revised and issued 7/26/85 as Revision 1. This revision provided many enhancements which included a detailed reporting mechanism, wallet cards on who to contact, a tracking system, required training for all employees, and required a response be provided to the concerned individual.

E. The dates of the revisions of the Standard Practice WB2.1.10 were presented to Quality Technology Company (QTC) who was asked to advise as to what version of the standard practice was in effect when the concern was registered. It was learned that Revision 0 dated 11/19/84 was in effect.

F. A training program on Standard Practice WB2.1.10, R1, was initiated on 8/1/85 and continued through 10/7/85. This training was conducted by the WBN Training Section and was intended to include all WBN NUC PR personnel.

G. A review of the implementation of Standard Practice WB2.1.10, R1, requirements identified the following.

1. Notices and signs required by the standard practice have been posted.

2. The master file and tracking system for expressed concerns and their resolution required by the standard practice have been established by the Document Control Unit (DCU).

3. At the time of the investigation, 15 concerns had been documented. All had been closed in less than 30 days with one exception which was still open. The open item had been open less than 30 days. None had been referred to the Site Director for resolution.

4. Standard Practice WB2.1.10 indicates that significant safety-related concerns would be disseminated by the Site Director for general employee information. The standard practice does not define how to determine what is significant or how or when employees would be informed. This is left to the discretion of the Site Director.

5. The Site Director has reviewed the status and nature of the concerns by requesting an update at the end of the month.

6. The standard practice requires that the plant QA staff periodically audit compliance with the standard practice. No Plant Quality Assurance (PQA) audits have been conducted to date. This is due to two factors: (1) there has not been sufficient time for implementation of the program to have a meaningful review; and, (2) the performance of audits is not within the scope of the presently established PQA staff responsibilities. The PQA staff performs surveillances and evaluations of plant activities and does not perform what is considered a QA audit as defined by ANSI N45.2.12. These QA audits are performed by an offsite independent audit group.

While reviewing the PQA role in the employee concerns program, it was learned that PQA was not provided the opportunity to review the draft SP-WB2.1.10, R1, prior to its issue and was not aware of the "audit" responsibility. This pointed out an inadequacy in the procedure which addresses the preparation, review, and approval of standard practices, WBN-AI-3.1, R10. AI-3.1 states that it is left to the judgement of the responsible section supervisor to route non-CSSC instructions to other plant sections. A revision 2 of the procedure was being prepared and was also found to have not been routed to PQA. As a result of this NSRS investigation, revision 2 was reviewed by PQA who revised the appropriate section to state that PQA would periodically evaluate the program instead of audit.

H. It was noted that while the Standard Practice WB2.1.10 provides a form for documenting concerns, the forms are not easily accessible. During a walking tour of the plant it was noted that signs were posted but no forms were available. It appeared that an employee would have to find a copy of the standard practice to get a copy of the form. The standard practice is a controlled document and is not sent to all employees. It was observed on 10/21/85, following this investigation, that NUC PR had taken action and the reporting forms had been posted at the five locations where signs are posted as described by the standard practice.

I. Revision 2 of Standard Practice WB2.1.10 was issued 10/18/85. This revision made the following changes.

1. Combined the safety, plant improvement, and ALARA/health physics suggestion programs with the employee concern program.

2. Added a section to define terms.

3. Provided more details on preparation, processing, and handling of concerns.

4. Required DCU to submit a list of concerns monthly to the Site Director.

5. Required Site Director to publish a list of significant concerns monthly.

6. Provided a mechanism for reporting concerns to any level of management deemed appropriate, including the site representatives of NSRS, NRC, and Division of Health and Safety.

During a staff meeting on 10/21/85, the Acting Plant Manager instructed each section supervisor to conduct briefings with their employees on Revision 2 of WB2.1.10 in their section safety meetings. It was verified that some briefings have been conducted.

During subsequent interviews it was learned that it has been implied through some section meetings that it was preferred that the employee concern procedure not be used, but instead use verbal communication or other documented mechanisms (CAR, DR, etc.).

NRC

TVA 64 (OS-9-65) (OP-WP-5-85)

UNITED STATES GOVERNMENT

Memorandum TENNESSEE VALLEY AUTHORITY

TO : E. R. Ennis, Plant Manager, Watts Bar Nuclear Plant

FROM : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

DATE : NOV 15 1985

SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL

Transmitted herein is NSRS Report No. WI-85-016-001

Subject CONTROLS OF CONCRETE PLACEMENT ACTIVITIES

Concern No. WI-85-016-001

and associated recommendations for your action/disposition.

It is requested that you respond to this report and the attached recommendations by December 13, 1985. Should you have any questions, please contact J. T. Nation at telephone 365-7134.

Recommend Reportability Determination: Yes X No ____

Original signed by
M. S. Kidd
Director, NSRS/Designee

JTN:JTH
Attachment
cc (Attachment):
H. N. Culver, W12A19 C-K
QTC/ERT, Watts Bar Nuclear Plant
W. F. Willis, E12B16 C-K (4)

--Copy and Return--

To : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

From: _____

Date: _____

I hereby acknowledge receipt of NSRS Report No. WI-85-016-001
Subject CONTROLS OF CONCRETE PLACEMENT ACTIVITIES for action/disposition.

_____ _____
Signature Date

NSRS RECOMMENDATIONS

CONCERN: WI-85-016-001

Recommendation:

Q-85-016-001-01 - QCP-2.02 Controls - Revise WBN-QCP-2.02 to provide adequate controls of concrete placement activities. Activities affecting the quality of concrete such as the amount of water added and lift thicknesses should be specified. The concrete pour card should also reflect actual and required slumps and lift thicknesses for concrete placement.

Note: The issues concerning the overall quality of the concrete at WBN are to be resolved in conjunction with concerns addressed in QTC Report IN-85-995-002, NSRS Report I-85-246-WBN, and NSRS Report IN-85-291-WBN.

Prepared By: D. R. Bradley

PRM 11/13/85

QUALITY
TECHNOLOGY
COMPANY

P.O. BOX 600
Sweetwater, TN
37874

ERT INVESTIGATION REPORT

CONCERN NO: WI-85-016-001 (MILESTONE 1)

CONCERN: Construction laborer personnel routinely exceeded water content limits and lift amount limits during concrete pours, especially in the earlier years of the project (1973-79). This was by order of laborer supervision, who were in a hurry to complete the job. Most instances of procedure violations occurred when inspectors were not around, or were inattentive to pour detail requirements.

INVESTIGATION
PERFORMED BY: J. T. Nation

DETAILS

PERSONNEL CONTACTED: Confidential

REFERENCES:

1. Quality Control Procedure WBNP-QCP-2.02, "Concrete Placement and Documentation",Revision 0 dated 6-10-75 through Revision 9 dated 1-28-85.

2. TVA General Construction Specification G-2, "Plain and Reinforced Concrete", Revision 0 dated 2/70 through Revision 4 dated 9/19/83.

3. TVA WBNP Construction Specification N3G-101, "Inspection, General-Construction Requirements Manual", Revision 0 dated 13/29/83 and R1 dated 2/1/85.

DETAILS, continued

4. WBNP Final Safety Analysis Report (FSAR), Chapter 3, section 3.8, "Design of Category I Structures", subsection 3.8.1.6, "Materials, Quality Control and Special Construction Techniques".

5. ASTM C-94, "Standard Specification for Ready-Mixed Concrete".

SUMMARY OF INVESTIGATION:

The Concern is not substantiated.

This investigation was conducted during the period of August 29 to September 13, 1985, and consisted of personnel interviews or contacts, and document reviews.

Interviews of personnel, specifically eleven craft personnel assigned to concrete placement activities prior to 1980, revealed no evidence or other information to substantiate the concern. Reviews of documents, namely Specification G-2 and procedure WBN-QCP-2.02, revealed that records for concrete placement do not provide documentary evidence which would either support or refute the concern as stated.

Observations regarding potential inadequacies in concrete placement procedures and records, and sampling point for pumped concrete, are identified in the Observations section of this report.

FINDINGS:

1. Interviews of Craft Personnel.

Eleven (11) craft personnel, who stated that they were assigned to concrete placement crews at WBNP during the period of 1974 to 1980, were interviewed. These personnel consisted of nine laborers and two finishers, presently assigned to Construction or NSB. The craft personnel were asked to respond to a set of established questions regarding their experience and observations related to concrete placement activities prior to 1980.

DETAILS, continued

The following are the evaluation results of the above interviews:

A. All of the craft personnel indicated that an Inspector was always present during concrete placement activities. Some indicated that placement activities were sometimes delayed until an Inspector was available. Some indicated that even "Non QA" concrete placements were inspected by the Inspector.

B. All of the craftsmen indicated that the addition of water, to the delivered batches of concrete, was only done during the presence of, and as directed by, the Inspector. None of the craftsmen indicated that Foremen or other supervision directed the addition of water without the permission of the Inspector. Some of the craftsmen indicated that when the "dump" (nonagitating) type trucks were used to deliver concrete (prior to 1980), no water could be added. Most of the craftsmen indicated that the concrete was generally on the "dry" side, in lieu of being "wet" or having excess water.

