

TENNESSEE VALLEY AUTHORITY

KNOXVILLE, TENNESSEE 37902

400 West Summit Hill Drive, E3A8

November 14, 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 8, 1985 through November 14, 1985. TVA has previously submitted copies of the requested information through November 7, 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 for

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	S U B ?	DATE RESPONSE	A C C ?	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-85-021-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
IN-85-039-001	THML STRS ON PIPING	ERT	07/09/85	.T.	09/05/85	.T.	09/05/85	DESIGN	1
IN-85-039-002	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.	/ /	.F.	/ /	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-85-544-001	WORK W/O WORKPLAN	ERT	10/22/85	.F.	/ /	.F.	/ /	QA	1
IN-85-544-002	VIOLATION OF PROCEDU	ERT	10/23/85	.T.	/ /	.F.	/ /	QA	1
IN-85-581-002	WLDERS 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
IN-85-676-001	DISAGREE W/TVA POLIC	NSRS	10/31/85	.T.	/ /	.F.	11/05/85	QA	1

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

QTC NUMBER	SUBJECT	INVEST ORG	DATE REPORT	S U B ?	DATE RESPONSE	A C ?	DATE CLOSED	KEY WORD	#
IN-85-684-001	DEFECTIVE TUBE STEEO	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	.F.	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
IN-86-068-002	RETUBIN OF HEAT EXCH	ERT	11/05/85	.T.	/ /	.F.	11/12/85	MAINTENANC	1
IN-86-087-004	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-86-143-002	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-86-259-004	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-85-055-001	WELDER RECERTIFICATI	ERT	09/24/85	.T.	/ /	.F.	10/02/85	WELDING	1
WI-85-056-001	NOT FOLLOW CODE REQU	ERT	09/24/85	.T.	/ /	.F.	10/02/85	WELDING	1
** Subtotal **									

78

** ESTONE: 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

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QTC NUMBER	SUBJECT	INVEST ORG	DATE REPORT	S U B ?	DATE RESPONSE	A C C ?	DATE CLOSED	KEY WORD	#
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.	08/02/85	.F.	07/05/85	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
IN-85-439-006	SUBSTD WEAK CONCRETE	NSRS	11/07/85	.F.	/ /	.F.	11/12/85	CIVIL	1
IN-85-460-003	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-85-122-001	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.	10/07/85	.F.	/ /	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	.F.	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-85-346-003	WELD CERTIFICATIONS	ERT	09/26/85	.T.	/ /	.F.	10/03/85	WELDING	1
IN-85-352-001	UPDATE WELD CERTIFIC	ERT	09/26/85	.T.	/ /	.F.	10/03/85	WELDING	1
IN-85-388-006	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
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

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QTC NUMBER	SUBJECT	INVEST ORG	DATE REPORT	S U B ?	DATE RESPONSE	A C C ?	DATE CLOSED	KEY WORD	#
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
IN-86-119-001	INADEQUATE CONDUITS	NSRS	10/09/85	.T.	/ /	.F.	/ /	ELECTRICAL	1
IN-86-173-001	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-85-053-006	TEST DIR NOT QUAL	NSRS	10/25/85	.F.	/ /	.F.	/ /	CONSTRUCTI	1
** total **									41
** 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									
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
** Subtotal **									2
** 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-85-496-002	LINER OF ERCW PIPING	NSRS	10/03/85	.F.	/ /	.F.	/ /	MECHANICAL	1
IN-85-618-004	DAMAGED INST TUBING	NSRS	08/12/85	.T.	/ /	.F.	/ /	CONSTRUCTI	1
IN-85-825-002	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	S U B ?	DATE RESPONSE	A C C ?	DATE CLOSED	KEY WORD	#
** Subtotal **									
** MILESTONE: 6 09/02/85									
IN-85-020-001	IMPROP INSTAL REDHDS	NSRS/ERT	08/15/85	.T.	/ /	.F.	/ /	CIVIL	1
** Subtotal **									
** MILESTONE: 6 1ST REFUEL									
IN-85-211-002	ERCW LINE NOT STAINL	NSRS	10/03/85	.F.	/ /	.F.	/ /	MECHANICAL	1
** Subtotal **									
** MILESTONE: 6 I85-166WBN									
IN-86-145-002	CONCRETE LINING APAR	NSRS	10/03/85	.F.	/ /	.F.	/ /	MECHANICAL	1
** Subtotal **									
** 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 **									
** 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 **									
** 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 **									
** MILESTONE: 6 NO DATE									
EX-85-039-003	DESIGN DEFICIENCY	ERT/OGC	11/07/85	.T.	/ /	.F.	11/12/85	DESIGN	1
EX-85-042-003	WELDERS REQUALIFICAT	ERT	10/23/85	.T.	/ /	.F.	10/30/85	WELDING	1
IN-85-103-001	IEB 79-02	NSRS	08/09/85	.T.	/ /	.F.	08/09/85	DESIGN	1
IN-85-337-001	ERCW LN W/CEMENT LIN	NSRS	10/03/85	.F.	/ /	.F.	/ /	MECHANICAL	1

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

QTC NUMBER	SUBJECT	INVEST ORG	DATE REPORT	S U B ?	DATE RESPONSE	A C ?	DATE CLOSED	KEY WORD	#
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	DETERIORIATE 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-86-232-001	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-86-266-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
** Subtotal **									15
** 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 PROC	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-85-514-001	CONTAM DURING CUTTIN	ERT	08/22/85	.T.	/ /	.F.	/ /	CONSTRUCTI	1
IN-85-541-001	REQ WELD ON 2 SIDES	NSRS	08/15/85	.F.	/ /	.F.	08/15/85	DESIGN	1
IN-85-556-001	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
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

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

QTC NUMBER	SUBJECT	INVEST ORG	DATE REPORT	S U B ?	DATE RESPONSE	A C C ?	DATE CLOSED	KEY WORD	#
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** Subtotal **

15

*** Total ***

206

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	#
EX-85-056-001	INSPECTORS INCONSIST	INSPECTION	INSPECTORS	- -	1
EX-85-058-001	ENG QUALIFICATION	CONSTRUCT	CONTROL	- X -	1
EX-85-058-002	WRITING FCRS	CONSTRUCT	CONTROL	- X -	1
EX-85-061-003	WELD ROD CONTROL	WELDING	ROD	- X -	1
EX-85-061-004	DRAWINGS UNDETAILED	WELDING	DOCUMENT	- -	1
EX-85-061-005	ACCESS TO NOTES	HANGERS	050 NOTES	- -	1
EX-85-062-X02	DOCUMENT USE	QA	EFFECT	- -	1
EX-85-062-X03	QUALITY TRAINING	CONSTRUCTI	TRAINING	- -	1
EX-85-062-X04	EXAMINE QUALITY	CONSTRUCTI	TRAINING	- -	1
EX-85-064-001	WORKERS UNQUALIFIED	CONSTRUCTO	PERSONNEL	- -	1
EX-85-066-001	CONDUIT SUPPORT	HANGERS	INSTALL	- -	1
EX-85-066-002	NUMBER CONDUILETT	ELECTRICAL	CABLES	- -	1
EX-85-068-001	HANGER BRACKET PLACE	HANGERS	INSTALL	- -	1
EX-85-073-001	CABLE BEND RADIUS	ELECTRICAL	CABLES	- X -	1
EX-85-073-002	INSPECTOR CONSISTENC	INSPECTION	INSPECTORS	- -	1
EX-85-076-001	CONDUIT SUPPORTS	WELDING	INSPECTION	- X -	1
EX-85-076-002	CABLE TRAY SUPPORTS	WELDING	INSPECTION	- X -	1
EX-85-076-003	CABLE BREAK LINKS	ELECTRICAL	CABLES	- X -	1
EX-85-082-002	ENG LATE DRAWING	HANGERS	INSTALL	- X -	1
EX-85-082-003	INSPECTORS EXPERIENC	INSPECTION	INSPECTORS	- -	1
IN-85-046-006	OBJECTS IN WALL	CIVIL	CONCRETE	- -	1
IN-85-068-002	EQUIP LOCATION	INSTRUMENT	INSTALL	- -	1
IN-85-085-002	WELD QUALITY	WELDING	WORKMANSHI	- -	1
IN-85-304-001	ATTACHMENT PROBLEM	DESIGN	ADEQUACY	- -	1
IN-85-314-001	CABLE TENSION	ELECTRICAL	CABLES	- X -	1
IN-85-336-001	PROCEDURAL REQUIREMT	OPERATIONS	PERSONNEL	- -	1
IN-86-035-001	SHIPPING INADEQUATE	MATERIAL	CONTROL	- X -	1
IN-86-252-004	CABLE DAMAGE	CONSTRUCTI	CONTROL	- -	1
IN-86-273-001	CONTAINMENT COATING	OPERATIONS	MAINTENANAN	- -	1
OW-85-004-001	INSPECTORS INCONSIST	INSPECTION	INSPECTORS	- -	1
PH-85-027-006	WELD ACCEPTANCE	WELDING	DOCUMENT	- -	1
PH-85-027-007	COVERING WELDS	WELDING	WORKMANSHI	- -	1
PH-85-027-X08	WELD DOCU IDENTIFICA	WELDING	DOCUMENT	- -	1
PH-85-052-X03	WELDER CERT FALSIFIE	WELDING	WELDERS	- -	1
WI-85-030-006	FILLET WELDS	WELDING	DOCUMENT	- X -	1
WI-85-030-007	STRUCTURAL WELDING	WELDING	CODES	- X -	1
WI-85-030-008	CARBO-ZINC PRIMER	WELDING	INSPECTION	- X -	1
WI-85-030-009	CARBO-ZINC PRIMER	WELDING	INSPECTION	- -	1
WI-85-030-010	WELDING/NDE PROGRAM	WELDING	INSPECTION	- X -	1
WI-85-076-001	WELD INSP DOCUMENT	WELDING	DOCUMENT	- -	1
WI-85-076-002	DOCUMENT FALSIFIED	WELDING	DOCUMENT	- -	1
WI-85-086-001	QUALITY AUDIT PROGRA	QA	EFFECT	- X -	1
XX-85-033-002	SN/FOREMAN QUALIFIC	OPERATIONS	PERSONNEL	- -	1
XX-85-033-006	SN/FOREMAN MATERIAL	MATERIAL	CONTROL	- X -	1
XX-85-077-001	SN/PRE-OP/REQUISITE	TESTING	PRE-OP	- -	1
XX-85-077-002	SN/INACCURATE DRAWI	DOCUMENT	CONTROL	- X -	1
XX-85-084-001	SN/EXPOSURE	OPERATIONS	CONTROL	- -	1
XX-85-087-001	SN/CONTAINMENT COAT	OPERATIONS	MAINTENANC	- -	1

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	#
XX-85-107-001	BLN/WELDING INSPECTO	WELDING	INSPECTORS	- -	1
XX-85-110-001	BLN/WELDING/NDE PROG	WELDING	INSPECTION	- -	1
XX-85-113-001	SQN/QUALITY AUDIT PG	QA	EFFECT	- X -	1
XX-85-113-002	BLN/QUALITY AUDIT PG	QA	EFFECT	- X -	1
XX-85-113-003	BFN/QUALITY AUDIT PG	QA	EFFECT	- X -	1
*** Total ***					53

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50184

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

Priority: 1

Concern # EX-85-056-001

Category: 5

Confidentiality: YES NO (I&H)

Supervisor Notified: YES NO

NUCLEAR SAFETY RELATED YES

Concern: QC INSPECTORS ARE INCONSISTENT ON THEIR INSPECTIONS. CONSTRUCTION CONCERN. CI HAS NO ADDITIONAL INFORMATION, NO SPECIFICS.

William J. Sch... NOV 05 1985
MANAGER, ERT DATE

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

ERT

NSRS/ERT

NSRS

OTHERS (SPECIFY) _____

*Inspection
Inspectors*

Bruce P. Siegel 11/18/85
NSRS DATE

May 16

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50184

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

Priority: 1

Concern # EX-85-058-001

Category: 14

Confidentiality: YES NO (I&H)

Supervisor Notified: X YES NO

NUCLEAR SAFETY RELATED YES

Concern: THE WORKING KNOWLEDGE OF SOME ENGINEERS AT WATTS BAR IS VERY QUESTIONABLE. SOME ENGINEERS HAVE TOLD THE CI TO GO AHEAD AND BUILD THINGS THE WAY THEY NEED TO AND ENGINEERING WOULD CATCHUP WITH PAPERWORK LATER. CONSTRUCTION CONCERN. CI HAS NO ADDITIONAL INFORMATION. CI COULD NOT PROVIDE NAMES.

William A. Schenck NOV 05 1985

MANAGER, ERT DATE

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

ERT

NSRS/ERT

NSRS ✓

OTHERS (SPECIFY) -----

*Construction
Control*

Russell L. Siegler 11/8/85

NSRS DATE

may 16

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50184

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

Priority: 1

Concern # EX-85-058-002

Category: 14

Confidentiality: YES NO (I&H)

Supervisor Notified: X YES NO

NUCLEAR SAFETY RELATED YES

Concern: ENGINEERING WOULD QUITE OFTEN TRY TO AVOID WRITING FC^RS WHEN IT WAS NECESSARY TO MAKE FIELD CHANGES AT UNIT 2 - WBNP. CONSTRUCTION CONCERN. CI HAS NO ADDITIONAL INFORMATION OR NAMES.

William A. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT

NSRS/ERT

NSRS ✓

OTHERS (SPECIFY) _____

Construction Control

Bruce J. Diefken 11/18/85
NSRS DATE

may 16

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50183

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

Priority: 1

Concern # EX-85-061-003

Category: 33

Confidentiality: YES NO (I&H)

Supervisor Notified: X YES NO

NUCLEAR SAFETY RELATED YES

Concern: THERE IS A LACK OF WELD ROD CONTROL AT WATTS BAR. CONSTRUCTION CONCERN. CI HAS NO ADDITIONAL INFORMATION.

William A. Schuman NOV 05 1985
MANAGER, ERT DATE

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

ERT

NSRS/ERT

NSRS EG+G

OTHERS (SPECIFY)

welding

Red

Bruce L. Seaman 11/8/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50183

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

Priority: 1

Concern # EX-85-061-004

Category: 26

Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO

NUCLEAR SAFETY RELATED YES

Concern: DRAWINGS DO NOT ALWAYS SHOW COMPLETE DETAILS, I.E. SPECIFIC WELD SIZE. CONSTRUCTION CONCERN. CI HAS NO ADDITIONAL DETAIL.

William A. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT ___

NSRS/ERT _____

NSRS EGT6

OTHERS (SPECIFY) _____

*welding
Document*

Bruce L. Saffers 11/18/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50184

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

Priority: 1

Concern # EX-85-061-005

Category: 24

Confidentiality: YES NO (I&H)

Supervisor Notified: YES NO

NUCLEAR SAFETY RELATED YES

Concern: WORKERS DO NOT HAVE ACCESS TO THE "050" NOTES TO BUILD CONFIGURATIONS IF DRAWINGS DO NOT SHOW ADEQUATE DETAILS. CONSTRUCTION CONCERN. CI HAS NO ADDITIONAL INFORMATION.

William J. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT

NSRS/ERT

NSRS

OTHERS (SPECIFY) _____

*Change
050 Notes*

Bruce J. Seifler 11/9/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50183

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

Priority: 1

Concern # EX-85-062-X02

Category: 5

Confidentiality: YES NO (I&H)

Supervisor Notified: YES X_NO

NUCLEAR SAFETY RELATED YES

Concern: INSPECTORS USED "INFORMATION ONLY" DRAWINGS TO DO SOME INSPECTIONS AT UNIT 1, ALL BUILDINGS, BACK IN 1981 AND 1982. CONSTRUCTION DEPT. CONCERN. CI HAS NOT FURTHER INFORMATION.

William D. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT

NSRS/ERT

NSRS ✓

OTHERS (SPECIFY) _____

Rune J. Siegel 11/8/85
NSRS DATE

QA
effect

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50184

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

Priority: 1

Concern # EX-85-062-X03

Category: 7

Confidentiality: YES NO (I&H)

Supervisor Notified: YES X_NO

NUCLEAR SAFETY RELATED YES

Concern: CI EXPRESSED THAT QUALITY RELATED TRAINING WAS INADEQUATE. DETAILS KNOWN TO QTC, WITHHELD DUE TO CONFIDENTIALITY. CONSTRUCTION DEPT. CONCERN. CI HAS NO FURTHER INFORMATION.

William D. Schenck NOV 05 1985

MANAGER, ERT DATE

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

ERT ✓

NSRS/ERT -----

NSRS -----

OTHERS (SPECIFY) -----

Construction Training

Bruce L. Saffers 11/8/85

NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50184

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

Priority: 1

Concern # EX-85-062-X04

Category: 7

Confidentiality: _YES _NO (I&H)

Supervisor Notified: ___YES _X_NO

NUCLEAR SAFETY RELATED YES

Concern: EMPLOYEES WERE GIVEN COPIES OF QUALITY RELATED EXAMINATIONS TO STUDY PRIOR TO TAKING THE ACTUAL EXAMINATION. DETAILS KNOWN TO QTC, WITHHELD DUE TO CONFIDENTIALITY. CONSTRUCTION DEPT. CONCERN. CI HAS NO FURTHER INFORMATION.

William J. Schen NOV 05 1985
MANAGER, ERT DATE

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

ERT ✓

NSRS/ERT

NSRS

OTHERS (SPECIFY) OGC

Construction Training

Bruce J. Leffer 11/8/85
NSRS DATE

PSK

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50183

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

Priority: 1

Concern # EX-85-064-001

Category: 7

Confidentiality: _YES _NO (I&H)

Supervisor Notified: _YES ___NO

NUCLEAR SAFETY RELATED YES

Concern: TVA HAS INPSECTORS, SUPERVISORS, AND ENGINEERS IN THE FIELD THAT AREN'T QUALIFIED. NO NAMES KNOWN. CONSTRUCTION DEPT. CONCERN. CI HAS NO ADDITIONAL INFORMATION.

William A. Sch... NOV 05 1985
MANAGER, ERT DATE

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

ERT ___

NSRS/ERT _____

NSRS _____

OTHERS (SPECIFY) _____

Construction Personnel

Bruce L. Duffen 11/8/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50183

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

Priority: 1

Concern # EX-85-066-001

Category: 10

Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO

NUCLEAR SAFETY RELATED YES

Concern: CONDUIT RUNS DO NOT HAVE ADEQUATE SUPPORT DESIGN. THERE ARE NOT ENOUGH SUPPORTS DESIGNED FOR MULTIPLE CONDUITS, RESULTING IN TOO MANY SINGLE SUPPORTS IN THE AUXILIARY AND REACTOR BUILDINGS. CONSTRUCTION DEPT. CONCERN. CI HAS NO ADDITIONAL INFORMATION.

[Handwritten Signature]
MANAGER, ERT

NOV 05 1985
DATE

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

ERT ___

NSRS/ERT _____

NSRS _____

OTHERS (SPECIFY) _____

*Hangers
Install*

Bruce L. Siegel
NSRS
DATE 11/8/85

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50183

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

Priority: 3

Concern # EX-85-066-002

Category: 86

Confidentiality: YES NO (I&H)

Supervisor Notified: X YES NO

NUCLEAR SAFETY RELATED NO ^{YES} _{BB}

Concern: THERE ARE NOT ENOUGH CONDUILETTTS IN CONDUIT RUNS. AUXILIARY AND REACTOR BUILDINGS. CONSTRUCTION DEPT. CONCERN. CI HAS NO ADDITIONAL INFORMATION.

[Signature] NOV 05 1985
MANAGER, ERT DATE

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

ERT ---

NSRS/ERT -----

NSRS ✓ -----

OTHERS (SPECIFY) -----

*electrical
cables*

[Signature] 11/5/85
NSRS DATE

7312

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50183

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

Priority: 1

Concern # EX-85-068-001

Category: 10

Confidentiality: _YES _NO (I&H)

Supervisor Notified: X_YES ___NO

NUCLEAR SAFETY RELATED YES

Concern: ENGINEERING ON CONDUIT RUNS IS POORLY PLANNED. HANGER BRACKETS ARE POORLY PLACED. THERE ARE TOO MANY OF THEM. RACEWAYS IN ACCUMULATOR ROOM #2. CONSTRUCTION DEPT CONCERN. CI HAS NO ADDITIONAL INFORMATION.

William S. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT ___

NSRS/ERT _____

NSRS ✓ _____

OTHERS (SPECIFY) _____

*Hangers
Install*

Barbara J. Saffron 11/8/85
NSRS DATE

may 6

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50181

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

Priority: 1

Concern # EX-85-073-001

Category: 52

Confidentiality: YES NO (I&H)

Supervisor Notified: X YES NO

NUCLEAR SAFETY RELATED YES

Concern: THE BEND RADIUS ON A CABLE HAD TO BE VIOLATED IN ORDER TO MAKE A SPLICE, YET THE CABLE SPLICE WAS INSPECTED AND ACCEPTED. CABLE SCV 2-3V-31-7229 ON VALVE 2 SCV-31-329 LOCATED IN THE INCORE INST. ROOM 105 ELEV. 716 IN SYSTEM #31. THE WIRES WERE SPLICED OUTSIDE, THEN STUFFED INSIDE THE FITTING. CONST. DEPT. CONCERN. UNIT 2. C/I HAS NO ADDITIONAL INFO..

William D. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT

NSRS/ERT

NSRS ✓

OTHERS (SPECIFY) _____

*Electrical
Cables*

Bruce J. Steffen 11/8/85
NSRS DATE

May 16

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50184

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

Priority: 1

Concern # EX-85-076-001

Category: 5

Confidentiality: _YES _NO (I&H)

Supervisor Notified: X_YES ___NO

NUCLEAR SAFETY RELATED YES

Concern: CONDUIT SUPPORTS HAVE BEEN INSPECTED IN THE PAST AND ACCEPTED. THE ACCEPTED SUPPORTS HAVE UNDERCUT AND COULD NOT PASS THE CRITERION USED FOR TODAYS INSPECTION. EXAMPLES CAN BE FOUND IN THE AUXILLIARY BUILDING, ELEVATION 737'. LOOK ANYPLACE NEAR THE CEILING AT ANY SUPPORT INSPECTED BEFORE MID 1984. CONSTRUCTION DEPT. CONCERN. CI HAS NO ADDITIONAL INFORMATION.

William S. Schum NOV 05 1985
MANAGER, ERT DATE

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

ERT ___

NSRS/ERT _____

NSRS ✓ _____ EG46

OTHERS (SPECIFY) _____

*Welding
Inspection*

Bruce L. Seffner 11/8/85
NSRS DATE

May 16

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50184

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

Priority: 1

Concern # EX-85-076-002

Category: 5

Confidentiality: _YES _NO (I&H)

Supervisor Notified: _YES ___NO

NUCLEAR SAFETY RELATED YES

Concern: CABLE TRAY SUPPORTS, INSPECTIONS ON THE WELDS, COULD NOT PASS CRITERION USED FOR TODAYS INSPECTIONS. EXAMPLES CAN BE FOUND AT AZ100 DEGREES, ELEVATION 735, UNIT 2. CONSTRUCTION DEPT. CONCERN. CI HAS NO ADDITIONAL INFORMATION.

William J. Schen NOV 05 1985
MANAGER, ERT DATE

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

ERT ___

NSRS/ERT _____

NSRS *EG+6*

OTHERS (SPECIFY) _____

*welding
inspections*

Bruce L. Pugh 11/8/85
NSRS DATE

Nov 16

PSF

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50185

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

Priority: 1

Concern # EX-85-076-003

Category: 52

Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO

NUCLEAR SAFETY RELATED YES

Concern: CABLE BREAK LINKS WERE NOT USED FOR PRE-1984 CABLE PULLING. POSSIBLE CABLE DAMAGE MAY HAVE RESULTED IN UNIT 2. GENERIC CONCERN. CONSTRUCTION DEPT. CONCERN. CI HAS NO ADDITIONAL INFORMATION.

William J. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT ___

NSRS/ERT _____

NSRS _____ ✓

OTHERS (SPECIFY) _____

*Electric
Cable*

Bruce J. Diefen 11/18/85
NSRS DATE

Mar 16

PSK

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50187

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

Priority: 1

Concern # EX-85-082-002

Category: 10

Confidentiality: YES NO (I&H)

Supervisor Notified: X YES NO

NUCLEAR SAFETY RELATED YES

Concern: Engineers ask fitters to do whatever is necessary to accomplish a job and they will draw it up later. Construction dept concern. CI has no additional information. Generic concern.

William J. Schenck NOV 06 1985

MANAGER, ERT DATE

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

ERT ---

NSRS/ERT -----

NSRS ----- ✓

OTHERS (SPECIFY) -----

*Have you
Install*

Bruce J. Satter 11/9/85

NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50187

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

Priority: 1

Concern # EX-85-082-003

Category: 7

Confidentiality: _YES_ _NO_ (I&H)

Supervisor Notified: X_YES ___NO

NUCLEAR SAFETY RELATED _YES_

Concern: Some QC Inspectors lack adequate field experience and display lack of drawing understanding. Construction dept concern. CI has no additional information. Generic concern.