C. Most of the craftsmen did not recall the specific limitations for concrete lift thickness, but did indicate that there were restrictions which depended on the type of placement. All of the craftsmen indicated that the Inspector determined and directed this aspect of the placement. None of the craftsmen indicated that Foremen or other supervision directed the placement of concrete in lifts greater than permitted by the Inspector.

2. Documents Related to the Concern.

The documents referenced in this section were reviewed for commitments, requirements and procedures applicable to the concern. The following are excerpts and/or investigative notes regarding these documents:

DETAILS, continued

A. The WBNP FSAR, Chapter 3, contains the following:

(1) Section 3.8.1.6, "General", states:

"All concrete conformed to TVA General Construction Specification No. G-2 for Plain and Reinforced concrete and to TVA QCP-2.2 Concrete Placement and Documentation."

Specification G-2, Procedure WBN-QCP-2.02 and drawings were found to the primary source documents for concrete placement acceptance criteria, as indicated in Specification N3G-101.

(2) Subsection 3.8.1.6.2, "Quality Control", states:

"Concrete was produced in a central batch and mixing plant. A materials engineering unit was specifically responsible for control, documentation, and daily review of test data."

Although most of the concrete was reportedly produced in a central batch and mixing plant, some was provided as Ready-Mixed and portable-mixed concrete. This was indicated in reviewed documents and by interviewed personnel.

The former "materials engineering unit" no longer exists. The indicated functions are currently the responsibility of the Civil Engineering Unit (CEU) and Civil Quality Control (CQC). This was indicated by interviewed personnel.

B. General Construction Specification G-2, Revision 4 dated 9/19/83, contains the following:

(1) Section 4.4, "Slump", subsection 4.4.5 states:

"No increase in water content shall be allowed for the purpose of providing additional

DETAILS, continued

B. Continued

(1) continued

workability when slumps at the point of placement are equal to the specified maximum slump. Under no condition shall the slump be greater than that required to provide proper placement and compaction of the fresh concrete within the forms with modern equipment."

The above statements indicate that the addition of water is permitted, provided that the slump criteria is not exceeded. However, Specification G-2 and Procedure WBN-QCP-2.02 do not require that slump tests be performed and documented when water is added after batching of the concrete. Neither the specification, nor the procedure WBN-QCP-2.02, include criteria or provisions for direct control and documentation of the amount of water added at the point of placement.

(2) Section 4.11, "Records", subsection 4.11.1 states:

"Complete records shall be kept of all concrete operations, including all testing of concrete and concrete materials for compliance with this specification, the quantity of each class of concrete produced each day, and the location of each batch from which representative test samples were taken. Copies of these records shall be transmitted to the ENDES representative (section 1.3) for review in accordance with the following schedule :

a. Concrete test report (form TVA 331 or equivalent)-- at the completion of compressive strength tests at each age to be tested; or at only the first strength test if strength summaries are made at each age.

DETAILS, continued

B. Continued

(2) continued

b. Mixer efficiency tests or volumetric calibration tests--at the completion of each test.

c. Quality control charts for slump, compressive strength, and moving average of five consecutive tests--every 2 months per chart provided at least 25 additions have been made since the previous report.

d. Normal frequency distribution charts for strength at increments of 30 tests per class and at the conclusion of the tests; or tabulated strength summaries with average strengths, standard deviation, and percent low strengths for all tests and for the last 30 tests for each mix.

e. Tests performed on all concrete materials and total monthly quantities of each class of concrete produced--once each month."

Although subsection 4.11.1 (above) states that "complete records" shall be kept of "all concrete operations, including all testing of concrete....", no record of slump testing and addition of water, at the point of placement, is maintained or specified in Specification G-2 or Procedure WBN-QCP-2.02. Also, no record of lift thickness is maintained or specified.

(3) Section 10.0, "Placing Concrete", contains the following:

(A) Section 10.2, "Inspection of Placing", states:

DETAILS, continued

B. Continued

3. continued

(A) continued

"No concrete shall be deposited at any time except in the presence of an inspector, nor shall any concrete be placed outside of regular working hours unless due notification is given in sufficient time to make proper provision for inspection."

This type of statement is not contained in Procedure WBN-QCP-2.02. However, the interviewed craft personnel indicated that an Inspector was always present for concrete placements.

(B) Section 10.3, "Large Blocks", subsections 10.3.1 and 10.3.2, respectively, state:

"In placing concrete in large blocks, the individual lifts shall be built up in approximately 18-inch layers."

"Special attention shall be given to the first layer of concrete in each lift. Preferably it shall have less thickness than that of any succeeding layer in the lift. The concrete in this layer should be compacted by insertions of the vibrator at a closer spacing than used for thicker layers."

The terms "approximately" and "preferably" indicate that the lift thickness is not firmly specified.

DETAILS, continued

B. continued

3. continued

(C) Section 10.4, "Within Forms", subsection 10.4.1 states:

"Concrete shall be systematically deposited in shallow layers and at such a rate as to maintain, until the completion of the unit, a plastic surface approximately horizontal throughout. Each layer shall be thoroughly compacted before placing the succeeding layer. In general, the thickness of layers shall be 15 to 24 inches for mass concrete and 13 to 18 inches for reinforced concrete. Layer thickness shall be adjusted as necessary to permit and ensure thorough consolidation and the combining of layers."

The above statement is interpreted to permit field adjustment and determination of lift thickness, based on "through consolidation and the combining of layers".

C. Quality Control Procedure WBN-QCP-2.02, Revision 9 dated 1-28-85, contains the following:

(1) Section 6.4, "Concrete/Grout Placement", subsection 6.4.3 states:

"Record the allowable concrete mixes and parameter limits, as specified on OE drawings or specifications, on attachment 0."

The "attachment 0" is the "Pour Card (Back)". See reference to "Attachment 0", below.

DETAILS, continued

C. Continued,

(2) Section 6.4.5, "Conveying and Placement Inspection", subsection 6.4.5.4 states:

"Verify consolidation which includes free fall, lift thickness, and vibration is adequate".

This is the only statement in the procedure regarding lift thickness. Specific limits for lift thickness are not stated in the procedure. Also, the lift thickness limits or parameters are not documented on the "Pour Card" of WBN-QCP-2.02.

(3) Section 6.6, "Portable Mixing", subsection 6.6.4 states:

"Ensure water added at the pour site is in accordance with reference 3.9."

Reference 3.9 is ASTM C-94.

This is the only statement in the procedure specifically addressing the addition of water at the point of placement. However, this statement was added to the procedure on 1-19-84 (Revision 7), and applies only to small batches (cubic feet) of concrete.

(4) Section 7.0, "Acceptance Criteria", subsection 7.3 states:

"Concrete batching, mixing, sampling, placing, curing, protection, and testing are in accordance with reference 3.1."

The "reference 3.1" is General Construction Specification G-2.

The statement appears to be a substitute for including all of the specification G-2 criteria in the procedure. Consequently, the Inspector must use the specification G-2,

DETAILS, continued

C. Continued

(4) continued

drawings and procedure for determining the applicable requirements. The procedure does not include the specific criteria or provisions for lift thickness, consolidation, slump and addition of water at point of placement.

5. Attachment 0, "Pour Card (Back)", provides for documentation of the following:

a. Preplacement Inspection:

*Civil Tracking System ID number
*Finish required
*Mix number(s) allowed
*Temperature (max/min)
*Slump (max/min)
*Air Content (max/min)
*Acceptance Criteria Source
*Acceptable (Yes/No)

b. Conveying & Placement Inspection:

*Quantity used and sample number
*Time started and stopped
*Foreman
*Acceptable (Yes/No)
*WBN-QCP-2.02 revision number
*Inspector signature and date

The "Pour Card" form in WBN-QCP-2.02, R8 dated 5/16/84 and R9 dated 1/28/85, is described above. The form for R5/Addendum 4 dated 5-6-82 to R7 dated 1-19-84 is similar to the above, but does not contain the "Acceptable: Yes/No" provision for either "Preplacement or "Conveying & Placement" inspection. The form for Revision 0 dated 6/10/75 to R5 dated 7/18/80 does not contain provisions for recording: "Acceptable: Yes/No", Slump or Air parameters, sample number, acceptance criteria source, or Inspector signature and date.

DETAILS, continued

C. Continued

5. continued

None of the "Pour Card" forms , Revision 0 to R9, provide for recording the allowable or actual addition of water at point of placement, the actual slump (at point of placement, and after addition of water), or the actual or allowable lift thickness for the placement.

3. Records Related to the Concern

As indicated above for Documents reviewed, the Records for concrete placement (specifically, the "Pour Card" of WBN-QCP-2.02) do not contain information regarding the water content and lift thickness aspects of the concern. Although the concern primarily refers to actions that took place in the absence of the Inspector, the specification and procedure do not provide for documentation of water added and lift thickness used at the point of placement of concrete.

Based on the above, concrete placing records were not reviewed for this investigation.

CONCLUSIONS:

The concern is not substantiated.

The concerned individual is anonymous to ERT, therefore, no additional details or clarification of the concern was obtained.