William A. Schu NOV 06 1985
MANAGER, ERT DATE

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

ERT ___

NSRS/ERT _____

NSRS ✓ _____

OTHERS (SPECIFY) _____

Bruce P. Coffey 11/8/85
NSRS DATE

*Inspection
Inspectors*

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50185

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

Priority: 1

Concern # IN-85-046-006

Category: 52

Confidentiality: _YES _NO (I&H)

Supervisor Notified: ___YES ___NO

NUCLEAR SAFETY RELATED YES

Concern: FOREIGN OBJECTS (WIRES) WERE FOUND TO BE EMBEDDED IN CONCRETE WALLS, APPROX. 2 1/2 YEARS AGO. CI ALSO EXPRESSED THAT IT IS "COMMON KNOWLEDGE" THAT POP CANS, LIGHTS, AND OTHER OBJECTS ARE EMBEDDED IN THE WALLS. NO LOCATIONS GIVEN. CONSTRUCTION DEPT. CONCERN. CI HAS NO FURTHER INFORMATION.

William J. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT ___

NSRS/ERT _____

NSRS _____

OTHERS (SPECIFY) _____

*Civil
Concrete*

Bruce J. Griffin 11/8/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50186

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

Priority: 3

Concern # IN-85-068-002

Category: 10

Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO

NUCLEAR SAFETY RELATED YES

Concern: SENSITIVE EQUIPMENT, ie INSTRUMENTS AND INSTRUMENT PANELS ARE LOCATED IN A HARSH ENVIRONMENT. CI STATED THAT THE LOCATION OF THIS EQUIPMENT IS IN THE BOTTOM OF THE REACTOR AND PART WAY UP THE BUILDING. UNIT NOT SPECIFIED. CONSTRUCTION DEPT. CONCERN. CI COULD NOT PROVIDE ANY SPECIFICS/DETAILS.

William J. Schu NOV 06 1985
MANAGER, ERT DATE

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

ERT ---

NSRS/ERT -----

NSRS -----

OTHERS (SPECIFY) -----

*Instrument
Install*

Bruce P. Poffen 11/8/85
NSRS DATE

75R

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50181

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

Priority: 1

Concern # IN-85-304-001

Category: 11

Confidentiality: YES NO (I&H)

Supervisor Notified: YES X NO

NUCLEAR SAFETY RELATED YES

Concern: THE SUPPORT (72-1CS-R116) FOR A 10" DIA: CONTAINMENT SPRAY LINE APPROX. THE 745-750 ELEV. HAS A COMMON ATTACHMENT BETWEEN THE SHIELD WALL AND THE AUX. BLDG.. SINCE THE RESPONSE SPECTRA IS DIFFERENT FOR THESE 2 STRUCTURES THE COMMON (RIGID) ATTACHMENT COULD CAUSE A PROBLEM IN THE EVENT OF A SEISMIC OCCURRENCE. UNIT 1. CONST. CONCERN. C/I COULD PROVIDE NO ADDITIONAL INFORMATION.

William B. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT

NSRS/ERT

NSRS ✓

OTHERS (SPECIFY) _____

Design adequacy

Bruce J. Deffen 11/8/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50186

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

Priority: 1

Concern # IN-85-314-001

Category: 52

Confidentiality: _YES _NO (I&H)

Supervisor Notified: ___YES _X_NO

NUCLEAR SAFETY RELATED YES

Concern: CABLE IS PULLED ONE AT A TIME AND THEREFORE THE TENSION EXCEEDS THE MAX. VALUE DUE TO TANGLING IN UNIT #2. CI COULD PROVIDE NO SPECIFIC LOCATIONS. CONSTRUCTION CONCERN. NO FURTHER INFORMATION AVAILABLE.

William A. Schmitt NOV 06 1985
MANAGER, ERT DATE

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

ERT ---

NSRS/ERT -----

NSRS -----

OTHERS (SPECIFY) -----

*Electrical
Cables*

Bruce P. Steffen 11/8/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50186

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

Priority: 1

Concern # IN-85-336-001

Category: 86

Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO

NUCLEAR SAFETY RELATED YES

Concern: CI IS CONCERNED ABOUT THE GENERAL OPERATION OF THE PLANT DUE TO DISREGARD OF PROCEDURAL REQUIREMENTS AND TVA'S FAILURE TO ENSURE THAT EMPLOYEES ARE COMPETENT IN PROCEDURES CONCERNING THEIR WORK. EXAMPLE: QUALITY MANAGERS/SUPERVISORS ARE ALLOWED TO VERIFY INSPECTION ATTRIBUTES WITHOUT BEING TRAINED TO THE PROCEDURAL REQUIREMENTS. CI HAS NO OTHER SPECIFIC EXAMPLES. CONSTRUCTION CONCERN. UNIT 1 & 2.

William D. Schum NOV 06 1985
MANAGER, ERT DATE

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

ERT ---

NSRS/ERT -----

NSRS -----

OTHERS (SPECIFY) -----

Operations Personnel

Bruce L. Siedler 11/8/85
NSRS DATE

may 16

PSG

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50186

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

Priority: 1

Concern # IN-86-035-001

Category: 27

Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO

NUCLEAR SAFETY RELATED YES

Concern: THERMO LOG MATERIAL (FROM THERMO SCIENCE INC.) CAME IN ON A HEATED TRAILER DURING SEVER COLD PERIOD 1984 AND WAS UNLOADED ON THE DOCK AND LEFT ALL WEEKEND. RECEIVING/STORAGE/MAINTENANCE PROGRAM IS INADEQUATE. CI HAS NO MORE INFORMATION. CONSTRUCTION DEPT. CONCERN. UNIT 2.

William J. Schu NOV 06 1985
MANAGER, ERT DATE

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

ERT ---

NSRS/ERT -----

NSRS -----

OTHERS (SPECIFY) -----

material control

Bruce L. Pfeiffer 11/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50183

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

Priority: 1

Concern # IN-86-252-004

Category: 52

Confidentiality: YES NO (I&H)

Supervisor Notified: X YES NO

NUCLEAR SAFETY RELATED YES

Concern: A CABLE WAS POTENTIALLY DAMAGED INADVERTENTLY BY CRAFT DRILLING IN A CABLE TRAY. DETAILS KNOWN TO QTC, WITHHELD DUE TO CONFIDENTIALITY. CONSTRUCTION DEPT. CONCERN. CI HAS NO FURTHER INFORMATION.

William J. Schmitt NOV 05 1985
MANAGER, ERT DATE

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

ERT ✓

NSRS/ERT

NSRS

OTHERS (SPECIFY) _____

*construction
control*

Bruce J. Seifert 11/8/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50186

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

Priority: 1

Concern # IN-86-273-001

Category: 37

Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO

NUCLEAR SAFETY RELATED YES

Concern: WBNP - UNIT 1 & 2: CONTAINMENT COATINGS (#295 & #305) ARE NOT PROPERLY DONE & MAINTAINED. THE INTEGRITY OF THE COATINGS IS BEING ERODED & QUESTIONABLE. CI IS CONCERNED THAT THE PAINT WILL CURL & POP-UP AND CLOG THE DRAINS IN CASE OF A (LOCA) ACCIDENT WHEN THE TEMPERATURE & PRESSURE BUILDS UP IN THE REACTOR. PAINT SPECIFICATIONS & STANDARDS ARE NOT FOLLOWED, ESPECIALLY IN RECOATING OF #305. CONSTRUCTION DEPT. CONCERN. CI HAS NO FURTHER INFORMATION.

William J. Schu NOV 06 1985
MANAGER, ERT DATE

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

ERT ___

NSRS/ERT _____

NSRS _____

OTHERS (SPECIFY) _____

Operations maintenance

Bruce J. Deffen 11/18/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50184

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

Priority: 1

Concern # OW-85-004-001

Category: 5

Confidentiality: YES NO (I&H)

Supervisor Notified: YES NO

NUCLEAR SAFETY RELATED YES

Concern: CI EXPRESSED THAT INTERPRETATIONS OF INSPECTION CRITERIA BY INSPECTOR PERSONNEL WERE NOT CONSISTENT. DETAILS KNOWN TO QTC, WITHHELD DUE TO CONFIDENTIALITY. CI HAS NO FURTHER INFORMATION.

William S. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT ---

NSRS/ERT -----

NSRS -----

OTHERS (SPECIFY) -----

*Inspection
Inspectors*

Bruce S. Siegler 11/8/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50185

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

Priority: 1

Concern # PH-85-027-006

Category: 33

Confidentiality: YES NO (I&H)

Supervisor Notified: YES NO

NUCLEAR SAFETY RELATED YES

Concern: A WELD, WHICH HAD BEEN IMPROPERLY MADE, WAS ACCEPTED IN A QUESTIONABLE MANNER. DETAILS KNOWN TO QTC, WITHHELD DUE TO CONFIDENTIALITY. UNIT 1. CONSTRUCTION DEPT. CONCERN. CI HAS NO FURTHER INFORMATION.

William D. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT ---

NSRS/ERT -----

NSRS ✓ 2606

OTHERS (SPECIFY) -----

*welding
Document*

Bruce L. Snodden 11/8/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50185

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

Priority: 1

Concern # PH-85-027-007

Category: 33

Confidentiality: YES NO (I&H)

Supervisor Notified: YES NO

NUCLEAR SAFETY RELATED YES

Concern: CI STATED THAT AN INDIVIDUAL WAS "COVERING" OTHER WELDER'S WELDS, AND APPLYING THE INDIVIDUAL'S STENCIL TO THE COMPLETED WELDS. CI COULD NOT RECALL INDIVIDUALS NAME OR STENCIL IDENTIFICATION. CI ALSO STATED THAT THIS SAME INDIVIDUAL MADE WELDS IN A QUESTIONABLE MANNER, WITHOUT ADHERING TO PROPER WELD PROCEDURES. DETAILS KNOWN TO QTC, WITHHELD DUE TO CONFIDENTIALITY. CONSTRUCTION DEPT. CONCERN UNIT 1. CI HAS NO FURTHER INFORMATION.

William J. Schum NOV 05 1985
MANAGER, ERT DATE

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

ERT

NSRS/ERT

NSRS ✓ EG+G

OTHERS (SPECIFY) -----

*Welding
Workmanship*

Russell J. Sieffman 11/9/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50185

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

Priority: 1

Concern # PH-85-027-X08

Category: 88

Confidentiality: _YES _NO (I&H)

Supervisor Notified: ___YES ___NO

NUCLEAR SAFETY RELATED YES

Concern: WELD DOCUMENTATION AND IDENTIFICATION HAS BEEN FALSIFIED UNIT 1. DETAILS KNOWN TO QTC, WITHHELD DUE TO CONFIDENTIALITY. CONSTRUCTION DEPARTMENT CONCERN. CI HAS NO FURTHER INFORMATION.

William S. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT PS

NSRS/ERT _____

NSRS ✓ CG+6

OTHERS (SPECIFY) OGC

welding document

Bruce H. Deffen 11/8/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50184

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

Priority: 1

Concern # PH-85-052-X03

Category: 88

Confidentiality: _YES _NO (I&H)

Supervisor Notified: ___YES ___NO

NUCLEAR SAFETY RELATED YES

Concern: WELDER RECERTIFICATIONS HAVE BEEN FALSIFIED. DETAILS KNOWN TO QTC, WITHHELD DUE TO CONFIDENTIALITY. CI HAS NO FURTHER INFORMATION.

William D. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT

NSRS/ERT _____

NSRS _____

OTHERS (SPECIFY) OGC

Bruce L. Daffner 11/8/85
NSRS DATE

May 16

FSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50185

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

Priority: 1

Concern # WI-85-030-006

Category: 60

Confidentiality: YES NO (I&H)

Supervisor Notified: X YES NO

NUCLEAR SAFETY RELATED YES

Concern: 10CFR50.55(e) REPORTING IN CONJUNCTION WITH NCR 2111R (FAULTY FILLET WELDS - QC BREAKDOWN) WAS QUESTIONABLE; THE FIRST NOTIFICATION OF NONCONFORMANCES WITH SIMILAR DEFICIENCIES (NCR'S 2806R, 2091R, 2101R 2120R, 2128R, 2137R, & 2375R) WAS NOT MADE UNTIL THE SIXTH INTERIM REPORT WAS ISSUED ON JUNE 17, 1981. THESE NCR'S WERE PREVIOUSLY IDENTIFIED AS NON-SIGNIFICANT. NUC. POWER DEPT. CONCERN. CI HAS NO ADDITIONAL INFORMATION.

William P. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT

NSRS/ERT

NSRS ✓ EGC

OTHERS (SPECIFY) -----

Welding Document

Bruce P. Leffler 11/8/85
NSRS DATE

May 16

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50185

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

Priority: 1

Concern # WI-85-030-007

Category: 13

Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO

NUCLEAR SAFETY RELATED YES

Concern: THE WBN FSAR COMMITS TVA TO THE REQUIREMENTS OF AWS D.1.1 FOR STRUCTURAL WELDING. CONTRARY TO THESE REQUIREMENTS, THE G-29C PROCESS SPECIFICATION WAS MODIFIED TO REFLECT LESS STRINGENT INSPECTION REQUIREMENTS (e.g. VISUAL INSPECTION OF WELDS THROUGH PAINT (CARBO ZINC PRIMER) AND NO DOCUMENTED INSPECTION BY CERTIFIED VISUAL INSPECTORS (FIT-UP, IN-PROCESS) PRIOR TO FINAL INSPECTION.) CI HAS NO ADDITIONAL INFORMATION. NUC. POWER DEPT. CONCERN.

William J. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT ___

NSRS/ERT _____

NSRS ✓ EG+G

OTHERS (SPECIFY) _____

welding codes

Bruce J. Pfeiffer 11/6/85
NSRS DATE

may 16

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50185

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

Priority: 1

Concern # WI-85-030-008

Category: 5

Confidentiality: YES NO (I&H)

Supervisor Notified: X YES NO

NUCLEAR SAFETY RELATED YES

Concern: THERE MAY HAVE BEEN THOUSANDS OF WELDS INSPECTED THROUGH CARBO-ZINC PRIMER. HOWEVER, TVA REPORTS INDICATE THAT ONLY 100-150 WELDS WERE INSPECTED IN THIS MANNER EVEN THOUGH THERE IS NO DOCUMENTATION IDENTIFYING WHICH WELDS WERE INSPECTED THROUGH CARBO-ZINC PRIMER. NUC. POWER DEPT. CONCERN. CI HAS NO ADDITIONAL INFORMATION.

William J. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT ✓ PSB

NSRS/ERT

NSRS ✓ EG+G

OTHERS (SPECIFY) -----

*welder's
Inspection*

Bruce F. Diefen 11/8/85
NSRS DATE

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50185

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

Priority: 4

Concern # WI-85-030-009

Category: 86

Confidentiality: YES NO (I&H)

Supervisor Notified: X YES NO

NUCLEAR SAFETY RELATED NO

Concern: MANAGEMENT INDIVIDUAL (NAME KNOWN) STATED HE/SHE WOULD "FIRE" INSPECTOR(S) IDENTIFIED AS HAVING INSPECTED WELDS THROUGH PAINT (CARBO-ZINC). INSPECTORS HAD BEEN INSTRUCTED/DIRECTED TO INSPECT WELDS THROUGH CARBO-ZINC PRIMER. NUC. POWER DEPT. CONCERN. CI HAS NO ADDITIONAL INFORMATION.

William A. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT ---

NSRS/ERT -----

NSRS ✓ EG&G

OTHERS (SPECIFY) OGC

*Welding
Inspection*

Bruce F. Steffen 11/8/85
NSRS DATE

may 16

F512

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50185

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

Priority: 1

Concern # WI-85-030-010

Category: 33

Confidentiality: YES NO (I&H)

Supervisor Notified: YES NO

NUCLEAR SAFETY RELATED YES

Concern: WELDING AND NDE PROGRAM CORRECTIVE ACTION, AS IDENTIFIED IN OEDC QUALITY ASSURANCE EVALUATION NO. QAE02, DATED SEPTEMBER 1980, MAY NOT HAVE BEEN IMPLEMENTED FOR WATTS BAR NUCLEAR PLANT. THE SAME UNCORRECTED PROBLEMS WERE FOUND TO EXIST YEARS LATER AND MAY STILL EXIST TODAY. NUC. POWER DEPT. CONCERN. CI HAS NO FURTHER INFORMATION.

William A. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT

NSRS/ERT

NSRS *✓* *26+6*

OTHERS (SPECIFY) _____

*welding
inspection*

Bruce L. Duffin 11/1/85
NSRS DATE

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50185

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

Priority: 1

Concern # WI-85-076-001

Category: 5

Confidentiality: _YES _NO (I&H)

Supervisor Notified: ___YES ___NO

NUCLEAR SAFETY RELATED YES

Concern: WELDS HAVE BEEN IMPROPERLY INSPECTED, AND WELD DOCUMENTATION DOES NOT REFLECT ACCURATE INFORMATION. NO SPECIFIC LOCATIONS KNOWN. DETAILS KNOWN TO QTC, WITHHELD DUE TO CONFIDENTIALITY. CONSTRUCTION DEPT. CONCERN. CI HAS NO FURTHER INFORMATION TO REVEAL.

William J. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT *PSR*

NSRS/ERT _____

NSRS *EG+6*

OTHERS (SPECIFY) *OGC*

welding document

Bruce J. Seafon 11/19/85
NSRS DATE

BTR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50185

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

Priority: 1

Concern # WI-85-076-002

Category: 88

Confidentiality: _YES _NO (I&H)

Supervisor Notified: ___YES ___NO

NUCLEAR SAFETY RELATED YES

Concern: WELDING DOCUMENTATION HAS BEEN FALSIFIED. DETAILS KNOWN TO QTC, WITHHELD DUE TO CONFIDENTIALITY. CONSTRUCTION DEPT. CONCERN. CI HAS NO FURTHER INFORMATION TO REVEAL.

William S. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT *RPS* ___

NSRS/ERT _____

NSRS *V* ___ *EGG*

OTHERS (SPECIFY) *OGC*

Welding Document

Bruce K. Dyer 11/885
NSRS DATE

might

BR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50186

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

Priority: 1

Concern # WI-85-086-001

Category: 5

Confidentiality: YES NO (I&H)

Supervisor Notified: YES X NO

NUCLEAR SAFETY RELATED YES

Concern: TVA CORPORATE MANAGEMENT IS IN THE PROCESS OF DECENTRALIZING THE QUALITY AUDIT PROGRAM, IN AN EFFORT TO REDUCE THE AUDIT PROGRAMS IMPACT ON THE STARTUP AND OPERATION OF THE NUCLEAR PLANTS, AND ALSO TO INTIMIDATE AUDITOR PERSONNEL, THUS SIGNIFICANTLY REDUCING THE EFFECTIVENESS OF TVA'S QUALITY VERIFICATION PROGRAM. NUCLEAR POWER CONCERN. CI HAS NO FURTHER INFORMATION.

William J. Schum NOV 06 1985
MANAGER, ERT DATE

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

ERT ---

NSRS/ERT -----

NSRS ----- ✓

OTHERS (SPECIFY) -----

QA Effect

Bruce L. Steffen 11/11/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50181

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

Priority: 2

Concern # XX-85-033-002

Category: 86

Confidentiality: YES NO (I&H)

Supervisor Notified: YES X NO

NUCLEAR SAFETY RELATED YES

Concern: SEQUOYAH: ELECTRICAL GENERAL FOREMEN NOT QUALIFIED FOR THIER POSITIONS. EXAMPLE: G.F. (KNOWN) PROMOTED BECAUSE HE TOOK (PERSONAL) CREDIT FOR WORK DONE BY OTHERS BY SIGNING OFF ON WORK PACKAGES FOR COMPLETION CREDIT. THIS G.F. DOES NOT KNOW EVEN BASIC CIRCUITS AND COMPONENT FUNCTIONS. ANOTHER G.F. (KNOWN) HAD ONLY BEEN IN THE ELECTRICAL TRADE TWO YEARS BEFORE WORKING FOR TVA. {CONSTRUCTION DEPARTMENT CONCERN}. C/I HAS NO FURTHER INFORMATION.

William J. Sch... NOV 05 1985
MANAGER, ERT DATE

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

ERT

NSRS/ERT

NSRS ✓

OTHERS (SPECIFY) _____

Operations Personnel

Bruce S. L... 11/8/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50186

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

Priority: 1

Concern # XX-85-077-001

Category: 43

Confidentiality: YES NO (I&H)

Supervisor Notified: YES X NO

NUCLEAR SAFETY RELATED YES

Concern: SEQUOYAH - EARLY 1980 & MIDDLE OF 1981. UNIT ~~4~~ 2. THE PRE-OP PRE-REQUISITES ARE QUESTIONABLE. DETAILS KNOWN TO QTC, WITHHELD DUE TO CONFIDENTIALITY. CI HAS NO FURTHER INFORMATION. CONSTRUCTION DEPT. CONCERN.

Mike. I concur; to tell any details would disclose ID, as CI was only one working in the area at the time in question.
Sact

William A. Schu NOV 06 1985
MANAGER, ERT DATE

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

ERT ---

NSRS/ERT -----

NSRS ✓ -----

OTHERS (SPECIFY) -----

Testis
PreOP

Bruce J. Dugan 11/9/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50186

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

Priority: 1

Concern # XX-85-077-002

Category: 21

Confidentiality: _YES _NO (I&H)

Supervisor Notified: ___YES _X_NO

NUCLEAR SAFETY RELATED YES

Concern: SEQUOYAH - UNIT 1 & 2: NUMEROUS DESIGN DRAWINGS ARE INACCURATE AND DO NOT REFLECT AS BUILT CONDITION. SEVERAL FCRS WERE WRITTEN BUT NOT REFLECTED ON THE DESIGN DRAWINGS. CI HAS NO FURTHER INFORMATION. CONSTRUCTION DEPT. CONCERN.

William A. Schuman NOV 06 1985
MANAGER, ERT DATE

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

ERT ___

NSRS/ERT _____

NSRS - similar to IN-86-273-001

OTHERS (SPECIFY) _____

Document Control

Bruce J. Pfeffer 11/8/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50181

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

Priority: 1

Concern # XX-85-084-001

Category: 93

Confidentiality: YES NO (I&H)

Supervisor Notified: X YES NO

NUCLEAR SAFETY RELATED YES

Concern: QUESTIONABLE PRACTICES BY HEALTH PHYSICS @ SEQUOYAH IN 1982 LEAD TO POSSIBLE OVER EXPOSURE. H.P. WOULD RESPOND TO RADIATION ALARMS AND UNPLUG UNITS. DETAILS KNOWN TO QTC, WITHHELD DUE TO CONFIDENTIALITY. CONST. DEPT. CONCERN. C/I HAS NO FURTHER INFORMATION.

William A. Schum NOV 05 1985
MANAGER, ERT DATE

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

ERT

NSRS/ERT

NSRS ✓

OTHERS (SPECIFY) _____

Operations control

Bruce J. Peffer 11/8/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50181

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

Priority: 1

Concern # IN-85-085-002

Category: 39

Confidentiality: YES NO (I&H)

Supervisor Notified: X YES NO

NUCLEAR SAFETY RELATED YES

Concern: DUE TO POOR QUALITY OF WELDS ON PIPE SUPPORT LOCATED IN UNIT 1 SOUTH VALVE ROOM UNDER MAIN HEADER (HANGER # NOT KNOWN), C/I QUESTIONS HOW THESE WELDS PASSED Q.C. INSPECTION AND FEELS THE PAPERWORK (INSPECTION REPORTS) WAS FALSIFIED BY Q.C. INSPECTOR(S). C/I DOES NOT KNOW Q.C. INSPECTOR(S) INVOLVED. C/I COULD NOT PROVIDE ANY ADDITIONAL INFORMATION. CONSTRUCTION DEPT. CONCERN.

William S. Schu NOV-05 1985
MANAGER, ERT DATE

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

ERT

NSRS/ERT

NSRS ✓ 2646

OTHERS (SPECIFY) _____

*Welding
Workmanship*

Bruce L. Sigler 11/8/85
NSRS DATE

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50186

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

Priority: 1

Concern # XX-85-087-001

Category: 37

Confidentiality: YES NO (I&H)

Supervisor Notified: X YES NO

NUCLEAR SAFETY RELATED YES

Concern: SEQUOYAH UNIT 1 & 2: CONTAINMENT PAINT COATINGS (#295 AND #305) ARE NOT PROPERLY MAINTAINED. THE INTEGRITY OF THE COATINGS IS BEING ERODED & QUESTIONABLE. CI IS CONCERNED THAT THE PAINT WILL CURL & POP-UP AND CLOG THE DRAINS IN CASE OF A (LOCA) ACCIDENT WHEN THE TEMPERATURE AND PRESSURE BUILDS UP IN THE REACTOR. PAINT SPECIFICATIONS AND STANDARDS ARE NOT FOLLOWED, ESPECIALLY IN RECOATING OF #305. NUC POWER CONCERN. CI HAS NO FURTHER INFORMATION.

William S. Schu NOV 06 1985
MANAGER, ERT DATE

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

ERT ---

NSRS/ERT -----

NSRS ✓ -----

OTHERS (SPECIFY) -----

Operator's maintenance

Bruce J. Peffer 11/8/85
NSRS DATE

FSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50185

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

Priority: 1

Concern # XX-85-107-001

Category: 7

Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO

NUCLEAR SAFETY RELATED YES

Concern: BELLEFONTE - WELDING INSPECTORS AT BELLEFONTE DO NOT APPEAR TO BE KNOWLEDGEABLE ABOUT WELDING. CONSTRUCTION DEPT. CONCERN., CI HAS NO ADDITIONAL INFORMATION.

William A. Schu NOV 05 1985
MANAGER, ERT DATE

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

ERT ___

NSRS/ERT _____

NSRS _____

OTHERS (SPECIFY) _____

*welding
inspectors*

Bruce J. Siddle 4/8/85
NSRS DATE

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50187

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

Priority: 1

Concern # XX-85-110-001

Category: 33

Confidentiality: YES NO (I&H)

Supervisor Notified: X YES NO

NUCLEAR SAFETY RELATED YES

Concern: Bellefonte: Welding and NDE program corrective action, as identified in OEDC Quality Assurance Evaluation No. QAE-2, dated September 1980, may not have been implemented for Bellefonte; the same/uncorrected problems were found to exist years later, and may still exist today. CI has no additional information. Nuc Pwr dept concern.

William B. Schu NOV 06 1985
MANAGER, ERT DATE

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

ERT ---

NSRS/ERT -----

NSRS ✓ -----

OTHERS (SPECIFY) -----

*welding
Inspection*

Russell L. Diefen 11/9/85
NSRS DATE

may 16

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50186

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

Priority: 1

Concern # XX-85-113-001

Category: 5

Confidentiality: YES NO (I&H)

Supervisor Notified: YES X NO

NUCLEAR SAFETY RELATED YES

Concern: SEQUOYAH: TVA CORPORATE MANAGEMENT IS IN THE PROCESS OF DECENTRALIZING THE QUALITY AUDIT PROGRAM IN AN EFFORT TO REDUCE THE AUDIT PROGRAMS IMPACT ON THE STARTUP AND OPERATION OF THE NUCLEAR PLANTS AND ALSO TO INTIMIDATE AUDITOR PERSONNEL THUS SIGNIFICANTLY REDUCING THE EFFECTIVENESS OF TVA'S QUALITY VERIFICATION PROGRAM. NUCLEAR POWER CONCERN. CI HAS NO FURTHER INFORMATION.

William J. Schu NOV 06 1985
MANAGER, ERT DATE

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

ERT

NSRS/ERT

NSRS ✓

OTHERS (SPECIFY) _____

DA
Effect

Bruce L. Dwyer
NSRS DATE

May 16

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50186

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

Priority: 1

Concern # XX-85-113-002

Category: 5

Confidentiality: _YES _NO (I&H)

Supervisor Notified: ___YES _X_NO

NUCLEAR SAFETY RELATED YES

Concern: BELLEFONTE: TVA CORPORATE MANAGEMENT IS IN THE PROCESS OF DECENTRALIZING THE QUALITY AUDIT PROGRAM IN AN EFFORT TO REDUCE THE AUDIT PROGRAMS IMPACT ON THE STARTUP AND OPERATION OF THE NUCLEAR PLANTS AND ALSO TO INTIMIDATE AUDITOR PERSONNEL THUS SIGNIFICANTLY REDUCING THE EFFECTIVENESS OF TVA'S QUALITY VERIFICATION PROGRAM. NUCLEAR POWER CONCERN. CI HAS NO FURTHER INFORMATION.

William J. Schenck NOV 06 1985
MANAGER, ERT DATE

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

ERT ___

NSRS/ERT _____

NSRS _____

OTHERS (SPECIFY) _____

QA
Effect

Bruce L. Seifman 11/8/85
NSRS DATE

May 16

P5R

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50186

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

Priority: 1

Concern # XX-85-113-003

Category: 5

Confidentiality: _YES _NO (I&H)

Supervisor Notified: ___YES _X_NO

NUCLEAR SAFETY RELATED YES

Concern: BROWNS FERRY: TVA CORPORATE MANAGEMENT IS IN THE PROCESS OF DECENTRALIZING THE QUALITY AUDIT PROGRAM IN AN EFFORT TO REDUCE THE AUDIT PROGRAMS IMPACT ON THE STARTUP AND OPERATION OF THE NUCLEAR PLANTS AND ALSO TO INTIMIDATE AUDITOR PERSONNEL THUS SIGNIFICANTLY REDUCING THE EFFECTIVENESS OF TVA'S QUALITY VERIFICATION PROGRAM. NUCLEAR POWER CONCERN. CI HAS NO FURTHER INFORMATION.

William D. Schum NOV 06 1985
MANAGER, ERT DATE

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

ERT ---

NSRS/ERT -----

NSRS similar to WI-85-086-001

OTHERS (SPECIFY) -----

QA
effort

Bruce J. Seifert 11/2/85
NSRS DATE

UPC

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

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

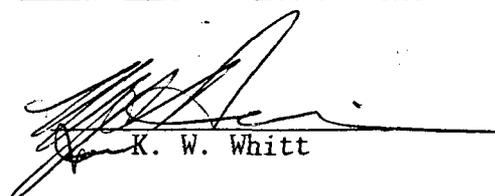
FROM : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

DATE : NOV 12 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-85-039-002
- IN-85-160-001
- IN-85-850-002
- IN-85-897-001
- WI-85-084-001



K. W. Whitt

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

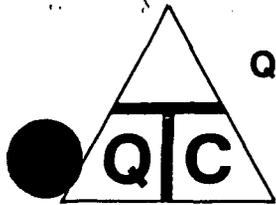
_____ Name _____ Date _____

Attachments

- cc: H. N. Culver, W12A19 C-K
- E. R. Ennis, WBN
- W. F. Willis, W12B16 C-K (4)

REPO7:G4





**QUALITY
TECHNOLOGY
COMPANY**

P.O. BOX 600
Sweetwater, TN
37874

ERT INVESTIGATION REPORT

PAGE 1 OF 3

CONCERN NO: IN-85-039-002

CONCERN: Thermal analysis for WBN Unit 1 has been written off completely for temperatures between 40° F - 120° F.

INVESTIGATION

PERFORMED BY: W. M. Kemp, Jr and A. G. Reddy

DETAILS

PERSONNEL CONTACTED: Confidential

DOCUMENTS REVIEWED:

ASME Section III NC/ND 3600 Piping Design
Alternate Analysis Requirements OE-Sep-82-18
Memorandum SWP 82-0930-19
ANSI N45.2 1971, ANSI N45.2.11 1974

SUMMARY OF INVESTIGATION:

This concern is substantiated.

The purpose of this investigation was to establish if thermal stress was addressed and documented for temperature ranges of 40° F to 120° F per ASME Section III NC/ND 3600. There is no formal calculations documented for this temperature range.

FINDINGS:

ASME Section III, Subsection NC/ND 3600, addresses the following:

- 1) Allowable stresses and other stress limits
- 2) Pressure-temperature rating for piping components
- 3) Limits of calculated stresses due to loads & thermal expansion
- 4) Table I.7.1- Allowable stress values
Table I.5.0- Expansion & Flexibility

For Class 2 & 3 piping, ASME Code Section III does not address specific problems regarding piping with a temperature range of 20° F to 120° F. The code has established coefficient tables for the

CONCERN NO: IN-85-039-002

DETAILS, continued

FINDINGS, continued

expansion of metals and allowable stresses for temperatures between 70° F and 800° F. It is up to the engineer to evaluate the systems for temperatures between 20° F and 120° F. However this shall satisfy NC/ND 3672 and NC/ND 3652.3 in all cases.

Alternate Analysis - OE Sep 82-18
Appendix "H" Thermal Guidance, addresses the following:

Section H.2.0 states: "Thermal evaluation between 20° F to 120° F piping systems in this range require no formal thermal analysis and are considered to impose negligible thermal loads up on related supports. However the effects must be considered through an informal evaluation to prevent over stressing or over loading".

Attachment 10 to OE Sep 82-18 gives procedural guidelines with sketches as to what is to be done for systems with 20° F to 120° F range.

Policy memo SWP 82-0930-019 states: "The philosophy developed and implemented for WBN (and SQN) was to neglect thermal expansion for this piping. I have been unable to track the exact origin of this philosophy."

OE SEP 82-18 states: "Thermal considerations were often addressed by analysis, but not required when operating temperatures were between 20° F to 120° F."

Memo SWP 82-0930-019 waited for conclusions to be made by service contractors Gilbert & United Engineers. The results of their reviews could not be located by cognizant personnel.

The following calculations packages were reviewed

1. N3-67-AO2A-WBP-840813008
2. N3-67-A03A-WBP-831223075
3. N3-67-A04A-WBP-840813003
4. 62090-WBP-840709151

In calculation Package 1, it is marked N/A on Page 16 for the subject: "Thermal load cases were performed for both Thermal and Thermal range".

CONCERN NO: IN-85-039-002

FINDINGS, continued

It is stated in Packages 2,3 & 4 that thermal range was considered, however there are no calculations documented to support the thermal consideration or no valid acceptable statements to that effect especially in the 20° F to 120° F range.

CONCLUSION:

This concern is substantiated.

As in the Investigation Reports IN-85-039-001 and IN-85-038-001, there is a lack of documentation verifying that the thermal range was considered. There is no documentation showing any evidence of either formal calculations or valid explanation to support TVA's position that the thermal range effects were considered and found negligible. This leaves the thermal considerations indeterminate and in violation of ASME code, Section III, Thermal Effects.

Report reviewed & Accepted:
[Signature] 11/8/85
NSAS

Refer to IN 85-038-001 or IN 85-039-001 for Resolution - No additional line response necessary at this time.

PREPARED BY: *Govind Reddy* 11-1-85
DATE

REVIEWED BY *O. P. Thero* 11/1/85
DATE

[Signature]
11/8/85

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 perform its intended safety function.
No 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 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:

OD Sheis 365-4464
ERT Group Manager Phone Ext.

MP Scher 365-4414
ERT Project Manager Phone Ext.

Acknowledgment of receipt by NSRS

[Signature] Date 1/8/85 Time 0854
Signed

TENNESSEE VALLEY AUTHORITY
NUCLEAR SAFETY REVIEW STAFF
NSRS INVESTIGATION NO. I-85-520-WBN
EMPLOYEE CONCERN IN-85-160-001
MILESTONE 1 - FUEL LOAD

SUBJECT: UNREPORTED CRANE FIRE - POLAR CRANE 1

DATES OF INVESTIGATION: October 14-November 6, 1985

INVESTIGATOR: J. L. Croes 11/2/85
J. L. Croes Date

REVIEWED BY: P. B. Border 11/7/85
P. B. Border Date

APPROVED BY: M. A. Harrison 11/2/85
M. A. Harrison Date

BACKGROUND

A concern was received by Quality Technology Company Employee Response Team which stated:

Sometime between 12-83 and 3-84 the hoist brakes of the Unit 1 polar crane caught fire because of improper adjustment by unqualified worker (known). The crane operator (known) called for help, but a mechanical GF and an electrical GF ran away rather than assist. The crane operator (known) was able to extinguish the fire. Later, the general foreman failed to report this incident to safety, in order to cover up their actions preceding and during the fire. CI had no more specifics.

II. SCOPE

A personal inspection of the polar crane in Unit 1 was made as well as an interview with several of the persons involved to evaluate the concern of record.

III. SUMMARY OF FINDINGS

A. Applicable Documents

Broadline Corporation Crane Manual, Contract 86129

B. Findings

The only incident that occurred near the timeframe stated in the concern occurred on 10/8/83 while the polar crane in Unit 1 was lifting the internal lift rig. The foreman and general foreman were observing the lift when the crane operator radioed to the general foreman that one of the two brakes on the main hoist had become overheated and was smoking. The crane operator then proceeded to the top of the polar crane with a fire extinguisher while the foreman and general foreman proceeded up the stairs from the operating floor to the polar crane to assist the crane operator. The crane operator shut down the crane and went to the top of the crane and found the brake drum glowing cherry red and the lining on the brake smoking; but there was no fire, so the fire extinguisher was not used. The incident occurred on a Friday, so the decision was made to take the crane out of service and have a TVA crane specialist from Muscle Shoals evaluate the problem.

Maintenance Request (MR) A-039492 was written on 10/10/83 to inspect and repair as necessary.

The crane specialist arrived on 10/12/83, identified the problems, and assisted with the repairs to the crane which was checked out and returned to service on 10/14/83.

According to the TVA crane specialist, adjustments to the crane brakes are a simple procedure and do not require any particular qualifications. Brake adjustment was not the cause of the overheating condition. Based on the information in the MR and the interview with the crane specialist, the cause of the overheating condition was a warped shaft on which the brake drum was mounted and which was turning in an overspeed condition. The DC motor in the crane is designed to operate at a speed of 2340 rpm (based on specifications furnished by General Electric) with a 115 percent "suicide" maximum speed allowed (2691 rpm).

By moving the clamps on the motor control resistors, the speed of the motor at the time of the overheating brakes was determined to be 3300 rpm in the hook-moving-up mode, and 3400 rpm in the hook-moving-down mode. These speeds were measured with a strobe tachometer by the crane specialist. This speed exceeds the recommended operating speed by 45 percent. This higher speed caused the vibration of the brake drum to be much greater and allowed much greater temperatures to build on the brake pads. It was never determined who changed the setting to allow the crane to run in the overspeed mode.

Since there was no actual fire and since there was no fire extinguisher discharged, there was no requirement to notify Safety of the incident.

The foreman and general foreman ran to the overheated (smoking) brake, not away from the scene.

Watts Bar now has a crane specialist onsite who is responsible for crane inspections and followup corrective action.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

1. There was a lack of control over the maintenance and operation of the polar crane at the time of the incident.
2. The controls and overspeed limiter of the crane had been adjusted to allow the crane to operate 45 percent faster than the recommended speed. This could have damaged the gears on other parts of the crane. (A postincident inspection revealed no damage to the crane other than the brake.) The cause of the brake overheating was not from improper adjustment but from the crane being operated in the overspeed condition with a warped shaft on the brake drum.
3. There was no fire on the crane. The incident was not reported since there was no requirement to report an overheated brake on the crane.

4. No special training is required to adjust the crane brakes.
5. The incident as the concerned individual reported could not be substantiated; however, an incident did take place which had potentially serious consequences. This incident and other concerns of TVA management regarding TVA cranes have caused a realignment of responsibilities for the crane maintenance and inspection program.

B. Recommendations

None.

TENNESSEE VALLEY AUTHORITY
NUCLEAR SAFETY REVIEW STAFF
NSRS INVESTIGATION REPORT NO. I-85-282-WBN
EMPLOYEE CONCERN IN-85-850-002
MILESTONE 1

SUBJECT: CABLE PULLS WITHOUT QC INSPECTION

DATES OF INVESTIGATION: September 24-October 24, 1985

INVESTIGATOR:

John Croes
J. L. Croes

11/7/85
Date

REVIEWED BY:

Paul B. Border
P. B. Border

11/7/85
Date

APPROVED BY:

M. A. Harrison
M. A. Harrison

11/7/85
Date

BACKGROUND

A concern was received by Quality Technology Company Employee Response Team that stated:

For the past month, emphasis has been placed on Quantity rather than Quality. Example: Cable was pulled thru conduits in the North/South Steam Valve Room without being approved by Q.A. Occurred Easter weekend 1985. Management approved work. (Names/Details known to QTC.)

II. SCOPE

A review of all the work performed on Unit 1 over the Easter weekend was made. Workplan 5220 was the only work identified where cable pulling was performed that weekend. Interviews were conducted with the cognizant QC and engineering personnel. A review of applicable requirements and drawings was performed.

III. SUMMARY OF FINDINGS

A. Applicable Procedural Requirements

1. General Construction Specification G-38, "Installing Insulated Cables Rated up to 15,000 Volts," Revision 5
2. Watts Bar Nuclear Plant Quality Control Instruction, QCI-3.05, "Cable Installation," Revision 7
3. Watts Bar Nuclear Plant Quality Control Procedure, QCP-3.05, "Cable Installation," Revision 22

B. Findings

After a review of all work performed on Unit 1 over Easter weekend (April 6, 1985), Workplan 5220 was isolated as the only workplan that involved cable pulling. Discussions with the cognizant engineer revealed that there was cable pulled over the Easter weekend.

A more detailed review of Workplan 5220 and an interview with the QC inspector and the cognizant engineer revealed the following information.

1. The cable work involved removing the original cable (O-4PL-61-362) for aging tests in order to qualify a spool of cable to 1E equipment qualifications.
2. The new cable (which is 1E qualified) was pulled from the ice condenser refrigerator unit E disconnect switch (O-SW-61-E) through approximately 50 feet of conduit (PLC-395) to the compressor E starter (O-STR-61-42D). This equipment is located in the additional equipment room.

3. The cables pulled were for a three-phase application, there were three wires pulled, and there were no other cables already in the conduit.
4. The cables are not safety related, but there was QC coverage for the cable pull requested by the cognizant engineer who was unavailable to witness the pull.
5. An interview with the QC inspector and the cognizant engineer indicates that there was no problem with the cable pull and the job went smoothly.
6. A review of the QC inspection reports revealed that there were no problems with the work.
7. A review of 13 additional workplans involving cable pulls and various electrical work performed from February 1985 to April 1985 were reviewed and revealed no violations of QC inspection procedures. All QC hold points were signed off where required. This represents approximately 36 percent of the electrical workplans performed by the Electrical Modifications Group during the period of January 1985 through June 1985, and approximately 62 percent of the workplans performed or approved for work during the months of March and April 1985 which was in the timeframe around Easter weekend.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

Based on the information reviewed and the interviews conducted, this concern was not substantiated.

Based on the requirements of QCI-3.05 this cable pull did not require QC inspection since they were not safety-related cables and do not require 1-E qualification. The cognizant engineer can sign for the QC inspection on nonsafety-related cable pulls.

Recommendations

None.

TENNESSEE VALLEY AUTHORITY
NUCLEAR SAFETY REVIEW STAFF
NSRS INVESTIGATION REPORT NO. I-85-526-WBN
EMPLOYEE CONCERN IN-85-897-001
MILESTONE 1 - FUEL LOAD

SUBJECT: CRAFTSMAN TRAINING ON INSTALLATION OF FIRE STOPS
AND SEALS

DATES OF INVESTIGATION: October 17-November 1, 1985

INVESTIGATOR: A. M. Gentry 11/7/85
A. M. Gentry Date

REVIEWED BY: Paul B. Border 11/7/85
P. B. Border Date

APPROVED BY: M. A. Harrison 11/7/85
M. A. Harrison Date

BACKGROUND

NSRS has investigated Employee Concern IN-85-897-001 which the Quality Technology Company Employee Response Team identified during the Watts Bar Employee Concern Program. The concern stated:

Craftsmen are not adequately trained to install fire stops and pressure seals. QC inspectors had to instruct the craftsmen as to how to install. This is an on going generic concern for the last 6 years in Unit 1 & 2. Construction dept. concern.

II. SCOPE

The investigation was conducted by reviewing the applicable requirements, commitments, and procedures related to the installation of fire stops and pressure seals, conducting interviews of personnel involved in fire stop and seal installation, and observing fire stop and seal installation in the field.

III. SUMMARY OF FINDINGS

A. Applicable Requirements, Commitments, and Procedures

1. Construction Procedure WBNP-QCP-1.55, Seals, Fire Stops, and Cable Coatings
2. Drawings 47W472-7, R5; 47W472-8, R5; 45W883-1, R14; 45W883-2, R13; 47W470-10, R17

B. A review of the applicable drawings and procedure indicated that the requirements for sealing material storage, preparation and sampling, cleanliness and damage, application, and acceptance criteria are adequately described.

C. Interviews with personnel involved with seal installation indicated that personnel were knowledgeable of seal installation requirements and methods. Training has been conducted to the extent that all personnel installing seals have been trained in performing the work. While conducting interviews, the investigator became aware of the identity of the individual who had expressed the concern. The concerned individual (CI) voluntarily told the investigator that during the initial QTC interview the CI did not have any particular concern to express. At QTC's insistence the CI finally related what was called "a problem at the time, approximately 5-6 years ago, which management was aware of, and has since been corrected."

D. On 10/21/85, seal installations were observed in Unit 2. Craftsmen displayed thorough knowledge of their work and proceeded in accordance with program requirements. It was noted that a single crew is presently doing all seal installations in the plant and that the crew is comprised of individuals who have been doing this work for several years.

- E. A review of nonconformances and inspection rejection notices written in 1985 did not indicate any problems related to fire stop and seal installation.
- F. A formalized craft training effort was initiated in May 1985. This effort established a craft procedures and training unit, designated specific training instructors, documented the program through training module lesson plans, required documentation of training sessions, and included subjects applicable to current work activities. It was verified that a fire stops and and seals training module had been prepared. A review of all training modules indicated that current activities are being addressed.

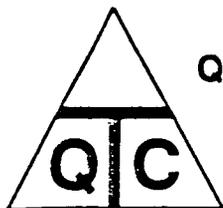
IV. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The employee concern is substantiated since QC inspectors were involved in the initial training of craftsmen on the installation of fire stops and seals several years ago. The concern is mitigated, however, by the fact that the training was effective, there was no indication of nonconforming conditions, and a formalized training program has been instituted.

B. Recommendations

None.



QUALITY
TECHNOLOGY
COMPANY

P.O. BOX 600

Sweetwater, TN 37874

(615)365-4414

ERT INVESTIGATION REPORT

PAGE 1 OF 5

CONCERN NO: WI-85-084-001

CONCERN: CI reported that a welder, whose certifications had expired, was allowed to check out rod from rod shack. CI expressed that this indicates that the "new" welder recertification program still does not work.

INVESTIGATION

PERFORMED BY: W. M. Kemp, Jr.

DETAILS

PERSONNEL CONTACTED: Confidential

DOCUMENTS REVIEWED:

QCI 4.02 Rev. 6 Welder and Welding Operator Performance
Qualification
QCI 4.01 Rev. 5 Storage, Issue and Control of Welding Materials
Stop Work Authority #25 issued 8/23/85
Memorandum RIMS #C01 84 0903 004
NCR 6277 Welder Recertification Discrepancies issued 8/26/85
Welding Material requisition for 10/23/85
Computer Readout for Welder Qualifications
NCR 6419 issued 10/28/85 Closed 10/29/85
Statement from welder dated 10/24/85
Welder Performance Qualification Record Test #SM-4-B-3-H
Recertification Test #11055

SUMMARY OF INVESTIGATION:

This concern was issued to ERT by NSRS on 10/25/85, and was immediately investigated. It was determined that the incident did in fact occur on 10/23/85 and the concern is substantiated. However, immediate corrective action was taken by the responsible departments to identify and control the non-conforming condition.

CONCERN NO: WI-85-084-001

DETAILS, continued

FINDINGS

The Findings Section of this report is broken down into the following sections:

- (A) Background and Research
- (B) Sequence of Events
- (C) Root Cause
- (D) Corrective Action taken

(A) Background and Research:

Stop Work Authority #25 was issued on 8/23/85 with the direction to conduct the recertification process in accordance with the requirements stipulated in Memorandum COI-85-0903-004.

Memorandum COI-85-0903-004 states under corrective actions: "All initial welders certification older than 90 days have been rescinded (approximately 30 welders have been initially certified in the 90 days and their certifications have been left in order)".

The initial certification of the welder in question was for shielded metal arc and was dated 7/18/85 which falls within the 90 day time frame addressed in the stop work authority.

Per QCI 4.02, Rev. 6, para 6.4, allows 3 months until renewal is required, (i.e., if a welder certifies on 7/18/85 he would be due to recertify on 10/16/85).

QCI 4.02 is being revised at this time, and the "3 months" will be changed to "90 days" for computerization purposes.

QCI 4.01 Rev. 5, para. 6.53, does not address how the control center (Rod Shack) attendant verifies the welders certification (qualification) is current when the filler metal is issued.

This was discussed with WEU on 10/28/85 and is being taken under consideration.

CONCERN NO: WI-85-084-001

DETAILS, continued

FINDINGS, continued

(B) SEQUENCE OF EVENTS:

10/23/85

Rod Shack #2 Elev. 713 Aux. Building.

7:30/8:00 A.M. - Rod Shack attendant misread the welding certification sheet (computer printout), and issued 20 pieces of E-7018 rod to the welder in question.

10:00/10:30 - The Rod Shack attendant received call from WQC, who stated that the welder's certifications had expired, and had questioned whether weld rod had been issued to the welder? The Rod Shack attendant checked the issue slips and the computer readout and had determined that weld rod had been issued and that the computer sheet had been misread.

11:10 A.M. - WQC personnel located the foreman and the welder. The foreman verified that the welder had not welded between 10/17/85 and 10/23/85. There was an issue slip from 10/7/85 that the welder had been issued E-7018 rod and had welded on support 2041-W496-7-14.

12:15 P.M. - The welder returned the 20 pieces of weld rod and had stated he had not conducted any welding. This was verified by his foreman.

10/25/85

7:30 P.M. - Weld test was conducted to renew the qualifications of the questioned welder. Test SM-RQ, coupon #11055 passed the bend test, and the welder was recertified to SMAW (Certification was not back dated).