Based on the results of interviews of craft personnel and other TVA personnel involved in concrete placement activities in the early years of the project, it appears that laborer personnel did not intentionally or routinely exceed or violate provisions for control of lift thickness or water content. It also appears that Inspectors were present and attentive during placements, specifically for Category I concrete structures.

DETAILS, continued

CONCLUSIONS, continued

The lack of documented objective evidence regarding the specific aspects of the concern, i.e., lift thickness and water content at point of placement, does not support or refute the concern as stated.

This lack of documented evidence is attributed to the conditions noted in Observations 1 & 2, below.

OBSERVATIONS:

1. Records of concrete placement, specifically the "Pour Card" (Attachment 0 of Procedure WBN-QCP-2.02), do not appear to provide documentary evidence of the following activities affecting quality:

   A. The quantity of water added to concrete at the point of placement, subsequent to batching and sampling for strength tests.

   B. The slump test results at point of placement, particularly prior and subsequent to addition of water.

   C. Actual and/or allowable concrete lift thickness for each placement.

This condition appears to be contrary to 10CFR50, Appendix B, criteria XVII, and ANSI N45.2-1971, Section 18, "Quality Assurance Records".

2. Procedures for concrete placement, specifically procedure WBN-QCP-2.02, do not appear to include appropriate criteria for determining that the following important activities have been satisfactorily accomplished:

   A. The control and documentation of water added at the point of placement.

   B. The performance and documentation of slump testing at the point of placement, particularly in conjunction with the addition of water.

DETAILS, continued

OBSERVATIONS, continued

2. continued

C. The control and documentation of lift thickness.

This condition appears to be contrary to 10CFR50, Appendix B, criteria V, and ANSI N45.2-1971, Section 6, "Instructions, Procedures and Drawings."

3. For pumped concrete, the proper sampling point was not identified in the procedures until June 1982.

Prior to June 1982, procedure WBN-QCP-2.02, section 6.3.4.5 stated that Concrete Tests "Samples, in general shall be taken directly from the mixer as the concrete is discharged". Dated 6/21/82, Revision 6 to WBN-QCP-2.02 involved a "complete revision and changed format", and the following provisions first appeared:

6.3.3.2.1 For all except pumped concrete, the sampling point is at the mixer as concrete is being discharged.

6.3.3.2.2 For pumped concrete, the sampling point is at the pump line discharge.

WBN-QCP-2.02 currently (revision 9, dated 1/28/85) contains the same provisions as above.

Since the provisions for sampling pumped concrete at the pump line discharge was not prescribed in the applicable procedures prior to June 1982, it appears that such sampling was previously and incorrectly performed at the mixer.

This apparent deviation prior to June 1982 for sampling of pumped concrete is contrary to ANSI N45.2.5-1974, section 4.8, which states (in part): "Pumped concrete must be sampled from the pump line discharge.

CONCERN NO: WI-85-016-001

DETAILS, continued

ADDITIONAL INVESTIGATION:

An additional investigation, Concern No. IN-85-995-002, regarding FSAR prescribed concrete strength requirements will be conducted and reported in conjunction with this report.

PREPARED BY J. T. Nation 10-30-85
DATE

REVIEWED BY O B Thero 10/31/85
DATE

Report Reviewed & Accepted
11/4/85
NSRS

FINAL

REQUEST FOR REPORTABILITY EVALUATION

1. Request No. WI-85-016-001 _____
(ERT Concern No.) (ID No., if reported)

2. Identification of Item Involved: Concrete for Category I structures
(Nomenclature, system, manuf., SN, Model, etc.)

3. Description of Problem (Attach related documents, photos, sketches, etc.)
Inadequate inspection procedures and records for control and documentation of addition of water and thickness of lifts for concrete at the point of placement (subsequent to strength test sampling), and improper test sampling point for pumped concrete.

4. Reason for Reportability: (Use supplemental sheets if necessary)

A. This design or construction deficiency, were it to have remained uncorrected, could have affected adversely the safety of operations of the nuclear power plant at any time throughout the expected lifetime of the plant.

No _____ Yes _X_ If Yes, Explain: Indeterminate strength/serviceability of concrete, potentially below design safety factors, due to inadequate and improper inspection/testing procedures and/or lack of documentation.

AND

B. This deficiency represents a significant breakdown in any portion of the quality assurance program conducted in accordance with the requirements of Appendix B.

No _____ Yes _X_ If Yes, Explain: Lack of control and documentation of activities affecting the quality and inadequate inspection/testing procedures. Criterion V and Criterion XVII.

OR

C. This deficiency represents a significant deficiency in final design as approved and released for construction such that the design does not conform to the criteria bases stated in the safety analysis report or construction permit.

No _X_ Yes _____ If Yes, Explain: _____

OR

REQUEST FOR REPORTABILITY EVALUATION

D. This deficiency represents a significant deficiency in construction of or significant damage to a structure, system or component which will require extensive evaluation, extensive redesign, or extensive repair to meet the criteria and bases stated in the safety analysis report or construction permit or to otherwise establish the adequacy of the structure, system, or component to pertform its intended safety function.
No _X___Yes _____ If Yes, Explain: _____

_____

_____

OR

E. This deficiency represents a significant deviation from the performance specifications which will require extensive evaluation, extensive redesign, or extensive repair to establish the adequacy of the structure, system, or component to perform its intended safety function.
No _X____Yes _____ If Yes, Explain: _____

_____

_____

IF ITEM 4A, AND 4B OR 4C OR 4D OR 4E ARE MARKED "YES", IMMEDIATELY HAND-CARRY THIS REQUEST AND SUPPORTING DOCUMENTATION TO NSRS.

This Condition was Identified by: _____ 365-4464
ERT Group Manager Phone Ext.

_____ 365-4414
ERT Project Manager Phone Ext.

Acknowledgment of receipt by NSRS

_____ Date 11/1/85 Time 2225
Signed

TVA 64 (OS 9-65) (OP-WP 7-84)
UNITED STATES GOVERNMENT

NRC

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : E. R. Ennis, Plant Manager, Watts Bar Nuclear Plant

FROM : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

DATE : NOV 20 1985

SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL

Transmitted herein is NSRS Report No. I-85-545-WBN

Subject INDUSTRY REQUIREMENTS IN TVA ELECTRICAL PROCEDURES

Concern No. IN-86-259-X11

and associated recommendations for your action/disposition.

It is requested that you respond to this report and the attached recommendations by December 17, 1985. Should you have any questions, please contact G. R. Owens at telephone 3825-WBN.

Recommend Reportability Determination: Yes X No _____

Original signed by
M. S. Kidd
Director, NSRS/Designee

GRO:JTH
Attachment
cc (Attachment):
H. N. Culver, W12A19 C-K
QTC/ERT, Watts Bar Nuclear Plant
W. F. Willis, E12B16 C-K (4)

--Copy and Return--

To : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

From: _____

Date: _____

I hereby acknowledge receipt of NSRS Report No. I-85-545-WBN
Subject INDUSTRY REQUIREMENTS IN TVA ELECTRICAL PROCEDURES for action/disposition.

_____ _____
Signature Date

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS INVESTIGATION REPORT NO. I-85-545-WBN

EMPLOYEE CONCERN IN-86-259-X11

MILESTONE 6

SUBJECT: INDUSTRY REQUIREMENTS IN TVA ELECTRICAL PROCEDURES

DATES OF INVESTIGATION: October 31-November 7, 1985

INVESTIGATOR: G. R. Owens — 11/14/85 Date

REVIEWED BY: for P. B. Border — 11/14/85 Date

APPROVED BY: W. A. Harrison — 11/14/85 Date

B. Recommendations

I-85-545-WBN-01 - Review Electrical Procedures Used for Construction and Inspection

It is recommended that an interorganizational working team review all applicable procedures to ensure that all such industry requirements are understood and implemented.

I-85-545-WBN-02 - Common Understanding on the Presentation of Electrical Industry Requirements

Common understanding between organizations on how industry requirements are to be presented should be agreed upon and documented accordingly.

TVA 64 (OS 9-65) (OP-WP 7-84)
UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

NRC

TO : E. R. Ennis, Acting Site Director, Watts Bar Nuclear Plant

FROM : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

DATE : NOV 20 1985

SUBJECT: CORRECTIVE ACTION RESPONSE EVALUATION

REPORT NO. : I-85-227-WBN

SUBJECT : LOOSE CONDUIT

CONCERN NO.: IN-85-465-002

(X) ACCEPT ( ) REJECT

Original signed by
M. S. Kidd

K. W. Whitt

MAH:JTH
cc (Attachment):
H. N. Culver, W12A19 C-K
W. F. Willis, E12B16 C-K (4)
QTC/ERT, CONST-WBN

Prepared principally by M. A. Harrison, extension 3715-WBN.

109U

TVA 64 (OS-9-65)

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

: K. W. Whitt, Director, Nuclear Review Staff, E3A8 C-K

FROM : E. R. Ennis, Acting Site Director, Watts Bar Nuclear Plant P&E (Nuclear)

DATE : November 12, 1985

SUBJECT: WATTS BAR NUCLEAR PLANT - EMPLOYEE CONCERN IN-85-465-002

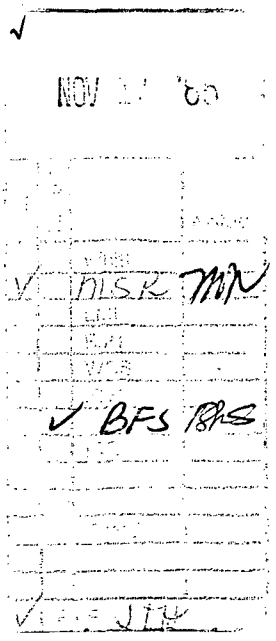
Attached is the response to Employee Concern IN-85-465-002.

If you have any questions, please contact W. L. Byrd at 3584.

W L Byrd for
E. R. Ennis

WLB:MSM:NC
Attachment

This memorandum was principally prepared by M. S. Martin.



Employee Concern IN-85-465-002

Loose Conduit

Response:

After an inspection of the conduit, our findings agree with those of the Nuclear Safety Review Staff (NSRS). Conduit T-3657 in the diesel generator building, unit 1, room 2B-B, was checked and a unistrut clamp was found to be missing. NCR 6324 was written to reinstall and reinspect the missing unistrut clamp. No other clamps were found to be missing. MR A-522182 was completed on October 4, 1985.

TVA 64 (OS 9-65) (OP-WP 7-84)
UNITED STATES GOVERNMENT

NRC

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : E. R. Ennis, Acting Site Director, Watts Bar Nuclear Plant

FROM : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

DATE : NOV 20 1985

SUBJECT: CORRECTIVE ACTION RESPONSE EVALUATION

REPORT NO. : IN-85-113-003

SUBJECT : WELDER RECERTIFICATION

CONCERN NO.: IN-85-113-003

(X) ACCEPT ( ) REJECT

E. R. Ennis memorandum of November 7, 1985 with G. Wadewitz 45D of October 30, 1985 clarifies previous response.

Original signed by
M. S. Kidd

K. W. Whitt

MAH:JTH
cc (Attachment):
H. N. Culver, W12A19 C-K
W. F. Willis, E12B16 C-K (4)
QTC/ERT, CONST-WBN

Prepared principally by M. A. Harrison, extension 3715-WBN.

110U

TVA 64 (OS-9-65)

T16 851107 916

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : K. W. Whitt, Director of Nuclear Safety Review Staff (NSRS), E3 A8C-K

FROM : E. R. Ennis, Acting Site Director, Watts Bar Nuclear Plant P&E (Nuclear)

DATE : NOV 07 1985

SUBJECT: WATTS BAR NUCLEAR PLANT - CONCERN IN-85-113-003 - WELDER RECERTIFICATION

References: 1) Memorandum to you from Guenter Wadewitz dated September 3, 1985 (C01 850903 004)

2) Letter to the United States Nuclear Regulatory Commission, Region II, from H. G. Parris, dated September 11, 1985 (L44 850910 804)

3) Letter to the United States Nuclear Regulatory Commission, Region II, from J. W. Hufham, dated October 29, 1985 (L44 851029 810)

In your memorandum to Guenter Wadewitz, dated September 23, 1985, regarding the same subject, you requested certain clarifications to the Office of Construction's (OC) response (reference 1) to the Nuclear Regulatory Commission's (NRC) confirmation of action letter. Item 4 requested clarification involving P&E (Nuclear) and for that reason we are responding to item 4.

Item 4 reads "Please inform NSRS if it was determined that this corrective action applies to Watts Bar P&E (Nuclear) welder recertification program as well as OC. If not, identify the program differences that allow that determination."

Our welder recertification (continuity) program is independent of the Watts Bar OC continuity program and distinct program differences exist. However, some Watts Bar OC welders have transferred to Watts Bar P&E (Nuclear) and we have, in the past, assumed their continuity to have been adequately maintained by Watts Bar OC before we received them.

Since that assumption has been shown to be unreliable, we identified all of the subject welders and gave them qualification renewal tests consistent with the American Society of Mechanical Engineers (ASME) IX and the American Welding Society (AWS) D1.1. Additionally, we conducted a surveillance of our welder continuity program and found no continuity deviations (i.e., welders not welding within ASME IX and AWS D1.1 time limitations). A detailed discussion of the above is contained in enclosure 2 of references 2 and 3.

0487

K. W. Whitt

NOV 07 1985

WATTS BAR NUCLEAR PLANT - CONCERN IN-85-113-003 - WELDER RECERTIFICATION

Of the welders who received qualification renewal tests, only one failed and then was renewed based on a satisfactory renewal retest as provided by ASME IX, paragraph QW-320. Watts Bar P&E (Nuclear) will evaluate this welder's performance on critical systems structures and components (CSSC) by: 1) determining if any CSSC welding was performed, 2) reviewing the severity of failure of the first test, 3) determining if welder had been actively performing welding, 4) determining if welder was transferred to P&E (Nuclear) before or after the date when Watts Bar QC continuity program became suspect, and 5) if determined appropriate by evaluating/reinspecting welds to verify applicable quality.

E. R. Ennis

JEG:MJB:JRI:LWJ
cc: NUC PR RIMS, 1520 CST2-C
H. B. Bounds, Plt Mgr's Off., Watts Bar P&E (Nuclear)
W. R. Brown, 9-169 SB-K
T. L. Howard, PQA, Watts Bar P&E (Nuclear)
G. Wadewitz, PMO, Watts Bar QC (ATTN: S. Johnson)
Plant Manager's Office, Watts Bar P&E (Nuclear)

This memorandum was principally prepared by J. R. Inger, extension 8867.

TVA 64 (OS 9-65) (OP-WP 7-84)
UNITED STATES GOVERNMENT

NRC

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : E. R. Ennis, Plant Manager, Watts Bar Nuclear Plant

FROM : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

DATE : NOV 20 1985

SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL

Transmitted herein is NSRS Report No. I-85-569-WBN

Subject CABLE OVERHEATING & FIRE-RETARDANT COATING

Concern No. IN-86-259-005 & IN-86-262-002

and associated recommendations for your action/disposition.

It is requested that you respond to this report and the attached recommendations by December 17, 1985. Should you have any questions, please contact G. R. Owens at telephone 3825-WBN.

Recommend Reportability Determination: Yes X No _____

Original signed by
M. S. Kidd

_____
Director, NSRS/Designee

GRO:JTH
Attachment
cc (Attachment):
H. N. Culver, W12A19 C-K
QTC/ERT, Watts Bar Nuclear Plant
W. F. Willis, E12B16 C-K (4)

--Copy and Return--

To : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

From: _____

Date: _____

I hereby acknowledge receipt of NSRS Report No. I-85-569-WBN
Subject CABLE OVERHEATING & FIRE-RETARDANT COATING for action/disposition.

_____ _____
Signature Date

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS INVESTIGATION REPORT NO. *I-85-569-WBN

EMPLOYEE CONCERNS IN-86-259-005 AND IN-86-262-002

MILESTONE 6

SUBJECT: CABLE OVERHEATING DUE TO CABLE BUNCHING AND FIRE-RETARDANT COATING

DATES OF INVESTIGATION: October 24-November 5, 1985

INVESTIGATOR: G. R. Owens — Date: 11/14/85

REVIEWED BY: for P. B. Border — Date: 11/14/85

APPROVED BY: A. Harrison — Date: 11/14/85

*Tracked under IN-86-259-005

BACKGROUND

A. Concern IN-86-259-005 was received by the Quality Technology Employee Response Team that stated:

> Many electrical cables were bunched together in cable trays to make it easier to cover them with insulation (Vimasco). This may result in heat buildups.

B. In addition, a similar concern, IN-86-262-002, was received by the Quality Technology Company that stated:

> Units 1 & 2. The overcrowding of cables and the application of a fire retardant to the cables causes an overheating condition therefore making the instrument readings indeterminate. Location example is the 737' Elev. Spreader Room.

II. SCOPE

Pertinent documentation was reviewed and cognizant personnel interviewed concerning the potential overheating of cables due to bunching the cables into an overcrowded condition and coating them with the flame retardant, Vimasco. Observations were also made of selected cable trays in the auxiliary and control buildings in order to evaluate the concern of record.

III. SUMMARY OF FINDINGS

A. Applicable Procedure Requirements

1. The WBN design criteria, WBN-DC-30-5, "Power, Control, and Signal Cables for Use in Category I Structures," described the requirements for the separation of cables within trays. This description was also presented in Section 8.3.1.4.1 of the FSAR. There were five different cable tray systems installed:

Low Level Signal Trays	(V1)
Medium Level Signal Trays	(V2)
Control Level Trays	(V3)
480-V Trays	(V4)
6900-V Trays	(V5)

The tray systems are also described in more detail in Electrical Design Standard DS-E13.2.1, Section 4.0.

2. Procedurally the V1-, V2-, and V3-level cable trays have no specific spacing requirements between the cables within the respective trays other than the trays were not to be loaded beyond 60 percent of the cross-sectional area of the individual tray.

3. Procedurally the V4-level cable trays have no specific cable spacing requirement, but trays in this case were not to be loaded beyond 30 percent of the cross-sectional area, except when a single layer of cable is used.