10/28/85

NCR 6419 was issued by WQC which addressed these events. This NCR was subsequently closed on 10/29/85. The NCR was closed based on the facts that 1) the welder did not weld after his certification expired, and 2) the welder was recertified and passed his test on 10/25/85.

CONCERN NO: WI-85-084-001

DETAILS, continued

FINDINGS, continued

(C) ROOT CAUSES:

Based on the interviews of personnel directly involved and documentation, it can be determined that this is 1) an isolated incident and 2) an oversight when checking the computer log at the time of rod issuance to the welder.

(D) CORRECTIVE ACTION TAKEN:

- (1) When the problem was addressed the responsible personnel were notified and corrective action was taken.
- (2) Welding material requisition slips were reviewed from 10/17/85 to 10/22/85 and it was verified that the welder had not withdrawn any weld rod during that time span.
- (3) Welding material requisition for 10/23/85 showed 20 pieces of E-7018 issued, and 20 pieces returned.
- (4) Welder was retested on 10/25/85 and passed and his certifications were renewed. There was a rod slip found that was issued on 10/7/85, verified that the welder had welded within the past 3 months and it is traceable to a specific item.
- (5) NCR 6419 was issued on 10/28/85 by WQC and closed on 10/29/85.
- (6) Statements from the welder attesting to the fact that he did not weld in the time span of 10/17/85 to 10/23/85 and a statement from WQC as to the reconstruction of the rod shack attendant supports this NCR.
- (7) The computer log will have a "line" between each welder to preclude an oversight when checking certifications.

SUMMARY:

This concern was substantiated. However, immediate corrective action to identify the condition, and control the condition stopped the non-conforming condition from impacting hardware.

CONCERN NO: WI-85-084-001

DETAILS, continued

SUMMARY, continued

The rod shack attendents had been trained to check the computer log, however, QCI 4.01 does not state how the rod shack attendents will assure that a welder certification is verified as valid. This is being taken under consideraion by WEU.

It is noted that the welder had welded on 10/7/85 and the issue slip verifying this was given to the General Foreman by the Foreman. The issue slip remained on the General Foreman's desk until 10/24/85 when it was sent to WEU for certificate renewal and updating. It is WEU's position that if the issue slips are not received and a welder certification expires, the welder will be retested. Issue slips received after the fact will not be utilized for the purpose of backdating. The Foreman having knowledge of the above had complied with QCI 4.02 however, the issue slip had not been forwarded to WEU as required to allow updating. The Foreman assumed the welder had been updated.

*Report Reviewed & Accepted:
No additional action is
recommended.* *[Signature]* *11/12/85*
NRS

PREPARED BY *Tom Kempf* *11/8/85*
DATE

REVIEWED BY *[Signature]* *11/8/85*
DATE

FINAL

REQUEST FOR REPORTABILITY EVALUATION

- 1. Request No. WI-85-084-001 (ERT Concern No.) (ID No., if reported)
- 2. Identification of Item Involved: Welder Certification (Nomenclature, system, manuf., SN, Model, etc.)
- 3. Description of Problem (Attach related documents, photos, sketches, etc.)
CI reported that a welder, whose certifications had expired, was allowed to check out rods from rod shack. CI expressed that this indicates that the "new" welder recertification program still does not work.

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 ___ If Yes, Explain: _____

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 ___ If Yes, Explain: _____

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 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 perform its intended safety function.

No Yes If Yes, Explain: _____

OR

E. This deficiency represents a significant deviation from 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 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: [Signature] 365-9416
ERT Group Manager Phone Ext.

[Signature] 365-4416
ERT Project Manager Phone Ext.

Acknowledgment of receipt by NSRS
[Signature]
Signed

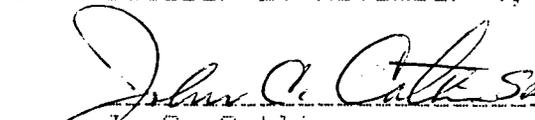
Date 11/12/85 Time 1451

TENNESSEE VALLEY AUTHORITY
NUCLEAR SAFETY REVIEW STAFF
NSRS INVESTIGATION REPORT NO. I-85-541-WBN
EMPLOYEE CONCERN EX-85-039-003
MILESTONE 6

SUBJECT: DESIGN ADEQUACY OF SEISMIC ANCHORS

DATES OF INVESTIGATION: October 29-November 4, 1985

INVESTIGATOR:


J. C. Catlin

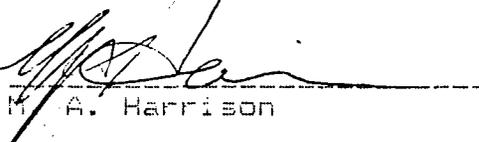
11-7-85
Date

REVIEWED BY:


P. B. Border

11/7/85
Date

APPROVED BY:


M. A. Harrison

11/2/85
Date

BACKGROUND

An investigation was conducted to determine the validity of an employee concern received by Quality Technology Company (QTC) on September 20, 1985. The concern was in regard to welding problems with seismic pipe anchors. The concern stated: "A design deficiency has a 'wrong weld' required on box hangers which, if performed per design, causes the weld to run into the pipe."

II. SCOPE

The scope of the investigation included determination of typical drawings applicable, whether any other action had been taken with regard to the problem, and verification of the observation noted in the concern.

III. SUMMARY OF FINDINGS

A. Requirements and Commitments

1. Codes' and Standards' Requirements (in effect at the time of design and construction)
 - a. 10CFR50.55a, Paragraph (a)(1), Structures
 - b. 10CFR100, Appendix A, Seismic Requirements
 - c. American Welding Society - Structural Welding Code AWS D1.1-75
2. TVA Requirements
 - a. G-29C Process Specification O.C.1.1, Welding of Structures
 - b. TVA Drawing 47B100, Seismic Category I Structures

B. Discussion

QTC was contacted for additional information regarding this concern. They identified the problem as being associated with typical seismic anchors. They also confirmed that the concerned individual (CI) stated the weld ran into the process pipe rather than merely into the anchor box.

Further investigation showed that the terminology of "runs into" is misleading. The proper interpretation is that the weld makes physical contact with and fuses to the outside of the process pipe rather than running into the pipe interior.

C. Findings

1. A series of memoranda spanning the time between August 12, 1985 and October 22, 1985 was written which confirmed that a problem existed (Wadewitz to Coan; Coan to Wadewitz; Ennis to Coan).
2. NCR 6264 RO was generated and issued on August 20, 1985 in relation to this problem. The NCR states:

"Item 1 - Some welds on rear plates for box anchors containing stainless steel (SS) plate with stainless steel pipe and carbon steel (CS) plate with carbon steel pipe have been held back up to 1/2" from the pipe."

"Item 2 - Some welds on CS rear plates to CS pipe and SS rear plate to SS pipe were attempted to be made in accordance with the drawing. This resulted in the weld actually fusing to the pipe."

"Apparent Cause - Item 1 - Misapplication of the notes on drawings 47B100-1 and -3 that allow welds on CS rear plate to SS pipe to be stopped short of the pipe."

"Apparent Cause - Item 2 - Physical impossibility to perform indicated weld operation without fusing to the pipe."

3. Corrective action for Item 1 of the NCR was already in progress when this report was issued.
4. Corrective action for Item 2 of the NCR was still under consideration when this report was issued.
5. NCR 6264, RO, or corrective action suggested did not address applicability to other TVA plants or other generic implications of the problem.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

1. The objective evidence substantiated the observed allegation of the employee concern.
2. This problem had been identified, documented, and reported in accordance with applicable procedures. Corrective action was already in progress at the time this report was issued.

B. Recommendations

I-85-541-WBN-01 - Generic Implications of Box Anchor Design Problem

Check for generic implications on design of box anchors for other TVA nuclear plants.

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

NRD

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 12 1985

SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL

Transmitted herein is NSRS Report No. I-85-248-WBN

Subject BOLT REPLACEMENT WELDING TO EMBEDDED PLATES

Concern No. IN-85-109-002

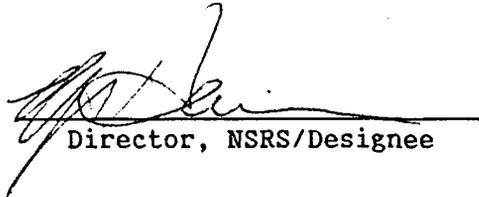
and associated recommendations for your action/disposition.

It is requested that you respond to this report and the attached

recommendations by December 10, 1985. Should you have any

questions, please contact J. H. Kincaid at telephone 3701-WBN.

Recommend Reportability Determination: Yes X No


Director, NSRS/Designee

JHK: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-85-248-WBN
Subject BOLT REPLACEMENT WELDING TO EMBEDDED PLATES for
action/disposition.

Signature

Date



0097U

TENNESSEE VALLEY AUTHORITY
NUCLEAR SAFETY REVIEW STAFF
NSRS INVESTIGATION REPORT NO. I-85-248-WBN
EMPLOYEE CONCERN IN-85-109-002
MILESTONE 2

SUBJECT: BOLT REPLACEMENT WELDING TO EMBEDDED PLATES

DATES OF INVESTIGATION: September 18-October 4, 1985

LEAD INVESTIGATOR: J. H. Kincaid 11/6/85
J. H. Kincaid Date

INVESTIGATOR: C. R. Elledge 11/6/85
C. R. Elledge Date

REVIEWED BY: P. R. Washer 11/6/85
P. R. Washer Date

APPROVED BY: M. A. Harrison 11/7/85
M. A. Harrison Date

BACKGROUND

NSRS has investigated employee concern IN-85-109-002 which Quality Technology Company identified during the Watts Bar Employee Concern Program. The concern was worded:

Bolts replaced by welding to embedded plates. The CI is of the opinion that the weld should be analyzed for carrying the entire load (Auxiliary Building, elevation 737' or 757', Unit 1 and 2). Two internal memos (correspondents known) describe this condition. Time frame was July 1983.

II. SCOPE

The issue in the stated concern was determined to be that baseplate bolt replacement welds were not sized using valid analysis assumptions. The following pertinent sources of information were reviewed:

- A. NCR WBN SWP 8273
- B. EN DES Calculations, "Evaluation of NCR WBN SWP 8273" (WBF 830914 230)
- C. Drawing 47A050-10 R7

In addition, a number of engineers were contacted by phone and interviewed.

The internal memos which were mentioned by the CI as describing the condition were not identified during the investigation. Some employees interviewed indicated that some informal notes had been written but were not retrievable. The investigation was then conducted based on the stated concern without depending on the content of informal engineering memoranda.

III. FINDINGS

NCR 8273 was issued because general note 3 on TVA drawing 47A050-1T allowed a baseplate anchor bolt to be replaced by 2 inches of 5/16-inch fillet weld without regard to bolt type or size when the baseplate overlapped an embedded plate. It was determined that the service load capacity of 1-1/4-inch diameter wedge bolts and anchors with equal or greater capacity exceeds the capacity of a 2-inch long, 5/16-inch fillet weld which was allowed by general note 3 on TVA drawing 47A050-1T. To alleviate this condition and prevent recurrence, the note was changed to discontinue use of the note for bolts 1 inch and larger in diameter. Welds had been substituted for anchor bolts on five supports with bolts 1 inch and larger. The as-built configuration was evaluated by analysis and found to be adequate. Weld replacement for the 1-inch-and-larger bolts must now be approved under a Field Change Request (FCR) which requires a detailed review.

EN DES calculations performed to evaluate weld size for the 47A050-1Q drawing notes were based on the weld having equivalent load capacity to the bolt it replaced. The bolt capacity used was that established for bolting baseplates to concrete. However, welding a portion of a baseplate to an embedded plate will cause a load redistribution toward the weld because the weld-connection mechanism is stiffer and has no installation clearances inherent in the bolted joint.

IV. CONCLUSION AND RECOMMENDATIONS

A. Conclusions

The CI concern with analysis assumptions was substantiated since the weld will carry a larger share of the load than the bolt it replaced. The investigation effort has not substantiated that the weld should be analyzed to carry the entire load in both shear and tension although that analysis approach would be the most conservative.

B. Recommendation

I-85-248-WBN-Q1 - Verification of Weld Adequacy

Verify by analysis that bolt-replacement welds are adequate to accommodate the shift in load distribution in cases where surface-mounted baseplates partially overlap embedded plates. This verification should justify the generic 47A050 drawing notes and the current analysis techniques used when an FCR is required for welding of a baseplate to an embedded plate. The verification analysis should include worst-case situations.

NRC

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 12 1985**

SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL

Transmitted herein is NSRS Report No. I-85-246-WBN

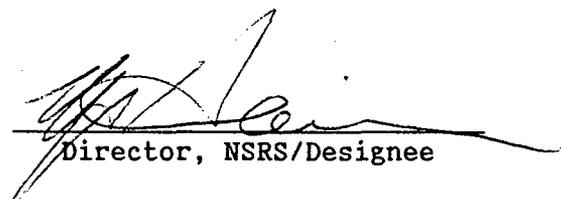
Subject SUBSTANDARD WEAK CONCRETE - UNIT 1

Concern No. IN-85-439-006

and associated recommendations for your action/disposition.

It is requested that you respond to this report and the attached recommendations by December 10, 1985. Should you have any questions, please contact M. A. Koltowich at telephone 3699-WBN.

Recommend Reportability Determination: Yes X No



Director, NSRS/Designee

MAK: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-85-246-WBN
 Subject SUBSTANDARD WEAK CONCRETE - UNIT 1 for action/disposition.

Signature

Date



TENNESSEE VALLEY AUTHORITY
NUCLEAR SAFETY REVIEW STAFF
NSRS INVESTIGATION REPORT NO. I-85-246-WBN
EMPLOYEE CONCERN IN-85-439-006
MILESTONE 2 - CRITICALITY.

SUBJECT: SUBSTANDARD WEAK CONCRETE UNIT 1, ELEVATION 676'

DATES OF INVESTIGATION: September 27-October 18, 1985

LEAD INVESTIGATOR:

Mary Anne Koltowich
M. A. Koltowich

11/7/85
Date

INVESTIGATOR:

Paul K. Howard
P. K. Howard

11/7/85
Date

REVIEWED BY:

P. R. Washer
P. R. Washer

11/7/85
Date

APPROVED BY:

M. A. Harrison
M. A. Harrison

11/7/85
Date

BACKGROUND

NSRS has investigated employee concern IN-85-439-006 which the Quality Technology Company (QTC) identified during the Watts Bar Employee Concern Program. The concern is worded:

Sub-standard, weak concrete reported to management but nothing done. EG., Unit 1 676' ele. by stairway--wall has entirely "rotten" concrete. (Bldg. not known)

II. SCOPE

The scope of the investigation was determined from the stated concern to be that substandard concrete was reported to management, but no action was subsequently taken; e.g., Unit 1, auxiliary building, elevation 676' by stairway. The activities performed by NSRS during this investigation are listed below and were conducted in conjunction with NSRS Investigation Report No. I-85-291-WBN.

A. Review of Office of Construction (OC) WBN plant procedures including:

1. WBN-QCP-1.14, "Inspection and Testing of Bolt Anchors Set in Hardened Concrete and Control of Attachments to Embedded Features"
2. WBN-QCP-1.47, "Concrete/Grout Preplacement Inspection"
3. WBN-QCP-2.02, "Concrete Placement and Documentation"
4. WBN-QCP-4.23, "Installation Inspection and Documentation Requirements for Seismic Supports"

B. Review of TVA commitments and requirements, including:

1. Final Safety Analysis Report (FSAR)-WBN, Section 3.8, "Design of Category I Structures"
2. American Concrete Institute (ACI) 304-73, "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete"
3. TVA General Construction Specification G-2, "Plain and Reinforced Concrete"
4. TVA General Construction Specification G-34, "Repair of Concrete"

C. Interviews with site personnel associated with concrete placement, curing, and documentation practices.

D. Review of documentation/drawings including:

1. Concrete Pour Designation and Progress Chart, Shield Walls Elev. 674-690±, Auxiliary Building Units 1 and 2
2. TVA Drawings 41N10058-1 and 41N366-1
3. Two "Concrete Pour Cards" (WBN-QCF-2.02)
4. Three "Concrete Cylinder Data Sheets" (WBN-QCF-2.02)
5. One "Form and Support Removal" form (WBN-QCF-2.02)
6. Four "Expansion Anchor Test Data" reports (WBN-QCF-4.23) and four "Expansion Shell Anchor Test Summary" records (WBN-QCF-1.14)

E. Testing of in-place concrete with Singleton Materials Engineering Laboratory (SME) personnel.

III. SUMMARY OF FINDINGS

Based upon review of the applicable documents, interviews with individuals associated with the subject, and NDE testing of in-place concrete, NSRS has not substantiated the identified concern. Described below are the results of the investigation that support the basis for the NSRS determination.

A. Review of TVA Commitments and Requirements

The FSAR for WBN in Section 3.8 identifies the codes, standards, and specifications for which the design and construction of the applicable structures was based. Through the FSAR, TVA was committed to batch, place, cure, and test concrete in accordance with ACI 304-73 and TVA General Construction Specification G-2. ACI304 and G-2 contain the controls by which concrete is produced in order to ensure concrete quality and integrity. In conclusion, controls were in place for the production of concrete at WBN.

B. Review of DC WBN Plant Procedures

The requirements of TVA G-2 were implemented through WBN-QCF-2.02 and -1.47. These procedures contain the acceptance criteria and the required documentation to implement TVA G-2. In conclusion, plant procedures were in place to implement G-2 requirements. It was noted, however, that one concrete pour investigated was made in accordance with G-2 since WBN-QCF-2.02 did not exist at the time.

C. Interviews with WBN Site Personnel

Interviews with site personnel were conducted to obtain information regarding documentation retrieval and past history regarding documentation practices employed at the time of the concrete placements in question.

D. Review of Documentation/Drawings

1. Review of WBN plant layout drawings (TVA 46W501 series) indicated the area of concern was in the auxiliary building. Concrete pour designations and required design strengths for the areas in question were obtained from the "Concrete Pour Designations and Progress Charts" and TVA drawing 41N366-1. From these designations and the computer printout listing unique concrete pour identifications, the "Concrete Pour Cards," "Concrete Cylinder Data Sheets," and "Form and Support Removal" forms were obtained from the DC Document Control Unit (DCU) records vault. Test results showed that the concrete quality to be acceptable. However, one problem was noted. The "Concrete Cylinder Data Sheet" for pour AB B158 showed the temperature of the concrete at placement to be 44°F. This was in violation of G-2 which requires a minimum concrete placement temperature of 50°F. (See the "Conclusions and Recommendations" section of this report.) There was no required documentation of concrete curing conditions (at the time the pours investigated were made). The compressive strengths were based on ideal curing conditions in the lab and not in-field actual curing conditions. Based on these requirements, the data did not provide conclusive evidence of concrete quality, and further investigation was determined necessary. Details are contained in Sections III.D.2 and III.E of this report.
2. Four "Expansion Anchor Test Data" reports (WBN-QCF-4.23) and four "Expansion Shell Anchor Test Summary" records (WBN-QCF-1.14) were obtained. This was a representation of anchor pull tests for items supported by the concrete areas investigated. The object of reviewing these records was to determine:
 - a. if any problems were encountered during anchor testing that were possibly indicative of poor quality concrete; and,
 - b. if anchor pull test results gave a correlation relating to concrete strengths.

No problems were apparent since anchor pull tests were acceptable. In conclusion, the concrete was of adequate strength to hold the anchors.

E. Testing of In-Place Concrete

In order to obtain data associated directly with the concrete strength of the areas in question, SME personnel were requested to perform testing of the in-place concrete. This was done in the form of nondestructive testing using a "Swiss" or "Rebound" hammer. This instrument was used to assess the uniformity of in-place concrete, to delineate areas of poor quality, and to indicate changes with time. The test description was contained in ASTM C805, "Rebound Number of Hardened Concrete." The rebound numbers obtained during the test can be related to compressive strengths. This method is not intended to be an alternative strength determination of concrete and should be recognized to give "ballpark" instead of highly accurate figures. The results of the tests indicate that the subject concrete was of acceptable quality and strength.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The concern was not substantiated as existing evidence and test results indicate the concrete in question was of acceptable quality and strength. However, it was recognized that a violation of G-2 did occur as indicated in Section III.D.1 of this report. Conversations with SME personnel indicate that concrete placed below 50°F but above 32°F would take longer to attain the desired strength, but quality would not be jeopardized as long as the concrete did not freeze. There was no evidence of freezing discovered during the investigation. No other evidence was found to indicate the concrete was of poor quality.

Recommendation

I-85-246-WBN-01 - Violation of TVA G-2 for the Placement of Concrete

The violation of G-2 temperature placement requirements discussed above should be documented and evaluated by the Office of Engineering (OE). No other action is considered necessary. This item is to be resolved in conjunction with concerns addressed in QTC reports WI-85-016-001 and IN-85-995-002.

NRC

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 12 1985**

SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL

Transmitted herein is NSRS Report No. I-85-291-WBN

Subject SOFT CONCRETE UNIT 1

Concern No. IN-85-485-X01

and associated recommendations for your action/disposition.

It is requested that you respond to this report and the attached recommendations by December 10, 1985. Should you have any questions, please contact P. K. Howard at telephone 3842-WBN.

Recommend Reportability Determination: Yes X No

[Handwritten Signature]
 Director, NSRS/Designee

PKH: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-85-291-WBN
 Subject SOFT CONCRETE - UNIT 1 for action/disposition.

 Signature Date



099U

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS INVESTIGATION REPORT NO. I-85-291-WBN

EMPLOYEE CONCERN: IN-85-485-X01

MILESTONE 2 - CRITICALITY

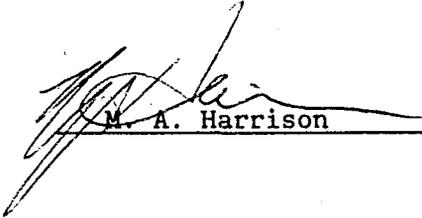
SUBJECT: SOFT CONCRETE UNIT 1, ELEVATIONS 692' AND 713'

DATES OF INVESTIGATION: September 27 - October 18, 1985

LEAD INVESTIGATOR: P. K. Howard 11/7/85
DATE

INVESTIGATOR: M. A. Koltowich 11/7/85
DATE

REVIEWED BY: P. R. Washer 11/7/85
DATE

APPROVED BY:  M. A. Harrison 11/7/85
DATE

BACKGROUND

NSRS has investigated Employee Concern IN-85-485-X01 which the Quality Technology Company (QTC) identified during the Watts Bar Employee Concern Program. The concern is worded:

"Soft" concrete apparently from freezing during construction was discovered during chipping operations. Locations are as follows: 1. Unit 1 713' elevation - Go through double doors as if going into the Reactor Building, first room on right, across from the pipe chase. 2. Unit 1, 692' elevation, in the pump room. Discovered during past two months time frame.

II. SCOPE

The scope of the investigation was determined from the stated concern to be that soft concrete exists in the rooms as stated on elevations 692' and 713' in the Unit 1 auxiliary building. The activities performed by NSRS during this investigation are listed below.

- A. Review of Office of Construction (OC) WBN plant procedures including:
 - 1. WBN-QCP-2.02, R9 and Various, "Concrete Placement and Documentation"
 - 2. WBN-QCP-1.47, R6, "Concrete/Grout Preplacement Inspection"
 - 3. WBN-QCP-1.07, Various Revisions, "Work Release"
 - 4. WBN-QCP-1.14, Various Revisions, "Inspection and Testing of Bolt Anchors Set in Hardened Concrete and Control of Attachments to Embedded Features"
 - 5. WBN-QCP-4.23, Various Revisions, "Installation, Inspection and Documentation Requirements for Seismic Supports"
 - 6. WBN-QCI-1.08, R11, "Quality Assurance Records"
- B. Review of TVA Commitments and Requirements including:
 - 1. Final Safety Analysis Report (FSAR) - WBN, Section 3.8, "Design of Category I Structures"
 - 2. American Concrete Institute (ACI) 304-73, "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete"
 - 3. TVA General Construction Specification G-2, "Plain and Reinforced Concrete"
 - 4. TVA General Construction Specification G-34, "Repair of Concrete"
- C. Interviews with site personnel associated with concrete placement, curing and documentation practices, and those associated with mechanical sleeve installations and documentation.

- D. Physical walkdown of rooms as stated on elevations 692' and 713' in the Unit 1 auxiliary building.
- E. Review of Documentation/Drawings including:
1. TVA Drawings 41N0058-2D and -3B, 46W501-1 and -2, 47W471-9, 41N368-1, and 41N370-1
 2. Four "Concrete Pour Cards" (WBN-QCP-2.02)
 3. Ten "Concrete Cylinder Data Sheets" (WBN-QCP-2.02)
 4. Two "Form and Support Removal" forms (WBN-QCP-2.02)
 5. Six "Expansion Anchor Test Data" reports (WBN-QCP-4.23), four "Expansion Shell Anchor Test Summary" records (WBN-QCP-1.14), and associated supporting documents
 6. One "Field Change Request" (FCR) form (WBN-QCI-1.13)
 7. One "Engineering Change Notice" (ECN)
- F. Testing of in-place concrete with Singleton Materials Engineering Laboratory (SME) personnel performed in conjunction with testing as referenced in NSRS Investigation Report No. I-85-246-WBN.