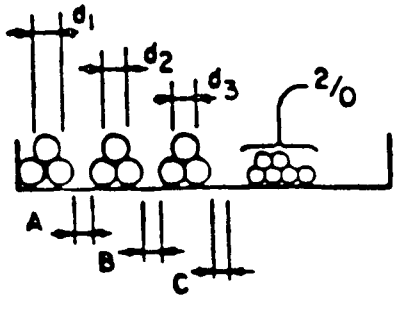
4. Procedurally the V5-level tray cables did require specific spacing. The criteria stated:

> All 6900-V cables larger than 2/0 AWG shall be grouped into 3-ph circuits and shall be separated on the cable tray from other 3-ph circuits a nominal distance equal to the radius of the largest cable in the adjacent circuit. The 6900-V cables which are 2/0 AWG may be laid at random on cable trays but shall not be in contact with the grouped 3-ph circuits except at crossings and where cables enter or exit cable trays.

5. Construction Specification G-38, "Installing Insulated Cables Rated up to 15,000 Volts," stated the following regarding cables being placed on cable trays.

   a. "Cables shall be placed on low-level signal trays, medium-level signal trays, control trays, and 480-volt trays in a neat, orderly fashion. Temporary bridges shall be used at intersections to allow cables to be pulled without excessive interlacing." (Prior to September 1982, G-38 stated the cables would be distributed as evenly as practical.)

   b. "All medium voltage (MV) power cables (5-15 kV) larger than No. 2/0 AWG shall be placed on trays in grouped, three-phase circuits. Medium voltage power cables which are No. 2/0 AWG shall be either grouped as above or laid side-by-side with no space between individual conductors. Except as noted . . . below, the nominal spacing between adjacent three-phase circuit bundles or between a three-phase circuit bundle and ungrouped No. 2/0 AWG cables shall be determined as outlined in the sketch below. The nominal spacing defined in the sketch may be less at points where cables enter or exit a tray and at tray fittings where necessary to prevent exceeding the minimum cable bend radius. However, nominal spacing should be restored as soon as practical."



A = $d_1/2$ or $d_2/2$, whichever is larger

B = $d_2/2$ or $d_3/2$, whichever is larger

C = $d_3/2$

6. Drawing 45N880

   a. General Note 8 on Electrical Conduit and Grounding Drawing 45N880-1 also provided the same instructions for cable spacing in medium voltage (V5) trays.

   b. Note 9 on the same drawing instructed that cables were to be distributed evenly on trays and temporary bridges placed at intersections to allow cables to be pulled without interlacing.

      Note: This was intended to provide a neat installation so that future modifications could be accomplished as easily as possible. However, the addition of the Vimasco coating caused such future modifications to be extremely difficult regardless of the cable arrangements.

7. WBN-QCP-3.05

   a. WBN-QCP-3.05 Section 7.3.6 provided the same requirements and sketch as presented in item 5.b for QC to inspect by after installations were completed.

   b. QCP-3.05 also provided Section 7.3.1 which stated: "Distribution - Cables are distributed evenly in the cable tray, and interlacing at intersections is prevented."

8. Drawing 45N891-1

   General Note 3 of Conduit and Grounding Drawing 45N891-1 instructed that the cables coated with the flame retardant were to be coated with a minimum wet thickness of 3/16" ± 1/16".

9. WBN-QCP-3.7 (superseded by QCP-1.55) Section 8.1.3.2 stated that the flame retardant would be applied to cables with a wet thickness of 3/16" ± 1/16". Section 8.1.3.4.1.1 stated that inspections would be made by measuring the wet thickness with a gauge as the coating was installed. Measurements were to be taken each linear yard on the top and bottom cables.

B. Findings

Bunching of Cables

1. Design Information Request (DIR) E55 (WBN 810427 101) was submitted to OE on 4/27/81 requesting approval to group cables together in cable tray voltage levels V1, V2, and V3 in order to facilitate the application of the flame-retardant cable coating, Vimasco. OE approved the request on 5/27/81 (SWP 810527 069). No revisions were made to the drawings.

2. DIR E56 (WBN 810729 162) dated 7/29/81 requested confirmation that cable tray voltage-level V4 and V5 cables were not to be grouped or bundled as approved for levels V1, V2, and V3. OE's response dated 8/24/81 (SWP 810902 028) did make this confirmation; i.e., mass bundling of cables in voltage-level cable trays V4 and V5 was not permissible. In addition the OE response stated: "Heat dissipation considerations dictate the adherence to all requirements of section 3.2.1.3 of General Construction Specification G-38 for the arrangement of power cabling on cable trays." At that time G-38 Section 3.2.1.3 stated the same basic requirements as presented in Section III.A.5 of this report; e.g., the pyramiding arrangement of V5 cables.

3. Observations were made of various cable trays by the investigator at the following locations.

   a. Cable spreading room elevations 729 and 741

   b. Computer room

   c. Auxiliary building elevation 737 at coordinates A4 and between R and S

   d. Auxiliary building elevation 737 at A13 and T

   e. Auxiliary building elevation 772 at A12 and R

   f. 6900-V shutdown board room in the auxiliary building

4. Some of the observations were:

   a. Cables in safety-grade cable trays were generally more orderly arranged than nonsafety trays.

   b. Cable tray loading was difficult to observe because of the Vimasco, cable tray covers, and the disorderly state of the cable arrangements in many of the trays.

   c. V5 safety-level cable trays were observed in the 6900-V shutdown board room (unit 1). The cables appeared to be orderly, and the "pyramiding type" arrangement was observed. Because of the Vimasco coating it was difficult to determine the separation distance between cables.

5. Interviews with Cognizant Personnel

   a. Interviews with QC personnel indicated that prior to coating the cables with Vimasco, cables on cable trays V1, V2, and V3 were unlaced from the trays, debris removed from the cables, and the cables bunched or grouped toward the center of their respective trays. The grouping of cables was done in order to facilitate the coating process. At the beginning of the cable coating process (in 1981), several V4 cables on elevation 713 of the auxiliary building were also bunched together and coated. However, efforts were

initiated shortly thereafter to remove the Vimasco on these cables and redistribute the cables over the trays. The cables were then recoated. The QC inspection reports were reviewed that described this effort. From discussions it was learned from that time on, V4 as well as V5 cables were not disturbed prior to coating with Vimasco.

Note: This was not a part of the QC installation and inspection procedures; but from personnel interviews, it appeared to be a common understanding that was routinely practiced.

b. Interviews with cognizant personnel revealed their familiarity with the installation and inspection requirements, especially for the V5 level trays. Those interviewed were not aware of any compromises made to cable spacing in V5 trays as a result of the fire retardant being applied to the cables.

c. In discussions with cognizant personnel, it was found that the inspector's signoff on the cable pull slips indicated that all requirements of QCP-3.05 were satisfied. (Included in QCP-3.05 was the spacing requirement for 6900-V cables.) The signoff is required by Section 8.1 of QCP-3.05.

d. Discussions with cognizant design personnel revealed no expected electrical problems due to the disorderly arrangement of cables in trays V1-V4 and the bunching of cables in V1-V3. The cable sizing tables used by designers are based on a randomly fill of cables in the trays.

In addition, design personnel stated that since only low-energy levels are involved in V1-V2 cable trays (they contain instrumentation signal cables), it is not reasonable to expect any overheating regardless of cable arrangement.

According to OE personnel, informal studies have also been conducted involving V3 cables (which contain instrumentation power cables). The studies showed overheating problems are highly improbable due to such things as the intermittent loading of the circuits, expected fill level of the trays, and conservatism in cable sizing.

Note: Results of these informal studies were not available for review.

Vimasco Coating of Cables

1. Interviews with Cognizant Personnel

   a. In the initial cable-sizing design efforts, OE personnel accomplished cable sizing in accordance with TVA Electrical Design Standards in DS-E12.1. The effects of Vimasco coating were not initially considered since it was not a part of the original design concept. After it was interjected into the design, tests were conducted for the manufacturer to determine the effects of using the Vimasco to coat cables. A report dated 12/19/80 was issued under TVA contract 78K50-823558. In summary, the results typically showed ampacity derating factors of 2-4 percent with 1/8" Vimasco coating on the cables. Tests were also conducted with 1/4" Vimasco coating on the cables. The general consensus among design personnel interviewed was that the effects of the coating will not cause any overheating problems based on the results of the tests.

   b. According to site personnel, QC inspections of the application of the Vimasco coating were accomplished according to QCP-3.7 Section 8.1.3.4. Coating thickness measurements were made with a gauge as the coating was installed. The procedure stated the thickness would be measured at least once on the top and once on the bottom of each linear yard of cable tray. The procedure stated this was to be done only on the top- and bottom-most cables. The coating was inspected for an application of 3/16" $\pm$ 1/16". A review was made of a sample of the inspection records. In all cases reviewed, the measurements recorded were between 2/16" and 4/16". This was in accordance with the manufacturer's recommendation.

2. An OE electrical file note dated 9/6/85 (B43850906921) documented a general inspection made of electrical cables in cable trays to determine if the Vimasco coating was applied in excess of the 1/4" maximum thickness recommended by the vendor. The general conclusion reached was stated as follows: "In general, it appears that the work was performed in accordance with the vendor's instructions. Thicknesses did not appear excessive and it was possible to see individual cables rather than just a mass of fire retardant material. Therefore, no additional testing or analysis is required since the installation was done properly."