SUMMARY OF FINDINGS

Based upon the review of applicable documents, interviews with individuals associated with the subject, and testing of in-place concrete, NSRS has not substantiated the identified concern. Described below are the results of the investigation that support the basis for the NSRS determination.

A. Review of TVA Commitments and Requirements

The FSAR for WBN in Section 3.8 identifies the codes, standards, and specifications for which the design and construction of the applicable structures are based. Through the FSAR TVA was committed to batch, place, cure, and test concrete in accordance with ACI 304-73 and TVA General Construction Specification G-2. G-2 contains the controls by which concrete was produced in order to ensure concrete quality and integrity. In conclusion, controls were in place for the production of concrete at WBN.

B. Review of OC WBN Plant Procedures

The requirements of TVA G-2 were implemented in WBN-QCP-2.02 and -1.47. These procedures contain the acceptance criteria and the required documentation to implement G-2. In conclusion, plant procedures were in place to implement G-2 requirements. It was noted, however, that two of the four concrete pours investigated were made in accordance with G-2 since WBN-QCP-2.02 did not exist at the time the pours were made.

C. Interviews with WBN Site Personnel

Interviews with site personnel were conducted to obtain information regarding documentation retrieval and past history relating to practices employed at the time of the concrete placements being investigated. Interviews with site personnel did not alter the NSRS conclusions; however, they did support the identification of the problems noted in Section II.E.4 of this report.

D. Physical Walkdown of Rooms Identified

A physical walkdown of pump rooms 692-A6, -A9, -A10, -A11, -A12, and -A13 was performed to identify areas where recent chipping operations may have occurred. No evidence was found except in pump room 692-A12. A physical walkdown of room 713-A7 (identified as noted in Section III.E.1 of this report) was also performed to confirm areas where recent chipping operations may have occurred. It was determined through documentation review, however, that the areas investigated were chipped approximately two years prior to the concerned individual's interview.

E. Documentation/Drawing Review

1. Review of WBN plant layout drawings (TVA 46W501 series) indicated the area of concern identified on elevation 713' to be room 713-A7. Review of these drawings also identified six pump rooms on elevation 692'.
2. Concrete pour designations and design strengths for the areas identified were obtained from TVA drawings 41N0058-2D and -3B, 41N368-1 and 41N370-1. From these designations and the "Concrete Tracking System Master Report" (CTSMR), the "Concrete Pour Cards," "Concrete Cylinder Data Sheets," and "Form and Support Removal" forms were obtained from the DC Document Control Unit (DCU) records vault. Test results shown on the "Concrete Cylinder Data Sheets" indicated that quality of concrete was acceptable.

There was no required documentation of concrete curing conditions (at the times the pours investigated were made). The compressive strengths were based on ideal curing conditions in the lab versus in-field actual curing conditions. Based on these evaluations, the data did not provide conclusive evidence of concrete quality, and further investigation was determined necessary. Details are presented in Sections III.E.3 and III.F of this report.

3. Six "Expansion Anchor Test Data" reports (WBN-QCP-4.23), four "Expansion Shell Anchor Test Summary" records (WBN-QCP-1.14), and associated supporting documents were obtained. These were a representation of anchor inspections and tests for items supported by the concrete areas investigated. The objective in reviewing these records was to determine:
 - a. if problems were encountered during anchor testing that were possibly indicative of poor quality concrete; and,
 - b. if anchor pull test results correlated to concrete strengths.

No problems were apparent since anchor inspections and tests were determined to be acceptable. In conclusion, the concrete was determined to have adequate strength to support the anchor loads.

4. In an effort to identify possible nonconformance reports (NCRs) generated as a result of conditions encountered during chipping operations for one of the areas investigated, FCR M10701 was obtained. This FCR was incorporated into TVA drawing 47W471-9 per ECN 3758. The initiation date of the FCR indicated that sleeves were installed in the area after the walls were poured; however, no evidence could be found by either NSRS or DC engineering and quality control personnel to indicate that a "Work Release" (WBN-QCP-1.07), "Concrete Pour Card," or NCR had been generated. Employee A informed NSRS that several FCRs were written in that timeframe to "as-built" sleeve installations which were not shown on the drawings but were identified during walkdowns. Employee B informed NSRS that there was no method of identifying or retrieving records for repaired concrete areas except by date or possibly description in the printout (CTSMR).

In conclusion, NSRS has determined that:

- a. "Concrete Pour Cards" could exist for repaired concrete areas but not be identifiable for retrieval by any established method which is in violation of WBN-QCI-1.08, "Quality Assurance Records"; and,
- b. sleeve installations may have occurred without proper control of the work which would be in violation of WBN-QCP-1.07, "Work Release."

F. Testing In-Place Concrete

In order to obtain data associated directly with the strengths of the areas investigated, SME personnel were requested to perform testing on the in-place concrete. This was in the form of nondestructive testing using a "Swiss" or "Rebound" hammer. This instrument was used to assess the uniformity of in-place concrete, to delineate areas of poor quality, and to indicate changes with time. The test description is contained in ASTM C805, "Rebound Number of Hardened Concrete." This method is not intended to be used as an alternative strength determination of concrete and should be recognized to give "ballpark" instead of highly accurate figures. The rebound numbers obtained can be related to compressive strengths. The results of the tests performed by SME on the subject areas indicate concrete of acceptable quality and strength.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The concern was not substantiated since existing evidence and test results indicate that the concrete investigated is of acceptable quality and strength. No evidence of freezing was apparent, and no other evidence was found to indicate poor quality concrete. It was noted, however, that problems do exist with documentation of repaired concrete and work releases as indicated in Section III.E.4 of this report.

Recommendation

I-85-291-WBN-01 - Documentation Retrieval

The problems with documentation as discussed above should be evaluated and documented on a Nonconformance Report as applicable by responsible management. The "Concrete Tracking System Master Report" should be expanded to include an identifier for concrete repairs that refers back to the original pour designations provided on the "Concrete Pour Designations and Progress Charts" drawings; e.g., 41N10058 series. This item is to be resolved in conjunction with concerns addressed in QTC reports WI-85-016-001 and IN-85-995-002.

ARC

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 12 1985**

SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL

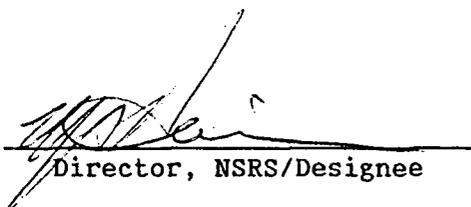
Transmitted herein is NSRS Report No. IN-85-725-X14; X15

Subject WELDER RECERTIFICATION

Concern No. IN-85-725-X14; X15
and associated recommendations for your action/disposition.

It is requested that you respond to this report and the attached
recommendations by December 10, 1985. Should you have any
questions, please contact W. M. Kemp, Jr. at telephone 3200-WBN.

Recommend Reportability Determination: Yes No


Director, NSRS/Designee

MAH: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. IN-85-725-X14;X15
Subject WELDER RECERTIFICATION for action/disposition.

Signature

Date

101U

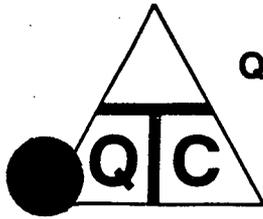


NSRS Recommendation: IN-85-725-X14; X15

Q-85-725-X14-01 "QCI 402 Change"

WBN OC should revise QCI 4.02 to incorporate details of controls and methods to be used when conducting performance qualification renewal of welders. As stated in the report, this recommendation is already under consideration by WEU.

0101U



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P.O. BOX 600
Sweetwater, TN
37874

ERT INVESTIGATION REPORT

CONCERN NO: IN-85-725-X14
IN-85-725-X15

CONCERN: See Below

INVESTIGATION
PERFORMED BY: W. M. Kemp, Jr.

DETAILS

Concern: IN-85-725-X14

Welder recertification program had inadequate supervisory oversight. It could have been possible for a good welder to weld the test plates for an incapable welder.

Concern: In-85-725-X15

The control of welder recertification test plates was inadequate. Test plates began by one welder could have been completed by another welder.

PERSONNEL CONTACTED: Confidential

DOCUMENTS REVIEWED:

TVA Topical Report, TVA-TR 75 (FSAR 17.2)
ANSI N 45.2 1 N 45.2.5
10 CFR Appendix B
ASME Section IX
AWS D1.1 Section 5

CONCERN NO: IN-85-725-X14
IN-85-725-X15

DETAILS, continued

DOCUMENTS REVIEWED, continued

AISC Quality Criteria and Inspection Standards

Process Specification 1.C.2.2 Rev. 1 Welder Performance
Qualification-AWS D1.1 Rev. 2

Process Specification 1.M.2.2 Rev. 2 Welder/Welding Operators
Performance Qualification-ASME

QAM 5.1 Rev. 22 Welding Control

QCI 4.02 Rev. 5 Welder & Welding Operator Performance
Qualification

Memorandums/Supporting Documentation:

COI 856-0903-004

Watts Bar Nuclear Plants Unit 1 & 2 - Confirmation of action
letter welder certification program.

Watts Bar Nuclear Plant TVA Informal Memo

Welding Procedure Specifications (WPS)

SM11-B-3, GT11-0-1A, SM-U-1

Letter From Mr. Parris (TVA) to Dr. Grace (NRC RII)

Process Specifications 1.M.2.2 Test No. SM-RQ (M)*

1.M.2.2 Test No. SM-RQ (C)*

*Performance Qualification Renewal Test

Stop Work Authority #25

NCR-6277 Rev. 0

ERT Reports WI-85-055-001, WI-85-056-001, EX-85-042-003

WEU Test Shop Log

Welder Certification Computer Read Out, dated October 1, 1985

Random Welder Performance Qualification Records

SUMMARY OF INVESTIGATION:

The concerns are not substantiated. In reviewing the related procedures, documentation and interviewing cognizant personnel involved in the recertification renewal process, there was no evidence that a welders test was completed by another welder.

FINDINGS:

Procedures QCI 4.02 Rev. 5 and Rev. 6 were reviewed to establish the programmatic controls for "Performance Qualification Renewal Test".

CONCERN NO: IN-85-725-X14
IN-85-725-X15

DETAILS, continued

FINDINGS, continued

QCI 4.20 Section 6.4 "Verification and Renewal of Qualifications" addresses paragraph 6.4.1.2 when welders are to be requalified. However, it does not address what method, test or controls shall be used to conduct the performance qualification renewal test when required.

WEU personnel were questioned as to what addresses how the welders were to be requalified. The renewal test are conducted to the G29C and G29M (renewal qualification test) however, QCI 4.02 does not make the tie in. It was stated by WEU personnel that addressing the requirements of G29M and G29C in QCI 4.02 would be taken under consideration.

Specification G29C (AWS) and G29M (ASME) require the following processes for performance qualification renewal test:

WPS SM 11-B-3 Renewal per ASME
PS 1.M.22 Test No. GT-RQ(M) Rev. 0 8/27/85
WPS-GT-11-B-1 or GT-11-0-1A Renewal per ASME
PS 1.C.22 Test No. SM-RQ(C) Rev. 0 8/27/85
WPS SM-U-1 Renewal for AWS D1.1

The requalification requirements stated in Specifications G29M and G29C, meet the intent per AWS and ASME.

A random sample of welders qualification for renewal test were performed. In the first sample, 12 welders names were pulled from the WEU Test Log and reviewed against the Welders Certification Computer Log (10/1/85). The names, ID number, coupon number, results and certification dates all matched.

In the second random sample, welders certifications records (12) located in the DCU vault (renewal test only) were cross checked against Welders Certification Computer Log and WEU Test Log Book. All names, ID numbers, coupon numbers, results and certification dates matched.

CONCERN NO: IN-85-725-X14
IN-85-725-X15

DETAILS, continued

FINDINGS, continued

A random selection of welders were interviewed to establish the controls utilized in the test shop during the renewal qualification test were being conducted. The interviews consisted of personnel who passed and failed the tests with the following results:

- 1) Individuals were instructed as to the parameters of the test.
- 2) Procedures/Instructions were available.
- 3) The test were conducted by test shop personnel to preclude welders welding coupons for another welder
- 4) Test coupons were controlled via coupon ID number and inspector stamp.
- 5) General consensus was that the test was properly administered but it was questioned why a backing strip was used on the 3/8 plate. It was stated to the welders that this practice is allowable by the codes.
- 6) If a test was failed, a retest was accomplished at a later date. No immediate retests were conducted.
- 7) WEU surveillances were conducted to assure welding parameters were kept during the renewal testing process.
- 8) Adequate supervision was available and welders were allowed reasonable time to conduct tests.

SUMMARY:

The review of the renewal qualification program for welders certifications that were "revoked-resinded" (Per ASME "Expired") and the implementation/controls are determined to be satisfactory. This is supported by documented evidence, i.e. WEU Testing Log Book, Welder Computer Log, Welder Renewal Test Certifications and Interviews.

CONCERN: IN-85-725-X14
IN-85-725-X15

DETAILS, continued

SUMMARY, continued

The only area of concern was QCI 4.02 Rev.6 lacking direction as to how welders are requalified. At this time WEU is taking this into consideration.

Report Reviewed & Accepted:
[Signature] 11/8/85
NRS

PREPARED BY *Tom Kempf* 11/4/85
DATE

REVIEWED BY *OP Greis* 11/5/85
DATE

REQUEST FOR REPORTABILITY EVALUATION
IN-85-725-X15

1. Request No. IN-85-725-X14 _____
(ERT Concern No.) (ID No., if reported)
2. Identification of Item Involved: Welder Renewal Certification Testing
(Nomenclature, system, manuf., SN, Model, etc.)
3. Description of Problem (Attach related documents, photos, sketches, etc.)
The control of welder recertification test plates was inadequate. Test plates begun by one welder could have been completed by another welder.

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 _____ If Yes, Explain: _____

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 _____ If Yes, Explain: _____

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 Yes _____ If Yes, Explain: _____

OR

JAN 77

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 perform its intended safety function.

No 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 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: OT New 365-4464
ERT Group Manager Phone Ext.

W. White
ERT Project Manager Phone Ext.

Acknowledgment of receipt by NSRS

[Signature] Date 1/8/85 Time 0840
Signed

NRC

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 12 1985

SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL

Transmitted herein is NSRS Report No. IN-86-068-002; IN-86-210-001

Subject HEAT EXCHANGER TUBES

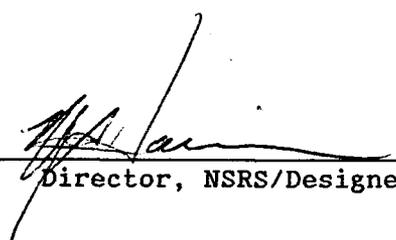
Concern No. IN-86-068-002; IN-86-210-001

and associated recommendations for your action/disposition.

It is requested that you respond to this report and the attached recommendations by December 10, 1985. Should you have any

questions, please contact J. T. Nation at telephone 365-7134.

Recommend Reportability Determination: Yes X No


 Director, NSRS/Designee

MAH: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. IN-86-068-002; IN-86-210-001
 Subject HEAT EXCHANGER TUBES for action/disposition.

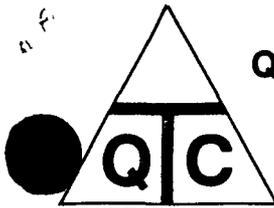
Signature

Date



Q-86-068-002-01 "CGSHX'S"

The OC should generate NCR's for the three component cooling system heat exchangers to address and resolve the problems and observations contained in this report. Root cause(s) should be addressed, evaluated, determined, and corrected. FSAR and appropriate drawing changes should be verified in progress or be expedited.



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Sweetwater, TN
37874

ERT INVESTIGATION REPORT

PAGE 1 OF 30

CONCERN NOS: IN-86-068-002 (MILESTONE 1)
IN-86-210-001 (MILESTONE 1)

CONCERN: Retubing of Component Cooling System Heat Exchangers,
E1 737, Auxiliary Building, Units 1&2, WBNP. Refer to
"Concerns", below for details.

INVESTIGATION
PERFORMED BY: J. T. Nation

DETAILS

TABLE OF CONTENTS:	<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
	I	CONCERNS	1
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	III	REFERENCES	3
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I. CONCERNS:

A. Concern No. IN-86-068-002:

Retubing of Heat Exchangers "A", "B" & "C" (60' long, 737' elev., Unit 1) is being performed improperly. Rolling of tubes on one end (possibly discharge end) is being done by rolling inside seal first, then outside tube to tube sheet second. CI expressed that this is contrary to industry standard (tube/tube sheet 1st, inside last) and resulted in a 30% leakage rate on Exchanger "C". Repair necessitated re-rolling inside seal at maximum torque, which could have adversely affected tube wall thickness. Internal tube sheets (21 each exchanger) are poorly manufactured, with poor hole alignment, varying sizes/bevels of tube holes, and are allowed to "float" (not rigidly attached to interior shell), which results in tube sheet "warpage" and poor support of tubes. During operation, this warpage and lack of support permits tube vibration and causes tube failure. Tube sheet were leveled with angle iron brackets for 1/2 of re-tubing. Then brackets were removed (not part of

CONCERN NOS: IN-86-068-002
IN-86-210-001

DETAILS, continued

I. CONCERNS, continued

A. Concern No. IN-86-068-002, continued

permanent installation). Tubesheets "warped" to original position, which is thought to be the cause of initial tube failure. Supervision and engineering (names known) were made aware of the problem with the rolling of tubes, and stated that the technique used was per manufacturer's recommendations, and that any change would have to come from Knoxville. CI said that no change had been received from Knoxville yet. Tube/tube sheet were rolled per industry standard on "A" exchanger, and no leakage was experienced.

NOTE: This concern, as stated above, contains incorrect and misleading information. Also, the portion of this concern regarding "internal tube sheets" (actually, baffles) is not addressed in this Report. Refer to the "Clarification of Concerns", Section V, of this report

B. Concern No. IN-86-210-001:

Heat Exchanger Tubes on Heat Exchanger "A" were rolled straight thru. Heat exchange "C" tubes were rolled 1/2 way straight thru and 1/2 way backwards. When this was done, the 1/2 rolled backwards had many leaks. Heat Exchanger "B" tubes are scheduled to be rolled the same as Unit 1, ele. 737'.

NOTE: This concern, as stated above, contains incorrect and misleading information. Refer to the "Clarification of Concerns," Section V, of this Report.

II. PERSONNEL CONTACTED: Confidential

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IN-86-210-001

DETAILS, continued

II. PERSONNEL CONTACTED: Confidential

III. REFERENCES:

- A. Workplan (WP) No. 2403 for Retubing Component Cooling Heat Exchanger "B", prepared 5/28/85, and Non-Intent Workplan Change No. WP-2403-RO-3, dated 8/28/85.
- B. Workplan (WP) No. 2597 for Retubing Component Cooling Heat Exchanger "A", prepared 12/4/84.
- C. Workplan (WP) NO. 4459 for Retubing Component Cooling Heat Exchanger "C", prepared 6/10/84.
- D. Administrative Instruction AI-7.1, "Quality Control (QC) Inspection Program", Revision 9 dated 4/10/85.
- E. Administrative Instruction AI-8.5, "Control of Modification Work on Transferred Systems Before Unit Licensing", Revision 14 dated 4/1/85
- F. Administrative Instruction AI-9.2, "Maintenance Requests and Equipment Maintenance History", Revision 15 dated 8/2/85.
- G. Administrative Instruction AI-9.15, "Preparation of Work Instructions for Repairs and Replacements of ASME Section XI Components", Revision 6 dated 7/3/85.
- H. Modifications and Additions Instruction MAI-11, "Pressure Testing of Piping Systems Following Modifications", Revision 3 dated 8/23/85.

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IN-86-210-001

DETAILS, continued

III. REFERENCES, continued

- I. Field Change Request (FCR) No. FS-402, dated 6/1/84, "replace tubes in component cooling system heat exchanger O-HTX-070-0001C, 1-HTX-070-0001A, and 2-HTX-070-0001B with AL-6X as necessary."
- J. Engineering Change Notice (ECN) Nos. 4936, 4937, and 4938, dated 7/11/84, for change out of tubes for Component Cooling Heat Exchangers "A", "B" and "C", for revision of FSAR section 9.2.2 to reflect AL-6X tubing, and for revision of vendor drawings.
- K. Construction Specification No. N4M-936, Bellefonte Nuclear Plant, "Retubing of the Component Cooling Water Heat Exchangers", RO dated 3/16/84 and R1 dated 9/24/84.
- L. Contract 76K35-83210 and vendor (Joseph Oat Corporation) documents for Component Cooling Heat Exchangers:
1. Drawing Nos. 5760, 5761, 5762 and 5763.
 2. Job Procedure JP-2301-1, "Procedure for Expanding Tubes Into A Tubesheet to Obtain A Strength Joint", Rev. 1 dated 7/1/76.
 3. TVA Specification WBNP-DS-3835-2612-00, "Component Cooling System Heat Exchangers for WBNP Units 1 and 2", Revision 0 and Revision 1, not dated.
 4. Installation and Maintenance Instructions for Job No. J-2301.
- M. ENDES Memorandum, MEB (C.A. Chandley) to NEB (J.A. Raulston), dated 9/11/84, "Watts Bar Nuclear Plant-FSAR Update-ECN's 4936, 4937, 4938". (MEB 84 0911 019).
- N. ENDES Memorandum, WBP (J. C. Standifer) to NUCPR (T. G. Campbell), dated 7/20/84, "Watts Bar Nuclear Plant Units 1 and 2-Component Cooling Water Heat Exchanger Retubing", "Retubing with AL-6X Tubing". (WBP 84 0720 058)

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IN-86-210-001

DETAILS, continued

III. REFERENCES, continued

- O. US NRC Report NOs. 50-390/84-59 and 50-391/84-45, dated 11/8/84, Notice of Violations 390/84-49-01 through 390/84-59-04, for period of July 21-September 21, 1984.
- P. US NRC Report NOs. 50-390/85-08 and 50-391/85-08, dated 3/29/85, closure of Violations (above), for period of January 21-February 28, 1985.
- Q. Tubular Exchanger Manufacturers Association (TEMA), Standards of, sixth edition, 1978.
- R. ANSI N45.2-1971, "Quality Assurance Program Requirements for Nuclear Power Plants".

IV. SUMMARY OF INVESTIGATION

The Concerns, as clarified in this report, are substantiated. Refer to Section V of this report for clarification of concerns.

This investigation was conducted, intermittently, during the period of August 22 to October 17, 1985. The investigation included document/documentation reviews, personnel contacts/interviews, and in-process work observations, regarding the retubing of the Component Cooling System Heat Exchangers (CCSHX) "A", "B", and "C", elevation 737, Auxiliary Building, Units 1 and 2.

The most significant finding is the indeterminate condition of the tube wall thickness, subsequent to re-rolling or re-expansion to resolve leakage, specifically for the outlet end tube-to-tubesheet joints for CCSHX "A". This indeterminate condition exists because of inadequate Workplan Instructions and inadequate implementation, control, and documentation of the activity. The re-expansion of the tubes was performed without regard to, and without measurement and documentation that would verify, the resulting reduction in wall thickness. This reduced wall thickness, of undetermined magnitude, yields a condition that could adversely affect the safety and reliability of operation of this CCSHX, Seismic Category I component.

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IN-86-210-001

DETAILS, continued

IV. SUMMARY OF INVESTIGATION, continued

Additionally, it was found that two methods or techniques were used for sequencing the two-step expansion or rolling of the tubes at the outlet end tubesheets for the CCSHX. For CCSHX "A", the back-to-front method was used, and resulted in extensive leakage and re-expansion. For CCSHX "C", the front-to-back technique was used, and essentially no leakage or re-rolling occurred. The Workplan for CCSHX "B", which was in the process of being retubed at the start of this investigation, was changed, and the front-to-back method was used, and resulted in some leakage and re-expansion. The merit of using one or the other of these two methods is reflected in the reported results. The front-to-back method yields more acceptable results in terms of the extent of resulting leakage and re-expansion of the tube-to-tubesheet joints.

Other findings, regarding inadequacies in establishing and implementing appropriate controls and documentation of the tube expansion and re-expansion activities, are identified in the Findings and Conclusions, Sections VI and VII respectively, of this Report.

Observations of conditions not specifically identified in the Concerns or addressed in the Findings, but involving the CCSHX, are addressed in Section VIII of this Report.

V. CLARIFICATION OF CONCERNS:

A. The Concerns, as stated above, contain incorrect or misleading statements. As part of this investigation, and to provide a uniform and accurate understanding of the findings and conclusions in this Report, the following general information and concern clarifications are provided:

B. General Information regarding components and activities referenced in the Concerns and this Report:

1. The Concerns refer to the three (3) Component Cooling System (CCS) Heat Exchangers (HX), which are located on elevation 737.0, between column lines A-5, A-10, T and R, in the Auxiliary Building. The designations and relative locations for the three CCSHX are as follows:

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IN-86-210-001

DETAILS, continued

V. CLARIFICATION OF CONCERNS, continued

B. 1., continued

<u>Reference Designation</u>	<u>Relative Location</u>	<u>Unit-System Designation</u>
CCSHX "A"	North of "C"	1-HTX-070-0001A
CCSHX "B"	South of "C"	2-HTX-070-0001B
CCSHX "C"	Between "A" & "B"	0-HTX-070-0001C

The CCSHX are classified as ASME Section III, Class 3 components (TVA Class C), and Seismic Category I.

2. Each CCSHX contains 3200 tubes, 0.75 inches outside diameter by approximately 60 feet long, which span the shellside of the exchanger between the tubesheets at each end. Each of the two tubesheets (3-3/8" thick carbon steel) have 3200 holes within which the tubes are installed. Each tube is rolled or expanded, within the tubesheet holes, to provide a mechanical seal between the exterior surface of tube and interior surface of the tubesheet hole. For the purpose of this Report, the following terms are defined as indicated:
 - a. "front" - the outside, tubeside, or channelside portion or half (1-11/16 to 2 inches) of the tubesheet thickness or hole depth.
 - b. "back" - the inside shellside portion or half (1-11/16 to 2 inches) of the tubesheet thickness or hole depth.
 - c. "front-to-back" - the sequence of rolling/expanding the tubes, i.e., first the "front", then the "back".
 - d. "back-to-front" - the sequence opposite to "front-to-back", above.
3. Each tube is rolled/expanded in a two-step operation, i.e., "front" is one step and "back" is

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IN-86-210-001

DETAILS, continued

V. CLARIFICATION OF CONCERNS, continued

B. 3., continued

the other. The rolling/expansion is accomplished by a tool that is inserted inside the tube and expands, by a rolling action, the diameter of the tube. The tubesheet hole I.D. is approximately 0.76 inches and the tube O.D. is approximately 0.75 inches. Each tube is expanded to attain metal-to-metal contact, then is expanded an additional 0.002 to 0.003 inches to provide the necessary seal. This expansion results in some reduction in the tube wall thickness (0.035 inches for 20 BWG).

4. The CCSHX were retubed with ASME SB-676 (AL-6X) high alloy stainless steel tubes, reportedly, because of the low raw water velocity and the resulting pitting corrosion of the original ASME SB-111-706 (90-10, CuNi) tubes.

C. Clarification of Concern IN-86-210-001:

1. "Heat exchanger tubes on heat exchanger "A" were rolled straight thru."

This statement is correct.

For CCSHX "A", the front-to-back method on one end, and back-to-front on the other end, equate to a "straight thru" method.

2. "Heat exchange "C" tubes were rolled 1/2 way straight thru and 1/2 way backwards."

This statement is misleading.

For CCSHX "C", the front-to-back method on both ends could be described as stated, however, the term "backwards" does not mean incorrect or wrong.

CONCERN NOS: IN-86-068-002
IN-86-210-001

DETAILS, continued

C. continued

3. "When this was done, the 1/2 rolled backwards had many leaks".

This statement is not correct.

The "1/2 rolled backwards" applies to CCSHX "C", and equates to the front-to-back method which the concern individual stated was the correct method. It was CCSHX "A", not CCSHX "C", that "had many leaks".

4. "Heat Exchanger "B" tubes are scheduled to be rolled the same as Unit 1, ele. 737."

This statement is correct.

The "Unit 1" equates to CCSHX "A", which is part of the Unit 1 system. The CCSHX "B" work was in progress and planned to be done the same as for "A", i.e., using the back-to-front method.

D. Clarification of Concern IN-86-068-002:

1. "Retubing of Heat Exchangers "A", "B" and "C" (60 long, 737' elev. Unit 1) is being performed improperly."

This statement is misleading.

CCSHX "A" and "C" retubing had been previously completed, and only "B" was in the process of "being" retubed. CCSHX "A" and "C" tubes were each rolled by a different method. The CCSHX "A" method was viewed as incorrect by the CI, and that was the method which was going to be used for CCSHX "B". The reference to "Unit 1" equates to CCSHX "A".

2. "Rolling of tubes on one end (possibly discharge end) is being done by rolling inside seal first, then outside tube to tube sheet second."

This statement is misleading.

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IN-86-210-001

DETAILS, continued

V. CLARIFICATION OF CONCERNS, continued

D. 2, continued

The statement does not apply to CCSHX "C". The terminology equates to the back-to-front technique, which was used for CCSHX "A" and was going to be used for CCSHX "B", at the outlet or discharge end. The term "inside" equates to back and the term "outside" equates to front. The term "tube to tube sheet" applies to both steps of the expansion, i.e., front and back, and to the joint or seal between the tube (OD) and tubesheet hole (ID) surfaces; however, the CI appears to use this term to mean front only.

3. "CI expressed that this is contrary to industry standard (Tube/tube sheet 1st, inside last) and resulted in a 30% leakage rate on Exchanger "C"."

This statement is not correct.

The "30% leakage rate" or some amount of leakage occurred on CCSHX "A", not "C". The terminology "Tube/Tube sheet 1st, inside last" equates to the front-to-back method used on CCSHX "C", and later used on "B", but not the method used on the outlet end of "A". The reference to "industry standard" means that the CI does not recognize the back-to-front method as common practice, based on previous experience.

4. "Repair necessitated re-rolling inside seal at maximum torque, which could have adversely affected tube wall thickness."

This statement is misleading.

The statement applies to CCSHX "A", which reportedly had "a 30% leakage rate" and "necessitated re-rolling inside seal". It would be the "leakage", not "repair", that would have "necessitated re-rolling".

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IN-86-210-001

DETAILS, continued

V. CLARIFICATION OF CONCERNS, continued

D., continued

5. "Internal tube sheets.....initial tube failure."

These statements (four sentences) should not have been included in this concern.

The term "Internal tube sheets" means baffles. These statements do not apply to the tubesheets at each end of the CCSHX or to tube rolling, and are not addressed in this Report. These statements apply to, and will be addressed in conjunction with, Concern No. IN-86-068-001.

6. "Supervision and engineering (names known) were made aware of the problem with the rolling of tubes, and stated that the technique used was per manufacturer's recommendations, and that any change would have to come from Knoxville. CI said no change had been received from Knoxville, yet."

These statements (two sentences) are correct, with the following clarification:

The "change" applies to CCSHX "B" only, since "A" had already been completed. The "problem" of "the technique used", which means the back-to-front method, applies to CCSHX "A" only.

7. "Tube/Tube sheets were rolled per industry standard on "A" exchanger, and no leakage was experienced."

This statement is not correct.

The reference to "A" should read "C". The term "industry standard", according to the concerned individual, means the front-to-back method which was used on both ends of CCSHX "C", and which reportedly had "no leakage".

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IN-86-210-001

DETAILS, continued

V. CLARIFICATION OF CONCERNS, continued

D., continued

8. Regarding the sketches depicting tube expansion, as contained in the ERT file:

The sketches are not correct.

The tube expansion/rolling occurs within the 3-3/8 inch thickness, or hole depth, of the tubesheet. The tubes are not flared or ballooned the exterior of the faces of the tubesheet, as the sketches depict. For the two-step rolling or to 2 expansion process, the front is the first 1-11/16 inches of the tubesheet thickness or hole depth, and the back is the other 1-11/16 to 2 inches of thickness or depth.

VI. FINDINGS:

- A. The following findings relate to both Concerns and to the two methods of sequencing the two-step rolling/expansion of tubes within the tubesheet at the outlet end of each CCSHX:

1. Based on personnel contacted and Workplan reviews, it was determined that the variation in method or technique applied to only the tube-tubesheet joints at the outlet end. The front-to-back method was reportedly used at the inlet end of all CCSHX, and is not the method in question.
2. For CCSHX "A", the WP 2597 Workplan Instructions, Step D.7 states (in part):

"Roll all inlet tubes front to back, then roll all outlet end tubes back to front. This technique minimizes tube bowing between the tube sheets."

The Step D.7 does not have a sign-off for verification, however, personnel stated that the back-to-front method was used at the outlet end.

CONCERN NOS: IN-86-068-002
IN-86-210-001

DETAILS, continued

VI. FINDINGS, continued

A. 2, continued

Based on contacts with the concerned individuals and other personnel, it was determined that the back-to-front technique was the method in question. The Workplan indicates that the tube rolling was completed in February 1985, therefore, this was the second CCSHX to be retubed.

3. For CCSHX "B", the retubing work was in progress but the tube rolling at the outlet end had not commenced, at the start of this investigation.

Prior to this investigation, the WP 2403 Workplan Instructions, Step D.9 stated (in part):

"Roll inlet end front to back...Roll outlet end back to front."

The responsible Mechanical Maintenance Engineer (MME) and design engineer (ENDES) were contacted regarding the Concerns. They indicated that the back-to-front method was recommended by the tubing manufacturer to preclude bowing of the tubes between the tubesheets. They stated that the manufacturer would be contacted to determine if the front-to-back method would be acceptable.

A few days later, the MME stated that ENDES had just given a telephone approval, in response to an MME memorandum of request, to use the front-to-back technique at both ends. The MME stated that the Workplan would be changed accordingly.

WP 2403 Workplan Instructions, Step D.9 was revised via Non-Intent Workplan Change Form No. WP-2403-RO-3 dated 8/28/85, to read:

"roll outlet end front to back also."

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IN-86-210-001

DETAILS, continued

VI. FINDINGS, continued

A. 3, continued

After completion of the tube expansion work, the concerned individuals and other personnel were contacted and they stated that the front-to-back method had been used for the rolling at the outlet end. Also, the ENDES engineer stated that a memorandum approving the change in technique had been sent to the MME.

4. For CCSHX "C", the WP 4459 Workplan Instructions, Step 8 states:

"Roll tubes to tube sheet by step method."

This is the only instruction in the Workplan regarding the rolling of the tubes. The rolling sequence is not prescribed. Personnel stated that the front-to-back step method was used at both ends. The Workplan indicates that the retubing work was completed in August 1984, therefore, this was the first CCSHX to be retubed.

- B. The following findings relate to both concerns and to the references to "leaks", "leakage" and "re-rolling" of tubes at the tube-to-tubesheet joints:

1. For all of the CCSHX (A,B and C), none of the Workplans contain a provision for documentation of which or how many, if any, of the tube joints had leaks and/or had to be re-rolled.

Personnel stated that there is no such documentation. The personnel stated that the criteria is "no leaks", and that the tubes are re-rolled as necessary to meet that objective. Since there appears to be no quantitative data

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IN-86-210-001

DETAILS, continued

VI. FINDINGS, continued

B. 1, continued

regarding the actual extent of leaks or leakage, the references to "many leaks" and "30% leakage rate" for CCSHX "A", and the reference to "no leaks" for CCSHX "C", could not be quantitatively verified or refuted. The same condition applies to the re-rolling of the associated tubes. Personnel stated that CCSHX "C" had essentially no leaks, and that CCSHX "A" had many leaks and required extensive re-rolling at the outlet end.

2. For CCSHX "A", the WP 2597 Workplan Instructions, page 19 of 20, Step E.3, Item b states:

"If any tube-to-tubesheet joints are leaking, re-expand those tubes at an additional 5 to 10 inch-lb on torque motor."

The above Item is signed-off as "verified no leakage" by the General Foreman, and dated 2/18/85. The "no leakage" means that there were no leaks after re-expansion.

Personnel stated that many of the tubes had to be re-rolled, that some were re-rolled as many as 20 times, that there were so many leaks it was difficult to tell which ones were leaking, and that 5 to 7 days were spent on the re-rolling to stop the leaks.

3. For CCSHX "C", the WP 4459 Workplan Instructions, page 4 of 5, Step 10 states:

"Pressurize shell and check for leaks around new tube with bubble solution. If any leaks are found re-roll tube and check again. If re-rolling tube does not stop leakage contact M.M. Engineer."

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IN-86-210-001

DETAILS, continued

VI. FINDINGS, continued

B. 3, continued

The above step does not contain or provide for a sign-off or other indication of results. The responsible "M.M. Engineer" stated that there was no "contact" regarding leakage for CCSHX "C". Other personnel stated that there was essentially no leakage or re-rolling for CCSHX "C".

4. For CCSHX "B", the WP 2403 Work Instructions, page 40 of 64, Step E.3, Item b reads the same as in WP 2597, above.

On October 11, 1985, a portion of the hydrostatic testing was observed as part of this investigation. The pressurization was started at approximately 10:30 AM, and was at 100 psig at approximately 11:30 AM. During this time, leakage was observed at the outlet end tube joints. The re-rolling of two leaking joints was observed. Both joints were re-rolled, in one step, to expand the tubes 0.001 inch greater than the prior inside diameter (i.e., 0.689 to 0.690 and 0.690 to 0.691). The torque motor was set at zero on the 0 to 3.0 scale. The leakage appeared to stop as a result of the rolling. The balance of the activity, including the planned pressurization to 165 psig for 10 minutes, was not observed. Personnel stated that the re-rolling work, to stop leakage, continued until October 16, 1985.

- C. The following findings relate to Concern IN-85-068-002 and the statement that "re-rolling...at maximum torque.. could have adversely affected tube wall thickness" on CCSHX "A":

1. CCSHX "C" is not considered to be related to this aspect of the Concern, because there is no indication that this CCSHX was subjected to the

CONCERN NOS: IN-86-068-002
IN-86-210-001

DETAILS, continued

VI. FINDINGS, continued

C. continued

1. continued

re-rolling. For CCSHX "B", re-rolling was performed, but not to the extent for CCSHX "A". For CCSHX "A", the concerned individual and other personnel stated that the re-rolling was extensive, but only for the inside or back step, at the outlet end.

2. For CCSHX "A", the WP 2597 Workplan Instructions, page 19 of 20, Step E.3, Item b states:

"If any tube-to-tubesheet joints are leaking, re-expand those tubes at an additional 5 to 10 inch-lb on torque motor."

The Workplan does not contain or provide for documentation of the previous or initial torque (see further explanation, below) to which the "5 to 10 inch-lb" is to be added. Also, the Workplan does not provide for measurement and documentation of the inside diameter (ID) or other measurement of tubes after "re-rolling".

Personnel indicated that the "back" inside diameter could not be measured because the ID was larger, after re-rolling, than the "front" inside diameter.

3. For initial tube rolling (prior to leak testing), the inside diameter (ID) of the tube is the direct quantitative criteria used to determine the amount of expansion required. The torque setting on the torque motor is an indirect measurement and is adjusted as needed to attain the required ID. The required ID (after expansion) is calculated, based on the tubesheet hole diameter, the tube wall thickness and an expansion factor. The expansion factor (0.002 to 0.003 inches) represents the

CONCERN NOS: IN-86-068-002
IN-86-210-001

DETAILS, continued

VI. FINDINGS, continued

C. 3, continued

amount of expansion expected after metal-to-metal contact. After the tube for each "check hole" is expanded, the actual expanded ID is checked against the required ID, and the torque is adjusted as needed. As stated in Finding C.2, above, the torque value for the initial tube rolling is not recorded or documented. Personnel stated that the torque values varied, but were in the order of magnitude of 75 inch-pounds for the retubing work on the CCSHX.

4. The concern refers to "maximum torque". As indicated in Finding C.2, above, the Workplan states that "an additional 5 to 10 inch-lb" of torque is to be used for re-rolling or re-expansion of leaking joints. The concerned individual did not provide any specific torque value, but indicated that whatever torque was needed to stop the leakage was used. Other personnel indicated that the 10 inch-lb was the maximum additional torque and was generally the value used. However, these personnel stated that the initial torque, to which the 10 inch-lb was to be added, was not specifically known. Other personnel stated that re-rolling was performed at the maximum setting (3.0 plus) or capacity of the torque motor.

The tubing manufacturer, as further identified in Finding C.7 of this Report, recommends "5 to 10 inch pounds above the torque [be] used for the initial rolling." The manufacturer's publication makes reference to "approximately 50 inch pounds" for initial rolling.

CONCERN NOS: IN-86-068-002
IN-86-210-001

DETAILS, continued

VI. FINDINGS, continued

C. 4, continued.

ENDES, as further identified in Finding C.6 of this report, specifics "a slightly higher torque to eliminate the leak". Whether or not "5 to 10" is only "slightly higher" than "75" inch-pounds (see Finding C.3, above) is not specified, but does not appear to be pertinent, based on the manufacturer's publication, above.

5. The Concern refers to "adversely affect tube wall thickness". As indicated in Finding C.2, above, the diameter (ID) of tubes is not measured or recorded after "re-rolling". As indicated in Finding C.1, above, this concern applies to only the back "re-rolling", at the outlet tubesheet of CCSHX "A".

The manufacturer (Joesph Oats Corporation) of the CCSHX and installer of the original tubes, states in the Job Procedure JP-2301-1 that:

"A strength joint will be obtained by reducing the tube wall 4 to 6% after metal to metal contact of the tube O.D. with the tubesheet hole I.D.."

This applies to the original tube material, 90-10 CuNi (ASME SB-111-706), which has a yield strength of 15 ksi. The replacement tubes are AL-6X (ASME SB-676), which has a yield strength of 30 ksi. The tubesheets are made of carbon steel (ASME A516, Grade 70), which has a 38 ksi yield strength.

The tubing manufacturer, as further identified in Finding C.7, states that "roller expanding does not significantly reduce the tube wall thickness" and that tubes "may be re-rolled at a torque setting 5 to 10 inch pounds above the torque used for the initial rolling". The manufacturer also indicates that "excessive over-rolling can result in distortion of the tubesheet", as opposed to the tube wall.

CONCERN NOS: IN-86-068-002
IN-86-210-001

DETAILS, continued

VI. FINDINGS, continued

C. continued

6. Construction Specification N4M-936, for "retubing of the Component Cooling Water Heat Exchangers" at Bellefonte Nuclear Plant, Section 3.7.9, Revision 0 states:

"Leaking tubes shall be re-rolled at a slightly higher torque to eliminate the leak."

Section 3.7.9, Revision 1 states:

"Leaking tubes shall be re-rolled at a slightly higher torque to eliminate the leak. A 3-roll expander may be used to re-roll instead of the 5-roll expander to get a tighter joint."

Although this Specification is for the Bellefonte retubing work, it was provided to WBNP by ENDES with the statement (Memorandum WBP 84 0720 058) that: "There are other procedures in our retubing specification which should be of use to you including tube hole preparation, tube rolling, flushing, and testing."

7. The tubing manufacturer's (Allegheny Ludlum Steel Corporation) publication titled "A Tube-to-Tubesheet Joint Tube Rolling Procedure for High Yield Strength Tube Alloys" (not dated), which is contained in Workplan 2403 (pages 53 through 55 of 64), states (as item 4):

"With light wall, high yield strength alloys, roller expanding does not significantly reduce the tube wall thickness, and any expansion of the I.D. of the tube measured after rolling is really a measurement of the expansion of the tubesheet hole. The tubesheet hole diameter

CONCERN NOS: IN-86-068-002
IN-86-210-001

DETAILS, continued

VI. FINDINGS, continued

C. 7, continued-

minus twice the wall thickness of the tube will give the approximate dimension of the inside diameter of the tube at metal-to-metal contact. To this dimension, add .003" for expansion of the tubesheet hole to provide a tight joint. Under-expansion can be corrected by re-rolling.

Excessive over-rolling can result in distortion of the tubesheet. Sometimes this causes bowing or dishing of the tubesheet and sometimes makes some of the tubesheet holes egg-shaped and tends to prevent the possibility of a tight rolled joint in those tubesheet holes."

Item 9, of the above publication, states:

Tubes that weep during the hydro test may be re-rolled at a torque setting 5 to 10 inch pounds above the torque used for the initial rolling.

The above information is referenced in the proceeding Findings for perspective as to the manufacturer's recommendations.

As indicated in Finding C.5, above, the required yield strength of the tubesheet steel (38 ksi) is greater than the AL-6X tube material (30 ksi). The manufacturer's contention that it is the tubesheet hole that expands, in lieu of the tube wall compressing or elongating, does not appear to be logical, based on the relative yield strengths.

8. The following excerpts are from the Standards of Tubular Exchanger Manufacturer's Association (TEMA), 6th edition - 1978:

CONCERN NOS: IN-86-068-002
IN-86-210-001

DETAILS, continued

VI. FINDINGS, continued

C., 8 continued

- (a) Section 4, E-4 "Maintenance of Heat Exchangers, subsection" E-4.4, "Tube Expanding", states:

"A suitable roller type tube expander should be used to tighten a leaking tube joint. Care should be taken to insure that tubes are not over expanded."

- (b) Section 12, "Recommended Good Practice", subsection RGP-RCB-7.5, "Tube Wall Reduction", states:

"The optimum tube wall reduction for an expanded tube-to tubesheet joint depends on a number of factors on which there is no general correlation or accepted agreement. Some of these are:

- (1) Tube hole finish.
- (2) The presence or absence of tube hole serrations.
- (3) The tube hole size and tolerance.
- (4) Tubesheet ligament width and its relation to tube diameter and thickness.
- (5) Tube wall thickness.
- (6) Tube hardness and change in hardness during cold working.
- (7) Tube O.D. tolerance.
- (8) Type of expander used.
- (9) Type of torque control or final tube thickness control.
- (10) Function of tube joint, i.e., strength in resistance to pulling out, minimum cold work for corrosion purposes, freedom from leaks, ease of replacement, etc.

CONCERN NOS: IN-86-068-002
IN-86-210-001

DETAILS, continued

VI. FINDINGS, continued

C. 8, (b), continued

- (11) Length of expanded joint.
- (12) Compatibility of tube and tubesheet materials.

For this reason no simple rule can be formulated and it is suggested that the purchaser rely on the experience of the manufacturer in this matter."

9. Based on the preceding Findings, the actual wall thickness of the tubes, after rolling and re-rolling, is not known and cannot be determined by existing data or documentation.

This indeterminate condition, specifically for the tubes at the outlet end of CCSHX "A" (Unit 1), results in a lack of assurance as to the reliability of the actual wall thickness to withstand the adverse mechanical, structural and corrosive effects of operation. At a minimum, the occurrence of leakage due to tube wall failure, could adversely affect the efficient operation of the CCSHX and result in extensive repairs.

VII. CONCLUSIONS:

The Concerns IN-86-068-002 and IN-86-210-001, as clarified in this report, are substantiated.

Based on the findings, the following is concluded for the indicated Component Cooling System Heat Exchanger (CCSHX) and the indicated tube rolling/expansion activities:

CONCERN NOS: IN-86-068-002
IN-86-210-001

DETAILS, continued

VII. CONCLUSIONS, continued

1. For CCSHX "A", the re-rolling or re-expansion of tubes at the outlet end tubesheet was not adequately controlled and documented and presents an indeterminate condition regarding the actual tube wall thickness and condition. Many, if not most, of the tubes were re-rolled many times at a torque that far exceeds acceptable or recommended limits. The unknown extent of wall thickness reduction, and possible occurrence of other defects (such as cracks) renders the quality and ability of tubes to perform their intended function to be indeterminate. This indeterminate condition, i.e., nonconformance or deficiency, has not been identified or corrected by TVA, and represents significant deficiency in design and construction which could adversely affect the safety and reliability of operation of the Siesmic Category I component.
2. For CCSHX "A", the back-to-front method of sequencing the two-step tube rolling or expansion process was found to be less effective/efficient than the front-to-back technique used for the other CCSHX. The use of the back-to-front method resulted in extensive leakage and re-rolling, which contributed to the indeterminate condition addressed in Conclusion 1, above. By rolling the back first, the ability to make measurements of the actual inside diameter of that portion if the expanded tube was precluded. Therefore, in-process control of the initial rolling could not be maintained in accordance with the Workplan Instructions.
3. For CCSHX "A" and "B", the Workplan Instructions for re-rolling/re-expansion of tubes at an additional 5 to 10 inch-pounds, to stop leaks, are not adequate and were not implemented. The initial torque value, to which the 5 to 10 inch-pounds was to be added, was not identified or documented in the Workplan or otherwise identifiable. The actual torque value used for the re-rolling/re-expansion was not controlled or documented.

CONCERN NOS: IN-86-068-002
IN-86-210-001

DETAILS, continued

VII. CONCLUSIONS, continued

4. For CCSHX "B", as a result of this investigation, the Workplan was changed to permit the use of the front-to-back method for the initial rolling of the tubes at the outlet end. Some leakage and re-rolling occurred, but was much less than that experienced on "A". However, the re-rolling was not performed in accordance with the Workplan instructions regarding additional torque, as further identified in Conclusion 3, above. Although the extent and results of tube re-expansion for CCSHX "B" is less questionable than for "A", the failure to establish and implement adequate Workplan Instructions represents a programmatic deficiency, and results in a lack of documented evidence to assure that the tubes will perform their intended functions.
5. For CCSHX "C", the front-to-back method was used for the initial tube rolling, and this resulted in essentially no leakage or re-rolling. However, the Workplan Instructions were found to be even more inadequate than for "A" and "B". This inadequacy was identified by the NRC, and resulted in improved instructions for "A" and "B", but principally in the area of cleanliness control. The lack of adequate instructions for "C", specifically in the area tube expansion, was not addressed in terms of any remedial corrective action. Although CCSHX "C" appears to be the least questionable CCSHX, based on personnel statements regarding the tube rolling methods used and results attained, the lack of documented evidence does not provide a basis for confidence that the work was properly executed.
6. Both supervision and engineering were aware of the concern regarding the method of tube rolling. As a result of this investigation, engineering changed the method of CCSHX "B" and indicated that either method is acceptable. The unresponsiveness on the part of supervision and engineering, as perceived by the concerned individuals and other personnel, resulted in the concerns being expressed to ERT.