3. As a result of an independent review conducted by Black and Veatch on the WBN auxiliary feedwater system, a concern was raised by the reviewers relative to the specified spacing between medium voltage power circuits in cable trays being compromised because of the addition of the fire-retardant coating to the cables. OE conducted an evaluation and concluded that even if the cables were assumed to be touching in the trays, adequate ampacity margins would still exist. This evaluation is described in Appendix B to a letter to the NRC dated 3/29/84 (A27 840329 002).

4. A WBN Unit 2 pre-INPO review conducted by OE produced the following finding (PDC.3-4.F): "The effect of the fire-protective coating on cables, with respect to ampacity, has not been documented."

   This finding basically made the point that even though testing had been accomplished on the ampacity effects of fire-protective coating, the results had not been reflected on the information used by designers to size cables, and no documentation existed to reflect the effect on installed cables.

   Note: Information obtained from OE indicated that an action plan has been formulated to address this finding. However, the details on how to handle it are still being worked out.

5. The test report on Vimasco coating of cables described by OE was reviewed. In summary, the tests were conducted on two sizes of cables, 4/0 AWG 1/C PVC-coated copper-stranded power cable (type PXJ) and No. 12 AWG 7/C-type PXMJ copper-stranded control cable. Trays were loaded with cables to represent approximately 40 percent fill in the trays, and all cables were electrically energized during the tests. No documentation was evident that correlated these test results specifically to all cable applications used on WBN. However, the general conclusion appears to support minimum effect on the cables if the vendor's recommendations are followed.

6. According to General Note 10 on Conduit and Grounding Drawing 45N891-1 R6, Vimasco coating is no longer required if the cables installed are qualified to IEEE Standard 383-1974 (Flame Test) or equivalent. Therefore, the overheating concern is not relevant to cables installed since that time.

Indeterminate Instrument Readings Due to Overheating of Cables

1. In discussions with various site personnel, no one interviewed was aware of any possible instrument reading problems due to cable overheating.

2. In conversations with design personnel, no instrumentation problems from potentially "overheating" either the signal cables or the power cables could be postulated. The instrumentation circuits are designed to be insensitive to or to compensate for any temperature effects. For example, instrumentation current loops would be relatively unaffected by a small resistance change due to any temperature effects. On the power side, sensitive instrumentation is powered by regulated power supplies which would be unaffected by any small changes due to temperature effects.

CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

1. The concern related to bunching cables together in cable trays to make it easier to cover them with Vimasco was substantiated for cables in trays V1, V2, and V3. It was not substantiated for trays V4 and V5 based on personnel discussions, inspection procecures, and personal observations. The bunching of the cables in trays V1, V2, and V3 was done based on approval by OE.

2. The concern related to possible heat buildups in cable trays due to bunching the cables cannot be substantiated. This is based on the following.

   a. Cables in trays V4 and V5 have not been bunched.

   b. Cables are sized for V1, V2, and V3 trays from tables that are based on a random arrangement of cables, and no specific spacing requirements between cables were required in these trays.

   c. Evaluations conducted by OE.

3. The concern related to indeterminate instrument readings resulting from cable overheating was not substantiated. This was based on personnel interviews and the design of the instrumentation systems.

4. Even though the evidence appears to support that overheating of cables due to the Vimasco coating is not a problem, the affects of the Vimasco coating on cables with respect to ampacity has not been specifically documented for all WBN-type applications. (This was pointed out in pre-INPO finding PDC.3-4.F.)

B. Recommendations

I-85-569-WBN-01 - Document the Effect of Vimasco Coating

Provide the required documentation to show the ampacity effect of the Vimasco coating on cables at WBN. Review WBN applications to determine that no problems exist with present cable sizes.

TVA 64 (OS 9-65) (OP-WP 7-84)
UNITED STATES GOVERNMENT

NRC

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : E. R. Ennis, Plant Manager, Watts Bar Nuclear Plant

FROM : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

DATE : NOV 20 1985

SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL

Transmitted herein is NSRS Report No. I-85-448-WBN

Subject IMPROPER WELDING DOCUMENTATION

Concern No. WI-85-053-003

and associated recommendations for your action/disposition.

It is requested that you respond to this report and the attached recommendations by December 17, 1985. Should you have any questions, please contact C. M. Key at telephone 8566-WBN.

Recommend Reportability Determination: Yes X No _____

Original signed by
M. S. Kidd

_____
Director, NSRS/Designee

CMK:JTH
Attachment
cc (Attachment):
H. N. Culver, W12A19 C-K
QTC/ERT, Watts Bar Nuclear Plant
W. F. Willis, E12B16 C-K (4)

--Copy and Return--

To : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

From: _____

Date: _____

I hereby acknowledge receipt of NSRS Report No. I-85-448-WBN
Subject IMPROPER WELDING DOCUMENTATION for action/disposition.

_____ _____
Signature Date

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS INVESTIGATION REPORT NO. I-85-448-WBN

EMPLOYEE CONCERN WI-85-053-003

MILESTONE 3

SUBJECT: IMPROPER WELDING DOCUMENTATION

DATES OF INVESTIGATION: October 18-November 8, 1985

INVESTIGATOR: C. M. Key — Date: 11/14/85

REVIEWED BY: per G. G. Brantley — Date: 11/14/85

APPROVED BY: M. A. Harrison — Date: 11/14/85

BACKGROUND

The Nuclear Safety Review Staff (NSRS) investigated Employee Concern WI-85-053-003 which Quality Technology Company (QTC) identified during the Watts Bar Employee Concern Program. The concern was worded as follows:

> Temporary minor attachments are not documented by responsible department. The applicable welding code requires controls, documentation and approval by responsible departments.

Further information was requested from QTC regarding the concern. The additional information provided by QTC was that temporary minor attachments were completed and then the documentation was voided by the weld operation sheet. A specific example was also cited.

II. SCOPE

A. Applicable Documentation Reviewed

1. Field Weld Operation Sheet for the example given.

2. Quality Control Procedures governing work releases and process control.

3. Work Releases.

4. Special Inspection Services (SIS) Record for Monitoring QA/QC Programs.

5. Post Weld Heat Treatment (PWHT) Checklist.

6. Selected Welding Engineering Unit (WEU) records.

B. Interviews were conducted with cognizant personnel.

C. Field Inspection of the cited example was performed.

III. SUMMARY OF FINDINGS

The field weld operation sheet, sheet No. 2-03-F-20-2, for weld No. 2-003B-D213-15 revealed the following information:

A. Location of weld

B. Identification of inspectors

C. Dates work was performed

During the initial review of the field weld operation, no discernible discrepancies were observed.

An interview with a quality control (QC) inspector involved with the inspection of the weld was conducted. He did not recall any abnormalities with the weld. The NSRS reviewer, accompanied by the QC inspector, performed an inspection of weld No. 2-003B-D213-15. This weld was made to Unit 2 steam generator loop 3. This inspection revealed 16 thermocouple nuts tack welded on and near the weld area of weld No. 2-003B-D213-15.

Reexamination of the weld operation sheet indicated that the determination had been made that post-weld heat treatment (PWHT) was not required. A PWHT log is maintained in the Welding Engineering Unit (WEU). An entry in the log indicated that report No. 500 had been issued on September 26, 1979 to perform PWHT on weld 2-003B-D213-15. Review of the record copy (located in the document vault) of this checklist revealed that the post-weld heat treatment had been done on March 10, 1980.

The NSRS reviewer discussed this particular weld with the WEU supervisor. During this discussion the reviewer obtained a copy of voided field weld operation sheet No. 2-03-F-20-22. This weld sheet was issued to tack weld 16 thermocouple lugs to weld No. 2-003B-D213-15. The weld sheet was initiated October 3, 1979 and voided on September 30, 1983 without the sheet being completed. The WEU supervisor also had a copy of Work Release No. 25,122. This work release was written to remove the thermocouple lugs on weld No. 2-003B-D213-15.

Work Release No. 25,122 was issued on August 8, 1985 by a mechanical engineering unit engineer. To determine the status of this work release, the NSRS reviewer interviewed the responsible engineer. The mechanical engineer revealed that he had voided the work release on October 11, 1985. The reason given on the release for voiding was "work was not done." The engineer indicated that the reason the work was not performed was because the authorized nuclear inspector (ANI) would not sign the work release. According to the responsible engineer, the ANI had refused to sign the work release because the tack welds had not been properly documented. An interview with an onsite ANI revealed that on August 27, 1985, an SIS report had been issued to the WBN Construction Engineer identifying that WBN-QCI-1.07 was deficient. The deficiency identified was that the procedure allowed use of work releases to document temporary welds. WBN-QCI-1.07 also allowed welding of temporary minor attachments without a release if the responsible engineering unit determined a work release was not needed. As documented by the SIS report, these portions of the work-release procedure violate the requirements of the Nuclear Components Manual (NCM) Section 5.1 and the the ASME NB 4435. These requirements are:

NCM Section 5.1 - Welding Control, Paragraph 2.2.5(5) - The construction craft shall make only those welds that are controlled by operation sheets. Code requirements: NB 4435 - Welding of Temporary or Minor Permanent Attachments:

A. Welders must be qualified and use a qualified weld procedure.

B. Material is identified and is suitable for welding.

C. Material is compatible.

D. Welding material is certified.

E. Post weld heat treating is performed when required.

(NC 4400 and ND 4400 1971 Section III, including addenda through Summer 1973, have the same requirements by referencing back to NB 4400.)

The response to the SIS report indicated that all welding to ASME Code weld boundaries is documented using an operation sheet per Paragraph 2.3.2 of the NCM Section 4.1. The response further stated:

> To date all temporary welds have been documented by one of the following methods: temporary <u>welds</u> have been documented on Welding Operation Sheets stating they are temporary, or temporary <u>attachments</u> have been documented on permanent Weld Operation Sheets, installed, and inspected in the weld area which included 1" on each side of ASME butt welds. The controlling site document which delineates this requirement is QCP-4.13 FU&VM, Fit-Up and Visual Mechanical, paragraph 7.3.
>
> We agree that a work release does not include the requirements of NB4435; however, as stated above no welding is performed to an ASME boundary without an operation sheet. WEU, in accordance with QCI-1.07, reviews <u>all</u> welding releases. If an operation sheet is required, it is initiated by WEU at that time.

Based on this response, the SIS was closed on October 21, 1985. Contrary to this reply, the temporary welds on weld No. 2-003B-D213-15 have not been documented on a weld operation sheet. In addition it appears WBN-QCI-1.07 still violates upper-tier requirements.

During additional conversation, the WEU supervisor indicated to the NSRS investigator that the Welding Engineering Unit had decided that documentation of temporary welds was not required, and all documents (field weld operation sheets) relating to temporary welds had been voided. This is substantiated by the voided field weld operation sheet for the thermocouple lugs on weld 2-003B-D213-15.

CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The allegation is substantiated for the following reasons.

1. There are 16 thermocouple lugs tack welded on or near weld No. 2-003B-D213-15.

2. The documentation for these temporary welds hàs been voided.

B. Recommendations

I-85-448-WBN-01 - Revise WBN-QCI-1.07

Revise WBN-QCI-1.07 to reflect the requirements of upper-tier documents, the NCM, and the ASME.

I-85-448-WBN-02 - Issue Nonconformance

Issue a nonconformance to document the condition adverse to quality (CAQ) relating to weld No. 2-003-D213-15. This may be a generic problem with weld No. 2-003B-D213-15 as an example. Therefore, the extent of this CAQ should be determined and appropriate corrective action taken.

TVA 64 (08-9-65)

NRC

UNITED STATES GOVERNMENT

Memorandum TENNESSEE VALLEY AUTHORITY

TO : S. Schum, QTC-ERT Program Manager, WBN CONST

FROM : K. W. Whitt, Director of Nuclear Sfety Review Staff, E3A8 C-K

DATE : NOV 20 1985

SUBJECT: TRANSMITTAL OF ACCEPTED FINAL REPORTS

The following final reports have been reviewed and accepted by NSRS and are transmitted to you for preparation of employee responses.

IN-85-018-004	

Original signed by
M. S. Kidd

K. W. Whitt

Please acknowledge receipt by signing below, copying and returning this form to J. T. Huffstetler, E3B37 C-K

Name Date

PRB:CEA
Attachments
cc(Attachment):
H. N. Culver, W12A19 C-K
E. R. Ennis, WBN
W. F. Willis, E12B16 C-K (4)

REP07:G4

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS INVESTIGATION REPORT NO. I-85-699-WBN

EMPLOYEE CONCERN IN-85-018-004

MILESTONE 1

SUBJECT: SUPERVISOR NOT FOLLOWING PROCEDURE

DATES OF INVESTIGATION: November 12-14, 1985

LEAD INVESTIGATOR: P. R. Bevil — Date: 11/14/85

INVESTIGATOR: G. R. Owens — Date: 11/14/85

REVIEWED BY: for P. B. Border — Date: 11/14/85

APPROVED BY: M. A. Harrison — Date: 11/14/85

BACKGROUND

NSRS has investigated the following employee concern which was identified to Quality Technology Company (QTC) during the Watts Bar Employee Concern Program.

> Supervision (known) would not follow cable pulling procedure. The work proceeded without permits as required by procedure. Summer 1984.

Note: Further information supplied through QTC from the concerned individual indicated "permits" were breaching permits for fire barriers.

II. SCOPE

NSRS Investigation Report IN-85-130-002 was found to encompass the above concern. The investigation findings in that report therefore apply here.

III. SUMMARY OF FINDINGS

None; not reinvestigated.

IV. CONCLUSIONS AND RECOMMENDATIONS

Refer to NSRS Report IN-85-130-002. No additional response necessary. This item is closed, as corrective action is tracked by IN-85-130-002.

NRC

TVA 64 (OS-9-65)

UNITED STATES GOVERNMENT

Memorandum TENNESSEE VALLEY AUTHORITY

TO : S. Schum, QTC-ERT Program Manager, WBN CONST

FROM : K. W. Whitt, Director of Nuclear Sfety Review Staff, E3A8 C-K

DATE : NOV 15 1985

SUBJECT: TRANSMITTAL OF ACCEPTED FINAL REPORTS

The following final reports have been reviewed and accepted by NSRS and are transmitted to you for preparation of employee responses.

IN-85-279-005	
IN-86-103-002	

Original signed by
M. S. Kidd

K. W. Whitt

Please acknowledge receipt by signing below, copying and returning this form to J. T. Huffstetler, E3B37 C-K

Name Date

Attachments
cc (Attachments):
H. N. Culver, W12A19 C-K
E. R. Ennis, WBN
W. F. Willis, E12B16 C-K (4)

REPO7:G4

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS INVESTIGATION REPORT NO. I-85-547-WBN

EMPLOYEE CONCERN IN-85-279-005

MILESTONE 6

SUBJECT: DESIGN INFORMATION REQUESTS

DATES OF INVESTIGATION: October 28-November 1, 1985

INVESTIGATOR: John Knightly — J. J. Knightly — 11/13/85 Date

REVIEWED BY: Paul B Border — P. B. Border — 11/13/85 Date

APPROVED BY: M. A. Harrison — 11/13/85 Date

BACKGROUND

The Nuclear Safety Review Staff (NSRS) investigated Employee Concern IN-85-279-005 which Quality Technology Company (QTC) had identified during the Watts Bar Employee Concern Program. The concern was worded:

> No official trackable method is available for design information requests. Information is obtained via telephone and implemented/applied. No proof or written verification is obtained. CI would not provide any additional details/specifics. Constr. Dept. concern.

II. SCOPE

NSRS has reviewed applicable requirements, procedures, and design information tracking methods. Additionally, several individuals responsible for preparation and control of design information documentation have been contacted to discuss effectiveness of present methods as they relate to the employee's concern.

III. SUMMARY OF FINDINGS

A. Applicable Requirements and Commitments

1. 10CFR50 Appendix B - "Design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design and shall be approved by the organization that performed the original design unless the applicant designates another responsible organization."

2. WBNP-QCI-1.27, "Design Information Request Preparation and Documentation," cancelled at R5 (3/14/83) per QAP-3.2, R3.

3. TVA Division of Construction Quality Assurance Procedure (QAP) 3.2, dated February 11, 1983, "Design Information Request" - Discontinued use of Design Information Requests and stipulated that "in the future, Field Change Requests shall be used to obtain additional design information."

4. Watts Bar Nuclear Plant Quality Control Instruction 1.13, "Preparation and Documentation of Field Change Requests." FCRs may be used to "request additional design information. . . . Conditional approval (from EN DES) may be obtained orally or in writing and will authorize construction to progress. . . ."

5. Office of Engineering Procedure (OEP) 11, "Change Control."

B. Findings

1. From 1980 to 1983 Quality Control Instruction QCI-1.27, "Design Information Request - Preparation and Documentation," provided that Design Information Requests (DIRs) would be used for clarifications or interpretations of design drawings or specifications. The same procedure also included provisions for the numbering, filing, and logging of the DIRs and stated that "the DIR is not a replacement or substitute" for a Field Change Request (FCR). QCI-1.27 was cancelled March 1983 per QAP-3.2, R3, "Design Information Request," which stated: "In the future, Field Change Requests shall be used to obtain additional design information." QCI-1.13, "Preparation and Documentation of Field Change Requests," includes the provision for additional design information stipulated by QAP-3.2 and states for FCRs that "Telephone approval from EN DES . . . is considered permission to proceed with work . . . provided the name of the EN DES approver and the date of the telephone approval are recorded."