CONCERN NOS: IN-86-068-002
IN-86-210-001

DETAILS, continued

VIII. OBSERVATIONS:

A. The following are observations of conditions not specifically identified in the Concerns, but involve the Component Cooling System Heat Exchangers (CCSHX):

1. There was no documented QA/QC verification or inspection of the tube rolling/expansion activities for the retubing of CCSHX "A", "B" or "C".

Workplans No. 2403, 2597 and 4459, for CCSHX "B", "A" and "C" respectively, do not contain or provide for appropriate QC holdpoints and inspections for tube expansion and re-expansion activities.

Administrative Instruction AI-8.5, section 5.1.1.d(2), subsection E.5, states:

"Instructions for modification work which may affect the functioning of safety-related equipment shall contain hold points for inspection as appropriate in the work sequence to insure quality and conformance with work instructions...Guidelines for insertion of QC holdpoints are defined in AI-7.1, Quality Control (QC) Inspection Program."

Administrative Instruction AI-7.1, Attachment 1, "Establishing QC Inspection Holdpoints", Section 1.0 states:

"QC inspection holdpoints shall be established when there is reasonable probability that an undetected deviation could affect plant safety. To determine when reasonable probability for an undetected deviation exists, factors such as post maintenance testability and the complexity and uniqueness of the work performed must be considered. To affect plant safety implies that the ability

CONCERN NOS: IN-86-068-002
IN-86-210-001

DETAILS, continued

VIII. OBSERVATIONS, continued

A. 1, continued

of CSSC components, structures, or systems to meet design or performance specifications could be compromised. Because of the uniqueness and variety of each work activity, each job will be evaluated for possible QC holdpoints. Examples of activities and characteristics that would or would not normally be verified by using QC inspection holdpoints are provided to illustrate the intent of the above criteria. Exceptions to these guidelines may be necessary in order to address special circumstances."

The examples given in AI-7, Attachment 1, do not appear to either specifically include or exclude tube expansion type activities as being subject to QC inspection holdpoints.

The above condition is contrary to ANSI N45.2-1971, specifically, Section 11-Inspection, which states (in part): "Inspection activities to verify the quality of work shall be performed by persons other than those who performed the activity being inspected...Examinations, measurements, or tests of items processed shall be performed for each work operation where necessary to assure quality".

2. Design documents for WBNP do not specify or include appropriate quality standards for the retubing of CSHX "A", "B" and "C".

The Workplans (2403, 2597 and 4459) reference ECN 4936, 4937 or 4938 for the "Installation Requirements/Specification". These ECN state:

"Change out component cooling heat exchanger A (or B or C) tubes per FCR FS-402."

CONCERN NOS: IN-86-068-002
IN-86-210-001

DETAILS, continued

VIII. OBSERVATIONS, continued

A. 2, continued

The FCR FS-402 only states:

"Replace tubes in component cooling system heat exchanger O-HTX-070-0001C, 1-HTX-070-0001A, and 2-HTX-070-0001B with Al-6X as necessary."

The FCR and ECN do not specify or include any other requirements or specifications for the installation of replacement tubes.

The Construction Specification No. N4M-936 for "Retubing of the Component Cooling Water Heat Exchangers" at Bellefonte Nuclear Plant was not referenced in the Workplans for WBNP. No comparable specification was issued for the retubing work at WBNP. Specification N4M-936 was transmitted to WBNP for informational use only, in conjunction with preparing the Workplan for CCSHX "B", however, only portions of the specification appear to have been used for the retubing work at WBNP.

The above condition is contrary to ANSI N45.2-1971, specifically, Section 4-Design Control, which states (in part): "these measures shall include provisions to assure that appropriate quality standards are specified and included in design documents."

3. The replacement tubing (AL6X) is of 20 BWG (0.035 inches) wall thickness, whereas the original tubing (90-10/Cu-Ni) was designed as 18 BWG (0.049 inches) wall thickness. This design change is not identified in the design documents for the retubing of the CCSHX at WBNP.

CONCERN NOS: IN-86-068-002
IN-86-210-001

DETAILS, continued

VIII. OBSERVATIONS, continued

A. 3, continued

Neither the FCR FS-402, nor the associated ECN's (4936, 4937 and 4938), identify the change from 18 BWG to 20 BWG tubing. The Contract 76K35-83210 documents show 18 BWG for the original design of the tubes. The TEMA Class "R" Heat Exchanger standards, Table R-2.21, does not list 20 BWG as a standard or preferred tube gage for 3/4 inch O.D. tubing.

The above condition is to be contrary to ANSI N45.2-1971, specifically, Section 4 "Design Control", subsection 4.1 which states (in part): "Changes or deviations from specified design requirements or quality standards shall be identified, documented, and controlled."

- 4. Tubesheet tube hole diameters are not within the specified drawing tolerance for the Component Cooling System Heat Exchangers (CCSHX).

Contract drawing 5763, Revision 4, Contract 76K35-83210, specifies the tube holes to be 0.760 (+0.002, -0.004) inches diameter. Therefore, the ~~minimum is 0.758~~ inches diameter. Workplan 2403 for CCSHX "B" contains data sheets that show tubesheet hole diameter (ID) measurements of ~~less than 0.758~~ to ~~0.756~~ inches, without identification and documentation of the apparent nonconforming items.

maximum is 0.762

0.764

MORE THAN 0.762

(Changes per
proc. con,
HARRISON/NATRAD
11/12/85)
NARS

The above condition is contrary to ANSI N45.2-1971, specifically, Section 16, Nonconforming Items, which states (in part): "Nonconforming items shall be reviewed and accepted, rejected, repaired or reworked in accordance with documented procedures."

CONCERN NOS: IN-86-068-002
IN-86-210-001

DETAILS, continued

VIII. OBSERVATIONS, continued

A. continued

- 5. The FSAR has not been revised to show the change in tube material, from Cu-Ni/90-10 to AL-6X, for Component Cooling System Heat Exchangers (CCSHX) "A", "B" and "C" at WBNP.

Engineering Change Notices (ECN) No. 4937, 4938 and 4936, dated 7/11/84, for CCSHX A, B, and C, respectively, identify the need to "Revise FSAR Section 9.2.2 to reflect Al-6X tubing". The ECN refer to memorandum MEB 840911019, which further identifies the changes required for section 9.2.2 of the FSAR.

As of Amendment 54, dated 1/9/85, the FSAR has not been revised to reflect the required changes.

- 6. Mechanical equipment arrangement drawings show incorrect designators (A,B,C) for the Component Cooling Heat Exchangers identified as 1-HTX-070-001A, 2-HTX-070-0001B and 0-HTX-070-0001C.

Drawing 47W200-4, R16, "Equipment Plan-EL 737.0 and EL 729.0" shows the Component Cooling Heat Exchangers to be arranged as "A", "B" and "C", from north to south. Drawings 47W250-4 and -8 also show this arrangement.

It appears that the designators should read "A", "C" and "B", from north to south, as shown on drawings 47W464-4, R26, and 47W464-8, R21.

- B. The above observations are presented in this report for use in implementing additional investigation and/or corrective action, as appropriate, by the responsible organization(s).

Report (w/ pen tube change, pg 29) Reviewed & Accepted:

PREPARED BY: J.T. Nation 11-5-85
DATE

REVIEWED BY: O.R. Thero 11/5/85
DATE

M.A. [Signature]
11/12/85
NSRS

FINAL

REQUEST FOR REPORTABILITY EVALUATION

1. Request No. IN-85-068-002
(ERT Concern No.) (ID No., if reported)
2. Identification of Item Involved: Component Cooling System Heat Exchanger Tubes
(Nomenclature, system, manuf., SN, Model, etc.)
3. Description of Problem (Attach related documents, photos, sketches, etc.)
Indeterminant tube wall thickness/condition, subsequent to undocumented/uncontrolled re-expansion of tubes at tube-to-tube sheet joints/seals, for retubing of component cooling system heat exchanger "A" and possibly "B" & "C", E1. 737, Aux. Bldg., Units 1 and 2, WBNP.
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: Failure of tubes would adversely affect the design function of this seismic category I component.
 - 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: Criterion XV. Failure to identify, document and disposition nonconforming (indeterminate) items, and failure to control and document activities affecting quality.
 - 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 _____ Yes X If Yes, Explain: Design documents for the retubing activity do not specify appropriate quality standards, and do not specify the change from 18 BWG to 20 BWG for tube wall thickness.

OR

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : Craven Crowell, Director of Information, E12A4 C-K

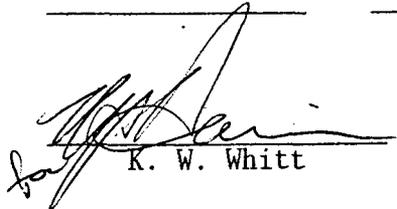
FROM : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

DATE : November 8, 1985

SUBJECT: REPORTS SUBMITTAL FOR "NUCLEAR SAFETY UPDATE"

Attached is one copy each of the following final reports of investigation or evaluation of employee concerns for your use, summarization, and publication in Nuclear Safety Update. All have been reviewed and accepted by NSRS.

<u>Concern No.</u>	<u>Investigation Performed by</u>	<u>Concern No.</u>	<u>Investigation Performed by</u>
<u>EX-85-042-003</u>	<u>ERT</u>	_____	_____
<u>IN-85-325-006</u>	<u>NSRS</u>	_____	_____
<u>IN-85-439-003</u>	<u>NSRS</u>	_____	_____
<u>IN-85-460-003</u>	<u>ERT</u>	_____	_____
<u>IN-85-534-002</u>	<u>NSRS</u>	_____	_____
<u>IN-85-581-002</u>	<u>NSRS</u>	_____	_____
<u>IN-85-671-004</u>	<u>NSRS</u>	_____	_____
<u>IN-85-853-X02</u>	<u>ERT</u>	_____	_____
<u>IN-85-915-002</u>	<u>NSRS</u>	_____	_____
<u>IN-86-155-004</u>	<u>NSRS</u>	_____	_____
_____	_____	_____	_____


K. W. Whitt

Attachments

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

Name Date

Repo4A:B

cc: H. N. Culver, W12A19 C-K
 W. F. Willis, E12B16 C-K (4)
 QTC/ERT, CONST-WBN
 E. R. Ennis, NUC PR, WBN



EMPLOYEE CONCERN DISPOSITION REPORT

CONCERN NO. EX-85-042-003

DATE OF PREPARATION: 11-5-85

CONCERN: Welders are being requalified on carbon plate with a carbon backing strip. The test plate is set at 33 degrees for the test and this one test requalifies the welder for every process he had before, including pipe.

INVESTIGATION PERFORMED BY: ERT

FINDING(S): ASME Section IX, QW 322, Renewal of Qualification states in part:

"Renewal of qualification for a specific welding process under (a or b) (Expired Qualification) "above may be made on a single test joint (plate or pipe) on any thickness, position or material to reestablish the welders or welding operators qualification for any thickness, position or material for the process for which he was previously qualified."

AWS D1.1, Section 5, Para 5.30, Period of Effectiveness states:

"The requalification test need be made only in the 3/8" in. (9.5 MM) thickness."

Backing strips were utilized in all performance qualification renewal tests. A random review of welding procedures for backing material requirements determined the following:

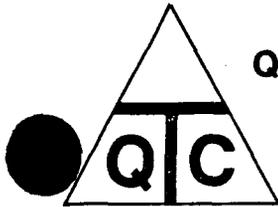
- A) SM-U-1, No backing required.
- B) GT11-B-1 or GT11-O-1A, No backing required.
- C) SM11-B-3, Backing required.

In the case of A&B, ASME and AWS concurs that if backing material is not required by the WPS, it may or may not be used. This means that a full penetration weld can be achieved with or without the use of backing material which is not considered an essential variable.

In the case of Item C, the WPS requires backing which is an essential variable.

CORRECTIVE ACTION(S) None required

CLOSURE STATEMENT: The concern as stated is substantiated in that the statement is true. However, the "performance qualification renewal test" conducted is in accordance with and acceptable by the AWS/ASME codes. TVA's "performance qualification renewal tests" satisfy the ASME/AWS code requirements for qualifications which have expired.



**QUALITY
TECHNOLOGY
COMPANY**

P.O. BOX 600
Sweetwater, TN
37874

ERT INVESTIGATION REPORT

PAGE 1 OF 2

CONCERN NO. EX-85-042-003

CONCERN: Welders are being requalified on carbon plate with carbon backing strip. The test plate is set at 33° for the test and this one test requalifies the welder for every process he had before including pipe.

INVESTIGATION
PERFORMED BY: W. M. Kemp, Jr.

Personnel Contacted: Confidential

Documents Reviewed:

ASME Section IX, Part QW Performance Qualification
AWS D1.1 Section 5 Qualification (Welders)
Process Specification 1.C.2.2 (R1) Test #SM-RQ (C) AWS
Process Specification 1.M.2.2 (R3) Test #SM-RQ (M) ASME
Process Specification 1.M.2.2 (R3) Test #GT-RQ (M) ASME

Summary of Investigation:

The review and investigation of this concern has determined that the statement in the concern is substantiated, however this is an acceptable method for renewal of expired qualification per the ASME and AWS codes.

Findings:

ASME Section IX, QW 322, Renewal of Qualification states in part:

"Renewal of qualification for a specific welding process under (a or b) (Expired Qualification) "above may be made on a single test joint (plate or pipe) on any thickness, position or material to reestablish the welders or welding operators qualification for any thickness, position or material for the process for which he was previously qualified."

AWS D1.1, Section 5, Para 5.30, Period of Effectiveness states:

"The requalification test need be made only in the 3/8" in. (9.5 MM) thickness."

CONCERN NO. EX-85-042-003

DETAILS, continued

Findings, continued

The following are TVA's requirements for "Performance Qualification Renewal Test" - test coupons to be welded.

- PS 1.C.2.2 (R1) AWS D1.1 3/8" x 3" x 6" Using Backing Strip
SMAW, RT Exam
- PS 1.M.2.2 (R3) ASME IX, 3/8" x 3" x 6" SMAW, Rt. Exam
- PS.1.M.2.2 (R3) ASME I, x 3/8" x 3" x 6" GTAW, Rt. Exam

Backing strips were utilized in all performance qualification renewal tests. A random review of welding procedures for backing material requirements determined the following:

- A) SM-U-1, No backing required.
- B) GT11-B-1 or GT11-0-1A, No backing required.
- C) SM11-B-3, Backing required.

In the case of A&B, ASME and AWS concurs that if backing material is not required by the WPS, it may or may not be used. This means that a full penetration weld can be achieved, with or without the use of backing material and is not considered an essential variable.

In the case of Item C, the WPS requires backing and is an essential variable.

Conclusion:

The concern as stated is substantiated in the fact that the statement is true. However, the "performance qualification renewal test" conducted is in accordance with and acceptable by the AWS/ASME codes. TVA's "performance qualification renewal tests" will satisfy the ASME/AWS code requirements for qualifications which have expired.

Report Reviewed & Accepted
[Signature] 10/19/85
NSRS.

PREPARED BY *[Signature]* Oct 18, 1985
DATE

REVIEWED BY *[Signature]* 10/19/85
DATE

FINAL

REQUEST FOR REPORTABILITY EVALUATION

1. Request No. EX-85-042-003 _____
(ERT Concern No.) (ID No., if reported)
2. Identification of Item Involved: Welder Requalification _____
(Nomenclature, system, manuf., SN, Model, etc.)
3. Description of Problem (Attach related documents, photos, sketches, etc.)
Welders are being requalified on carbon plate with carbon lacking strips. The test plate is set at 33 degrees for the test and this one test requalifies the welder for every process he had including pipe _____
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 _____ If Yes, Explain: _____

- 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 _____ If Yes, Explain: _____

- 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 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 perform its intended safety function.
No 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 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:

OT News
ERT Group Manager

365-4464
Phone Ext.

M. S. H.
ERT Project Manager

365-4414
Phone Ext.

Acknowledgment of receipt by NSRS

[Signature]
Signed

Date 10/23/85

Time 1125

EMPLOYEE CONCERN DISPOSITION REPORT

CONCERN NO. IN-85-325-006

DATE OF PREPARATION: 10-28-85

CONCERN: Inadvertent valve operation during Unit 1 hot functional testing, resulting in a nonradioactive water spill, would have caused a radioactive spill had the plant been in operation. It was expressed that valve control and operator training have not improved since the accident.

INVESTIGATION PERFORMED BY: TVA NSRS

FINDING(S): Since Unit 1 hot functional testing, the WBN staff has taken action to identify and correct problems with valve configuration control and to improve the quality of applicable plant procedures. Personnel have been trained in the use of the improved procedures. The specific instance of inadvertent valve operation was not identified.

CORRECTIVE ACTION(S) None required.

CLOSURE STATEMENT: This concern was not substantiated.

PRELIMINARY

FINAL

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 perform its intended safety function.
No 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 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: W. P. Dubouché 365 4478
ERT Group Manager Phone Ext.

William A. Schu
ERT Project Manager Phone Ext.

Acknowledgment of receipt by NSRS

Bruce J. Pfeiffer Date 11/6/85 Time _____
Signed

TENNESSEE VALLEY AUTHORITY
NUCLEAR SAFETY REVIEW STAFF
NSRS INVESTIGATION REPORT NO. 1-95-222-WBN
Milestone 1 - Fuel Load

SUBJECT: ERT ITEM NO. IN-85-325-004 - VALVE CONFIGURATION CONTROL

INVESTIGATOR: J. B. Rollins
J. B. Rollins

Sept 30, 1985
Date

REVIEWER: E. G. Brantley
E. G. Brantley

Sept 30, 1985
Date

APPROVED BY: M. A. Harrison
M. A. Harrison

10/1/85
Date

FINAL

I. BACKGROUND

NSRS has investigated employee concern IN-85-325-006 which Quality Technology Company identified during the Watts Bar Employee Concern Program. The concern is worded:

Inadvertent valve operation during Unit 1 hot functional testing, resulting in a nonradioactive water spill, would have caused a radioactive spill had the plant been in operation. It was expressed that valve control and operator training have not improved since the incident.

Additional information was requested from the Quality Technology Company. None was obtained. During this investigation the specific instance of valve operation was not identified.

II. SCOPE

Valve configuration control and related operator training improvement since Unit 1 hot functional testing was determined to be the primary concern. This concern was investigated by contacting applicable personnel and reviewing documentation relating to valve configuration control. NSRS reviewed reports, procedures/instructions, and training documents that had been issued since Unit 1 hot functional testing.

III. SUMMARY OF FINDINGS

Based upon a review of applicable documents and interviews with appropriate personnel, the specific findings listed below were identified.

A. Audits and Reports

1. NRC Report 50-390/84-59, item 05, issued November 8, 1984, identified that procedures which implemented system configuration control and independent verification were not clearly written and that training was inadequate for operations personnel using the applicable procedures. In response to that item configuration control procedures were revised, and operations personnel were trained on the revised procedures. Upon review of the corrective action taken, the NRC closed this item.
2. NSRS reported problems with configuration control and independent verification in NSRS Report R-84-15-WBN, item 03, issued December 27, 1984. The report recommended that Operation Section Instruction Letter (OSL) A-2 and Administration Instruction 2.19 be reviewed with all operations staff. This review was completed by the Operations Section and training for operations personnel was conducted.

3. Quality Audit Branch (QAB) Audit Report QWB-A-85-006, issued March 14, 1985, discussed the audit of instructions for establishing and maintaining system status. No deviations were identified; however, areas for instruction improvement were discussed with the operations staff. QAB personnel contacted about this report stated that this area would be audited annually for the next few years.

B. WBNP Procedures/Instructions

1. A review of WBN instruction OSLA-2, "Maintaining Cognizance of Operational Status," identified that four revisions to improve clarification and implementation had been made since Unit 1 hot functional testing.
2. A review of WBN instruction AI-2.19, "Independent Varification," identified that three revisions were made to identify criteria and performance provisions, clarification improvement, and to expand coverage of the instruction after Unit 1 hot functional testing.

C. Interview Information

1. Operations management personnel stated that problems with valve configuration control had been brought to their attention due to increased regulatory and audit activity in this area. The plant operations section requested the Office of Quality Assurance (OQA) to provide assistance in this area by working with the plant staff to identify and resolve procedural and implementation problems. Procedures were revised as necessary, and applicable training was conducted.
2. Operations training personnel stated that required operations personnel had received training on the revised procedures and further training on procedures implementation was ongoing through shift safety meetings. NSRS reviewed the training lesson plans and records of the training sessions which appeared to be adequate.
3. As a result of a request from the Operations Section the Plant Quality Assurance (PQA) organization performed a survey of valve configuration control. Deviations were identified, and corrective actions were initiated, as applicable. PQA personnel informed NSRS that a followup survey of system configuration control is scheduled for the near future.

IV. CONCLUSIONS/RECOMMENDATIONS

Conclusion

The employee concern was not substantiated. Since Unit 1 hot functional testing, the WBN staff had taken definite actions to identify and correct problems with valve configuration control and to improve the quality of applicable plant procedures. Training had been conducted for operations personnel in the use of the improved procedures.

Additionally, future QAB audits and PQA surveys of these activities are scheduled.

Recommendation

None.

EMPLOYEE CONCERN DISPOSITION REPORT

CONCERN NO. IN-85-439-003

DATE OF PREPARATION: 11-5-85

CONCERN: Superintendents and General Foremen are over craft that they have no experience or knowledge in. They do not know what is really required to do a good job, and all they want to do is get the job done in a rush. They don't care about quality. Example: Manager instructed craft not to follow approved construction requirements, but instead told craft to do only part of the specified process.

INVESTIGATION PERFORMED BY: TVA NSRS

FINDING(S): Review of the craft superintendent's Personal History Record (PHR) indicated that the superintendent had more than ten years' management experience in the craft he was supervising. In addition the superintendent appeared to meet the qualifications required by the job description for this superintendent's position. Examination of the foreman's PHR revealed that this individual had in excess of thirty years' experience. This experience included completion of an apprenticeship program and subsequent employment by TVA as a journeyman, foreman, and assistant superintendent in the craft that was questioned by the concern. Interviews of craft personnel involved with the performance of activities questioned in the concern did not identify any incidents related to the concern. However, the interviews did reveal that if the incidents had occurred, the results would have been obvious to the final inspectors, resulting in corrective action.

CORRECTIVE ACTION(S) None required

CLOSURE STATEMENT: This concern was not substantiated.

PRELIMINARY

FINAL

REQUEST FOR REPORTABILITY EVALUATION

- 1. Request No. IN-85-439-003 _____
 (ERT Concern No.) (ID No., if reported)
- 2. Identification of Item Involved: SUPERVISION _____
 (Nomenclature, system, manuf., SN, Model, etc.)
- 3. Description of Problem (Attach related documents, photos, sketches, etc.)
SUPERVISION (G.F.'S, SUPT, ETC) ARE OVER CRAFTS OUTSIDE THEIR DIS-
CIPLINE.

- 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 _____ If Yes, Explain: _____

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 _____ If Yes, Explain: _____

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 Yes _____ If Yes, Explain: _____

OR

PRELIMINARY

FINAL

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 perform 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: W. Duboual 365-4478
ERT Group Manager Phone Ext.

William A. Schu
ERT Project Manager Phone Ext.

Acknowledgment of receipt by NSRS

Bruce D. Luffen Date 11/7/85 Time _____
Signed

TENNESSEE VALLEY AUTHORITY
NUCLEAR SAFETY REVIEW STAFF
NSRS INVESTIGATION REPORT NO. I-85-423-WBN
EMPLOYEE CONCERN IN-85-439-003
MILESTONE 1

SUBJECT: INADEQUATE CRAFT SUPERVISION

DATES OF INVESTIGATION: October 14-25, 1985

INVESTIGATOR: C. M. Key
C. M. Key

10/29/85
Date

INTERVIEWED BY: W. D. Stevens
G. G. Brantley

10/29/85
Date

APPROVED BY: [Signature]
W. A. Harrison

10/30/85
Date

BACKGROUND

The Nuclear Safety Review Staff (NSRS) investigated Employee Concern IN-85-439-003 which Quality Technology Company (QTC) identified during the Watts Bar Employee Concern Program. The concern was worded as follows.

Superintendents and General Foremen are over craft that they have no experience or knowledge in. They do not know what is really required to do a good job, and all they want to do is get the job done in a rush. They don't care about quality. Example: Manager instructed craft not to follow approved construction requirements, but instead told craft to do only part of the specified process.

Further information was requested from QTC regarding the particular craft organization and the procedures that were referred to in the concern. These additional details were received by NSRS from QTC.

II. SCOPE

A. Applicable Documentation Reviewed

1. Personnel History Records (PHRs) for members of the craft organization named in the concern.
2. Job descriptions for the craft superintendent and assistant superintendent.
3. Procedures governing activities of this craft.