2. Although the DIR procedures stated that DIRs were to be used for "clarifications or interpretations," a review of the DIR records file showed that the DIRs also included information concerning design changes, nonconforming conditions, or other controlled information. This inclusion of controlled design information was stated by interviewees to be even more extensive at one or more of the other TVA nuclear sites. At the time of its cancellation, QAP-3.2 directed that "DIRs initiated by CONST prior to receipt of this notice of cancellation . . . shall be evaluated to determine if they contain information appropriate for Nonconforming Condition Reports, Field Change Requests, or other controlled documents." Only 11 DIRs were originated at WBN during 1983; of these, 4 were transferred to FCRs, and the other 7 were closed by EN DES responses or were voided. Several individuals from Engineering, Quality Assurance, Document Control, and Procedures and Training were interviewed concerning the DIR process. All stated that the DIRs were cancelled because of their tendency for misuse by inclusion of controlling-type design information. Said one QC engineer, "The DIRs were quick, simple, easy, and trackable; but problems overshadowed the benefits. We gained a big quality problem along with the improved communication."

3. Although the procedures QAP-3.2 and QCI-1.13 stated that FCRs may be used "to obtain" or "to request" additional information, the FCRs are not designed for that purpose. The FCR category titled "Additional Design Information" does not serve the same function as the previously used Design Information Request. The DIR forms provided a space of five lines titled "Description of Information Requested." The FCR form has no such space and provides lines only for "Change Description." The FCR "Additional Design Information" category is used extensively to document information to OE rather than to request it. A sample of 50 FCRs dated May 1985 to October 1985 included 20 marked in the "Additional Design Information" category. At least 16 of the 20 examples documented field status which had received conditional prior approval by telephone from OE. The written reply/resolution

from OE had been received on 12 of the 20, and all were found to be logged and statused through the FCR log books located in the DCU. Individuals interviewed stated that requests for clarifications or interpretations which might previously have been included in DIRs are not included in FCRs but are now handled informally or communicated by TVA memorandums. The Construction Project Manager's Office personnel stated that incoming memorandums are logged and tracked on a centralized register; outgoing memorandums are tracked only informally by the originating organizations within WBN OC. The RIMS onsite supervisor stated that outgoing memorandums are placed into the RIMS system but are not tracked there in any way.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

1. Although FCRs and TVA memorandums are available for design information, the employee's concern is substantiated in that there is not an official trackable method available for the full scope of design information requests.

2. The procedures state that FCRs may be used "to obtain" or "to request" information, but this information is intended to be changes to design rather than the verbal clarifications or interpretations intended in the DIRs.

3. TVA memorandums are available for information requests but are not viewed as a convenient and trackable method for routine requests. Instead, the routine requests for clarification and interpretation are accomplished informally.

4. A previous official and trackable DIR process was cancelled with good reason because of the DIR's tendency to include design change information which properly belonged in the controlled plant design system.

5. Support for bringing back the previous DIR system was not identified during the investigation, nor were concrete proposals received for correcting the previous DIR system defects.

6. The method now in place for requesting clarifications and interpretations informally, or where needed, through TVA memorandums is generally satisfactory.

B. Recommendations

None.

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS INVESTIGATION REPORT NO. I-85-428-WBN

EMPLOYEE CONCERN IN-86-103-002

MILESTONE 1 - FUEL LOAD

SUBJECT: MULTIHANGER FIRE BREACHES WITH ONE PHYSI-2, ATTACHMENT D, PERMIT

DATES OF INVESTIGATION: September 9-November 6, 1985

INVESTIGATOR: W D Stevens — W. D. Stevens — 11/13/85 Date

REVIEWED BY: [signature] — for B. G. Brantley — 11/13/85 Date

APPROVED BY: [signature] — M. A. Harrison — 11/13/85 Date

BACKGROUND

The employee concern as received from Quality Technology Company stated:

> Insulation is being removed (department known) from more than one base plate of conduit hangers under the same Physi-2, Attachment D. CI expressed that separate Attachment D must be filled out for each hanger breach. Unit 1, elevation 713', nuclear power concern, time frame - currently occurring. CI has no further information.

II. SCOPE

The scope of the investigation was determined to be that multiconduit hanger work was being performed with only one Physi-2, Attachment D, "Penetration Fire Barrier/ABSCE Boundry Door Breaching Permit," in effect. The area referenced by the concern was physically inspected by NSRS for any improper breaching, and applicable documentation relating to requirements for fire breaching was reviewed. Physi-2, Attachment D, permits and Maintenance Requests (MRs) for past work performed during the timeframe indicated were also reviewed.

III. SUMMARY OF FINDINGS

A. Additional information was requested from Quality Technology Company (QTC) for the concern expressed. No specific location could be provided on elevation 713' of the Unit 1 auxiliary building; however, the department involved (within the Office of Construction) and an approximate timeframe were established.

B. Elevation 713' was physically examined by NSRS on two separate occasions for any evidence of multihanger breaching using one Physi-2, Attachment D, fire barrier breaching permit. No multihanger breaching of this type was found during the inspections; however, two unauthorized fire barrier breaches on electrical conduit were discovered (which were subsequently found and documented independently by a member of the Plant Quality Assurance Staff before the fire barrier breaches were brought to the plant staff's attention by NSRS).

C. The following documents were reviewed for procedural requirements regarding fire barrier breaching.

1. Watts Bar Nuclear Plant Site Procedure - Physi-2, "Fire Protection Plan," requires that a fire barrier breaching permit (Attachment D) be completed before a fire assembly on cable-wrap barrier is to be breached and a copy filed in the Shift Engineer's office. The permit is also required to be posted at each breach. All breaching and restoration involving fire-rated assemblies was to be be performed by the Nuclear Services Branch (NSB) for all Office of Construction groups. No multihanger fire breaching was permitted by this procedure.

2. The Office of Construction Standard Operating Procedure 42 (SOP-42), "Breaching and Sealing Behind Unit One Security," contained the responsibilities and requirements for construction personnel involved with fire barrier breaching. The procedure revision in effect during the time period of the concern did not address Physi-2, Attachment D, for Appendix "R" Cable Wrap (which would include hanger assemblies). Appropriate attachments of Modifications and Additions Instruction 14 (MAI-14) were referenced by SOP-42 to address breaching and restoration of fire breaches.

D. Construction management and craft personnel were contacted regarding the procedures and practices used by NSB for fire breaching and restoration. All personnel contacted were generally knowledgeable concerning the Physi-2 requirements that applied to their organization. SOP-42 was in the process of being revised to include Appendix R cable-wrap breach work, and a copy of the proposed revision was discussed with and obtained from the cognizant manager. A review of the later-approved revision appeared to adequately require Physi-2, Attachment Ds, to be used for specific work involving fire breaches.

E. Documents consisting of Physi-2, Attachment Ds, Maintenance Requests (MRs), and other conduit and penetration breaching documentation were reviewed for the time period of the concern for evidence of any multihanger or penetration breaching using the same Physi-2 Attachment. All permits reviewed identified a maximum of one breach on each permit. A sample of MRs referenced by the breaching permits were also reviewed and cross-checked with the breaching permits for potential multifire breaches without proper permits. No multibreach work was found, and no permit indicated that more than one penetration or hanger was worked on the individual permit.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The employee concern was not substantiated for the following reasons.

1. The physical examination of the area resulted in no multihanger work being identified.

2. WBN site and Office of Construction implementing documents reviewed addressing fire breaches appeared to adequately address the use of Physi-2, Attachment D, permits.

3. All persons contacted were sufficiently knowledgeable in the documentation required for breaching.

4. No multihanger or penetration breaching was indicated for the permits and MRs reviewed.

B. Recommendations

None.

NRC

QUALITY
TECHNOLOGY
COMPANY

P.O. BOX 600 Sweetwater, TN 37874 (615)365-4414

November 7, 1985
ERT:QTC85.01213

Mr. Bruce Siefken
Nuclear Safety Review Staff
Tennesee Valley Authority
E3B37C-K

Dear Bruce:

SUBJECT: ERT Concern IN-85-424-002
IN-85-500-002

The above referenced concern, IN-85-424-002, has been closed by ERT after a discussion with the CI who states there is no longer any conern.

IN-85-500-002 has also been closed since CI states there is no longer any concern.

Sincerely,

QUALITY TECHNOLOGY COMPANY

W. S. Schum, Program Manager
EMPLOYEE RESPONSE TEAM

WSS/kes

Encl. (2)

RSR

Chatfield

EMPLOYEE CONCERN ASSIGNMENT REQUEST

To: Director - NSRS TRANSMITTAL NUMBER T50040

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 4 Concern # IN-85-424-002

Category: 39 Confidentiality: __YES __NO (I & H)

Supervisor Notified: X_YES __NO NUCLEAR SAFETY RELATED ~~NO~~ X

Concern: QC WELDING INSPECTORS DO NOT GET THE SUPPPORT THEY NEED FROM MANAGEMENT TO PERFORM THEIR RESPONSIBILITIES AS THEY SHOULD BE PERFORMED, IE POOR WELDERS KEEP WELDING, INSPECTION REJECTIONS ARE EVALUATED AWAY BY ENGINEERING. QC WELDING INSPECTORS EXPERIENCE LOW MORALE AND FRUSTRATION DUE TO THIS LACK OF SUPPORT.

VOID- This concern is voided due to statements made by the C/I at followup interview, and documented in the transcription of the interview contained in file IN-85-424.

C. Daley 10/4/85

CC Hill 10/4/85

10/7/85

6/20/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ✓

NSRS/ERT_____

NSRS_____

OTHERS (SPECIFY)_____

NSRS DATE