B. Interviews were conducted with craft personnel involved with the performance of activities questioned in the concern.

III. SUMMARY OF FINDINGS

Review of the craft superintendent's PHR indicated that the superintendent had more than ten years' management experience in the craft he was supervising and not as a steamfitter as alleged in the concern. In addition the superintendent appeared to meet the qualifications required by the job description for this superintendent's position. Examination of the foreman's PHR revealed that this individual had in excess of thirty years' experience. This experience included completion of an apprenticeship program and subsequent employment by TVA as a journeyman, foreman, and assistant superintendent in the craft that was questioned by the concern. Interviews of craft personnel involved with the performance of activities questioned in the concern did not identify any incidents related to the concern. However, the interviews did reveal that if the incidents had occurred, the results would have been obvious to the final inspectors, resulting in corrective action.

CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The allegation appears to be unsubstantiated for the following reasons.

1. The superintendent and general foreman have experience and knowledge in the craft identified by the concern.
2. Interviews of affected craft personnel did not reveal any details to substantiate the concern.

B. Recommendations

None.

EMPLOYEE CONCERN DISPOSITION REPORT

CONCERN NO. IN-85-460-003

DATE OF PREPARATION: 10-28-85

CONCERN: A deep gouge in 4" line at the penetration going into pipe chase. A5 line pipe chase wall going through V or W line Aux. Bldg Unit #1 737' elevation, 1980 or 1981.

INVESTIGATION PERFORMED BY: ERT

FINDING(S): Nonconformance report 2477R was initiated at the time the gouge was initially reported on July 29, 1980. The gouge was repaired and documented on a base metal repair sheet on August 6, 1980. NCR was closed on September 4, 1980.

CORRECTIVE ACTION(S) None required.

CLOSURE STATEMENT: This concern was not substantiated. Although the ERT report stated that this concern was considered to be substantiated, subsequent to the issuance of the report NCR 2477R which indicated that proper corrective action was taken to repair the gouge was located.

PRELIMINARY

FINAL

REQUEST FOR REPORTABILITY EVALUATION

1. Request No. IN-85-460-003 _____
(ERT Concern No.) (ID No., if reported)

2. Identification of Item Involved: DAMAGED PIPE
(Nomenclature, system, manuf., SN, Model, etc.)

3. Description of Problem (Attach related documents, photos, sketches, etc.)
A DEEP GOUGE IN 4" LINE AT THE PENETRATION GOING INTO PIPE CHASE
A5 LINE PIPE CHASE WALL GOING THROUGH V OR W LINE WALL, AUX BLDG.
UNIT #1 737' ELEVATION 1980 OR 1981.

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 _____ If Yes, Explain: _____

 - 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 _____ If Yes, Explain: _____

 - 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 Yes _____ If Yes, Explain: _____

 - OR

PRELIMINARY

FINAL

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 perform its intended safety function.
No 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 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: W. J. Huber 365 4478
ERT Group Manager Phone Ext.

William S. Schu
ERT Project Manager Phone Ext.

Acknowledgment of receipt by NSRS

Bruce P. Pfeiffer Date 11/6/85 Time _____
Signed

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

file copy

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 : OCT 17 1985

SUBJECT: CORRECTIVE ACTION RESPONSE EVALUATION

REPORT NO. : IN-85-460-003

SUBJECT : Gouged CC Pipe

CONCERN NO.: IN-85-460-003

() ACCEPT () REJECT

(X) ACCEPT WITH COMMENT

Action taken as indicated on the NCR 2477R provides adequate documentation of the resolution to the cited problem. This item is closed.

Original signed by
M. S. Kidd

K. W. Whitt

Attachment

cc (Attachment):

H. N. Culver, W12A19 C-K
QTC/ERT, Watts Bar Nuclear Plant
G. Wadewitz, Watts Bar Nuclear Plant
W. F. Willis, E12B16 C-K (4)

10/18/85--JTH

CC: QTC/ERT, CONST-WBNH--for response to employee.

0032U



UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : G. Wadewitz, Project Manager, OC-WBN

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

DATE : September 4, 1985

SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL

WBNP PROJECT MANAGER		
SFP 06 '85		
Note	Distribution	Note
<input checked="" type="checkbox"/>	CEO	
	CSO	
	M&A	
	PMS	
	GMO	
	SEO	
RETURN TO MASTER FILE		

SEP 0 1985

Transmitted herein is NSRS Report No. IN-85-460-003

Subject Gouged CC Pipe

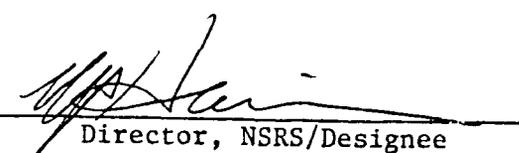
Concern No. IN-85-460-003

and associated recommendations for your action/disposition.

It is requested that you respond to this report and the attached recommendations by September 20, 1985. Should you have any questions,

please contact W. R. Pickering/O. Thero at telephone 128-615-365-4464.

Recommend Reportability Determination: Yes No


Director, NSRS/Designee

cc: W. F. Willis, E12B16 C-K (4)
H. N. Culver, W12A19 C-K
J. W. Coan, P-104 SB-K

E. R. Ennis, WBNP
OTC/ERT, WBNP

--Copy and Return--

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

From: Guenter Wadewitz, Project Manager, Watts Bar Nuclear Plant OC

Date: September 6, 1985

I hereby acknowledge receipt of NSRS Report No. IN-85-460-003

Subject Gouged CC Pipe

for action/disposition.


Signature Guenter Wadewitz

9/6/85
Date

(Please copy entire page for return)



NSRS Recommendations: IN-85-460-003

(1) Q-85-460-003-01, "Gouged Inaccessible Pipe"

WBN CONST should initiate a NCR on the component cooling system pipe identified in the report in order to obtain resolution and documentation of this issue.



**QUALITY
TECHNOLOGY
COMPANY**

P.O. BOX 600

• SWEETWATER, TN. 37874 •

(615)365-4414

ERT INVESTIGATION REPORT

CONCERN NO: IN-85-460-003

CONCERN: A deep gouge in 4" line at the penetration going into pipe chase. A5 line pipe chase wall going through V or W Line Wall Auxillary Building, Unit #1 737' elevation, 1980 or 1981.

INVESTIGATION

PERFORMED BY: William R. Pickering

Details:

In the process of removing solidified grout from Box Anchor 47A060-70-2 in late 1980 or early 1981, craftsmen inadvertently gouged a 4" Class , schedule 40 carbon steel pipe of System 70, Component Cooling in the Auxillary Building Unit 1 at Elevation 754', 11'-09" north of line "V" and 2'-06" west of A5. The gouge caused with a pneumatic chisel tool, occured with witnesses present and was described as being deep.

QAPP 15 Revision 5, nonconforming materials, parts or components, section 3 states in part; "Deficiencies in characteristics, documentation or procedures that render the quality of an item or activity unacceptable or indeterminate must be promptly identified, reported and controlled to prevent inadvertent installation or use, and corrected." Contrary to this requirement a nonconformance report was never initiated. Therefore no corrective action took place.

The process specification 4.M.5.1 revision 2, section 2.1 states in part..."unacceptable surface defects shall be removed by mechanical or thermal means..." Contrary to this requirement witnesses provided information indicating the subject gouge is present as described and the Box Anchor was refilled.

Engineering and Construction personnels' failure to follow approved procedures and applicable codes and standards to evaluate a noted deficiency renders the quality of the subject pipe to be indeterminate.

Conclusion: This concern is considered to be substantiated.

Basis:

- 1) Witnesses provided information indicating the pipe was gouged, and the "box anchor" was refilled (grouted) concealing the gouge.

Concern No. IN-85-460-003

Details: (continued)

- 2) Authorization for ERT to visually inspect the condition of the installed pipe was refused.
- 3) No NCR was written as required by QAPP 15, revision 5, identifying the nonconformance condition.

Report Reviewed & Accepted
W. J. [Signature]
8/30/85
N/S/S

Prepared by: *William [Signature]* 8-29-85
date
Reviewed by: *O. J. [Signature]* 8/29/85
date

FINAL

REQUEST FOR REPORTABILITY EVALUATION

- 1. Request No. IN-85-460-003 (ERT Concern No.) (ID No., if reported)
- 2. Identification of Item Involved: 4" CS Pipe, System 70, Component Cooling
(Nomenclature, system, manuf., SN, Model, etc.)
- 3. Description of Problem (Attach related documents, photos, sketches, etc.)
Gouge of indeterminate length, width or depth located in a 4" carbon steel
line of System 70, Component Cooling in Unit 1 Auxilliary Building, Elevation
754', 2'06" West of "A5" and 11'09" North of "V" within box anchor 47A060-70-1

- 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 If Yes, Explain: Potential pipe rupture

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 If Yes, Explain: A nonconformance report was not initiated as per 10CFR50 App B Criteria 15 and 10 CFR50 App B Criteria 16

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 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 perform its intended safety function.

No Yes If Yes, Explain: _____

OR

E. This deficiency represents a significant deviation from 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 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: *OT Sherris* 365-4464
ERT Group Manager Phone Ext.

OT Sherris for 365-4414
ERT Project Manager Phone Ext.

Acknowledgment of receipt by NSRS

M. Bai
Signed

Date 8/30/85 Time 1701

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

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

FROM : Guenter Wadewitz, Project Manager, Watts Bar Nuclear Plant OC

DATE : SEP 20 1985

SUBJECT: WATTS BAR NUCLEAR PLANT - REQUEST FOR INVESTIGATION/EVALUATION

Attached is our revised response to employee concern number
IN-85-460-003.



Guenter Wadewitz

COC:LLE
QERT.LE
Attachments
cc (Attachment):
H. N. Culver, W12A19 C-K

SEP 24 '85

Handle	Noted
Whitt	
<i>mah</i>	
LML	
SJM	
WCS	
JTH	
IRC	
TARG	
FILE	<i>jth</i>



Concern No. IN-85-460-003

NSRS Recommendations: WBNP OC should initiate an NCR on the component cooling system pipe identified in the report in order to obtain resolution and documentation of this issue.

OC Response: After a more thorough investigation of closed NCRs in RIMS, it was revealed that a nonconformance report number 2477R was initiated at the time the gouge was initially reported on July 29, 1980. The gouge was repaired on a base metal repair sheet on August 6, 1980 and filed in the QCRU vault. NCR 2477R was closed on September 4, 1980. See attached.

Principally prepared by Robert R. Kirkpatrick, extension 404.

WBN 830423 071

DIVISION OF CONSTRUCTION
NONCONFORMING CONDITION REPORT

LOP

WBNP-QCP-1.2
ATTACHMENT A1 K9

LOP

Nuclear Project: WATTS BAR NUCLEAR PLANT		Unit: <u>1</u>	NCR: 2477 R
2. Area: <input type="checkbox"/> Civil <input type="checkbox"/> Electrical <input checked="" type="checkbox"/> Mechanical <input type="checkbox"/> Instrumentation <input type="checkbox"/> Welding		ASME Code Item <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
3. Activity: <input type="checkbox"/> Receiving <input type="checkbox"/> Storage <input type="checkbox"/> Fabricating <input checked="" type="checkbox"/> Installing <input type="checkbox"/> Other		Contract No. <u>N/A</u>	
4. Type: <input type="checkbox"/> Damage <input type="checkbox"/> Failure <input type="checkbox"/> Defect <input type="checkbox"/> Documentation <input checked="" type="checkbox"/> Other		<u>Damage to pipe</u>	
5. Item Description: Box anchor 47A060-70-2 Field weld 1-070A-D147-2A Dravo subassembly Mk# 70-CC-239 TVA Class C, ASME Class III		ASME	
6. Nonconformance Description: Subassembly received surface scratches and gouged while cutting (Include Apparent Cause) box anchor 47A060-70-2 from piping. Cutting operation sheet 1-70-F-29-41 was issued for this cut. Surface scratches and gouges occurred while an air hammer was being used to remove grout on 7-19-80. Recommended Disposition: <input checked="" type="checkbox"/> Rework <input type="checkbox"/> Reject <input type="checkbox"/> Repair <input type="checkbox"/> Use-As-Is <input type="checkbox"/> Other (Check Block & Detail Below) A base metal repair sheet to be issued per WBNP-QCP-1.2, subassembly to be repaired in accordance with necessary welding procedures. Action Required to Prevent Recurrence: Craft supervision to investigate the circumstances of this nonconformance and provide training/discipline as necessary.			
NCR Initiator: <u>James I. Dennis</u>		Date: <u>7-29-80</u>	
7. Referred to Design Project Organization (DPO): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		DPO Coordination Contact Significant Condition: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Disposition: <input checked="" type="checkbox"/> As Recommended <input type="checkbox"/> Other (Describe)		Approved by Construction Engineer: <u>[Signature]</u> Date: <u>8-1-80</u>	
8. DPO Disposition: <input type="checkbox"/> As Recommended <input type="checkbox"/> Other (Describe)		Approved by Design Project Organization: _____ Date: <u>8-3-80</u>	
9. Disposition Inspection and Release from Nonconforming Status: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Inspected by: <u>James T. Dennis</u> Date: <u>8-21-80</u>	
10. Action Required to Prevent Recurrence Complete: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Verified by Construction Engineer: <u>[Signature]</u> Date: <u>7/4/80</u>	
Distribution: Site QA Records File Construction Engineer Project QA Unit QA Manager, OEDC Design Project Organization (Items for this action only) Authorized Nuclear Inspector (Code only) EPA DES NEB NLS (Significant NCR's only) OHS INSHS (Significant NCR's only) MEDS		Disposition Reviewed and Accepted By: <u>[Signature]</u> <u>8-4-80</u> Authorized Nuclear Inspector Date	

0 5 7 4

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : Robert W. Olson, Construction Engineer, Watts Bar Nuclear Plant CONST **LOP**

FROM : John E. Treadway, General Construction Superintendent, Watts Bar Nuclear Plant CONST

DATE : September 3, 1980

SUBJECT: WATTS BAR NUCLEAR PLANT - NONCONFORMING CONDITION REPORT NO. 2477R

The following action was taken to prevent recurrence on the subject non-conforming condition report:

An investigation was made by craft superintendents concerning NCR No. 2477R. Our investigation revealed that the space available to do the chipping with a chipping hammer in a very small area had made it difficult to do the work without possibly scratching and/or gouging the pipe in question. We were unable to definitely say who specifically damaged the pipe; however, a meeting was held with all the employees who were assigned to do the chipping operation at Watts Bar Nuclear Plant. In this meeting, it was brought to all employees attention that if the pipe is scratched or gouges occur, it should be reported to their foreman so that they may report it to the appropriate engineering unit. No disciplinary action is required at this time.

John E. Treadway
 JOHN E. TREADWAY

LC:LKT

cc: W. C. English, GFO-Watts Bar Nuclear CONST
 J. E. Wilkins, FMD-Watts Bar Nuclear CONST

QC&R
 SEP 09 1980
 RT

QC&R
 JUL 15 1981
 BHT

WBNP
 Const Engr's Office

SEP 3 '80

Name	Division	Initials
Asst. Const. - C		
Asst. Const. - M		
Asst. Const. - E		
Asst. Const. - I		
Asst. Const. - J		
Asst. Const. - K		
Asst. Const. - L		
Asst. Const. - N		
Asst. Const. - O		
Asst. Const. - P		
Asst. Const. - Q		
Asst. Const. - R		
Asst. Const. - S		
Asst. Const. - T		
Asst. Const. - U		
Asst. Const. - V		
Asst. Const. - W		
Asst. Const. - X		
Asst. Const. - Y		
Asst. Const. - Z		



1-10-F-29-23

TVA-WBNP
REPAIR WELD OPERATION SHEET **BASE METAL**

REPAIR PER **1634**
NCR 2477R

VA Class C ASME Class 3 Original Weld Number

FWOS NA Location Aux Elevation 737' Cut NA Repair 1
Serial Number Building Floor

Pipe Size 4" x 0.237" Drawing Number E2879 IC 147
Diameter Schedule or Wall

Base Material Specification and Grade SA 106 B to NA

Defects Detected By VT NDE Report NA Date NA
VT,MT,PT,RT Number

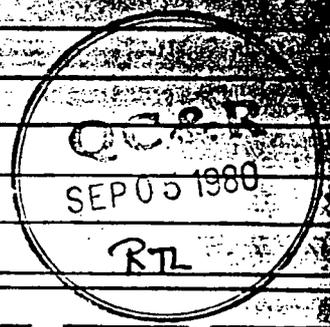
Original Welding Procedure NA Repair Welding Procedure GT11-0-1A, R5

Special Instructions Prepare surface and weld to appropriate finish and contour

CHECK LIST OF REPAIR AND INSPECTION OPERATIONS

- 1. Excavation Release
- 2. Chipping
- 3. Grinding
- 4. Cutting
- 5. Inspect Excavation
- 6. Preheat
- 7. Purge
- 8. Welding Release
- 9. Visual (VT)
- 10. Liquid Penetrant (LP)
- 11. Magnetic Particle (MT)
- 12. Radiographic (RT)
- 13. Ultrasonic (UT)
- 14. PWHT
- 15. _____
- 16. _____

Oprn. No.	Procedure Reference	Hold Points			Released			Remarks Field Data, Report Numbers, etc.
		WE	ME	AI	WE	ME	AI	
1	NA	X			8-5-80			
3	↓	X			8-5-80			
5	↓	X			8-5-80			# 38424
10	WBNP QCP 4.13 R4	X			8-5-80			# 38424
6	P.S. I.M. 1.2(b)	X			8-5-80			
8	NA	X	X		8-5-80			
9	WBNP QCP 4.13 R4	X			8-6-80			# 38425
10	↓	X			8-6-80			# 38425



Repair Welders GAA Issue Slip Numbers 111638

PWHT Required Yes No

Site QA Approval By: _____ Date: _____

Reviewed for Hold Points

WE: <u>Sylvia Jane Wolfe</u>	Date: <u>8-4-80</u>
ME: <u>James T. Dennis</u>	Date: <u>8-4-80</u>
AI: <u>J. E. ...</u>	Date: <u>8/4/80</u>

Final Acceptance

Engg. Supervisor: <u>Raymond ...</u>	Date: <u>8-22-80</u>
Auth. Insp.: <u>J. E. ...</u>	Date: <u>8/27/80</u>

Original - Mechanical Engineer
 1st Copy - Authorized Inspector
 2nd Copy - Welding Engineer
 Hard Copy - Attach to pipe

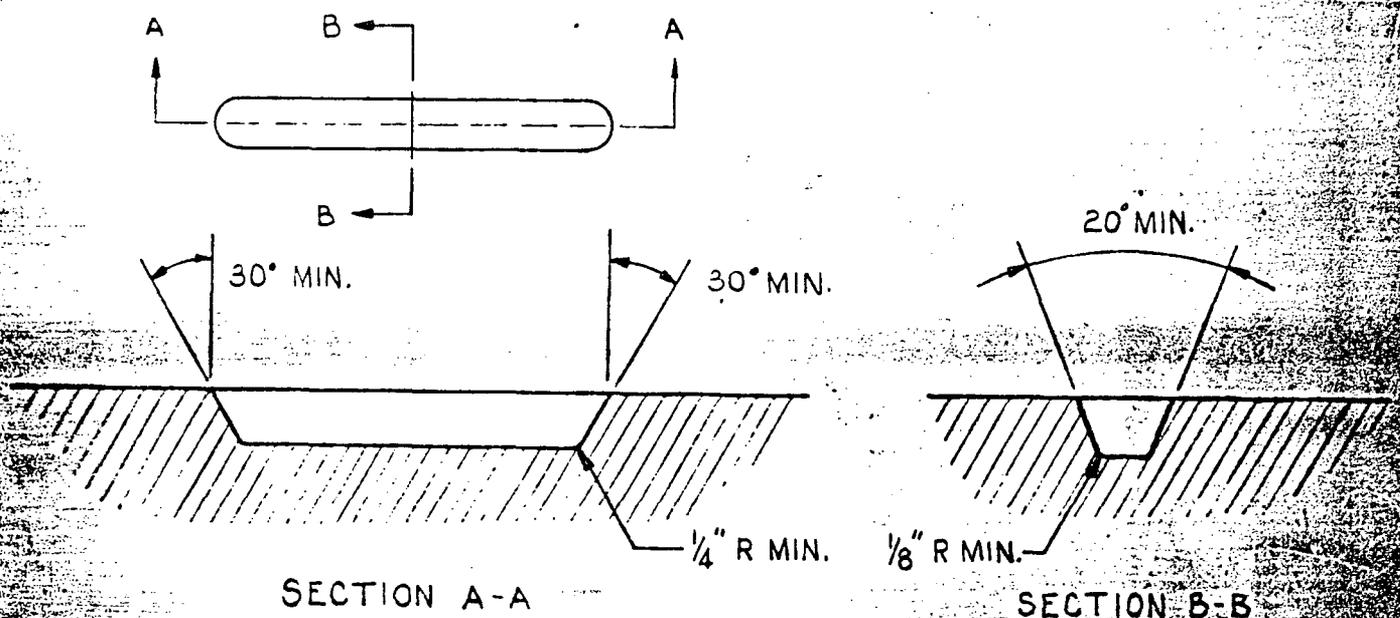
(ATTACH TO WELD JOINT)

DND

REPAIR WELDING GUIDE LINES

Rejectable defects revealed by nondestructive examination shall be removed by arc gouging and/or by mechanical means. When gouging is used an additional 1/32-inch of material shall be removed mechanically. The area shall be dye penetrant (PT) or magnetic particle (MT) inspected. Every effort should be made to avoid the necessity for repair welding of minor defects that can be corrected by grinding. Care should also be exercised to remove only those defects that are required to bring the item within acceptable limits.

The repair area shall be contoured to produce an excavation that is fully visible to the welder and allows access of the filler metal to all groove surfaces. Sidewalls of the excavation shall be sloped so they have a minimum of 20° included angle with no sharp breaks in the contour.



The welding process, parameters, and cleaning requirements of the originally specified welding procedure or acceptable alternate shall be followed when filling the excavation. The repair shall blend into the adjacent area and have no abrupt ridges or valleys and shall meet the finish requirements of the completed weld.

The repaired area shall be examined by the same method(s) that is (are) required for the completed weld.

WELDING MATERIAL REQUISITION

BY THE WALKERS BAR NUCLEAR

111638

Type Wire	Quantity	Size	Control No.
Return Date	Quantity	Size	Control No.
Type Wire <u>E70S-6</u>	Quantity	Size	Control No.
Return Date <u>4/27</u>	Quantity <u>1.5</u>	Size <u>3/32</u>	Control No. <u>N/A</u>
Welding Procedure <u>GTAW-CA-1A-F</u>	Unit <u>1</u>	Repair - Feature	<u>NCR 2477F</u>

Welder J. C. [unclear] Stencil 6014 Foreman Landrett
 Control Center Attendant [Signature] Date 8-5-80

NDE SURFACE EVALUATION DATA SHEET

VISUAL/MAGNETIC PARTICLE/LIQUID PENETRANT

TYPE NDE: Visual ----- Procedure WBNP QCP 4.13 RK
 Liquid Penetrant ----- Procedure WBNP QCP 4.13 RK
 Magnetic Particle ----- Procedure NA

LIQUID PENETRANT

Process: SOLVENT REMOVABLE

Surface Temperature 60° - 125° F
 Other NA

Penetration Time 15 MIN.
 Developing Dwell Time 8 MIN.

Materials
 Penetrant Lot No. 78B032
 Developer Lot No. 79E033
 Cleaner Lot No. 79G030

MAGNETIC PARTICLE

Equipment: Yoke Prod Coil
 Equipment Identity No. _____
 Current Type AC DC
 Type Magnetization _____
 Prod Spacing _____
 Indicating Particle Color _____

Weld Number NCR 2477R Cut Number NA Repair Number 1

Root Cap End Prep. Excavation Other NA

Results: VT & PT NAD

Acceptable
 Rejectable

Weld Number _____ Cut Number _____ Repair Number _____

Root Cap End Prep. Excavation Other _____

Results: _____

Acceptable
 Rejectable

Weld Number _____ Cut Number _____ Repair Number _____

Root Cap End Prep. Excavation Other _____

Results: _____

Acceptable
 Rejectable

Weld Number _____ Cut Number _____ Repair Number _____

Root Cap End Prep. Excavation Other _____

Results: _____

Acceptable
 Rejectable

Red Maddy
Operator

Red Maddy
NDE Inspector

IF
NDE Level

II
NDE Level

8-5-80
Date

NDE SURFACE EVALUATION DATA SHEET
VISUAL/MAGNETIC PARTICLE/LIQUID PENETRANT

TYPE NDE: Visual Procedure WBNP QCP 4,13 R4
 Liquid Penetrant Procedure WBNP QCP 4,13 R4
 Magnetic Particle Procedure NA

LIQUID PENETRANT

Process: SOLVENT REMOVABLE

Surface Temperature 60° - 125° F
 Other NA

Penetration Time 15 MIN.
Developing Dwell Time 8 MIN.

Materials
Penetrant Lot No. 78B032
Developer Lot No. 79E033
Cleaner Lot No. 79G030

MAGNETIC PARTICLE

Equipment: Yoke Prod Coil
Equipment Identity No. _____

Current Type AC
 DC

Type Magnetization _____

Prod Spacing _____

Indicating Particle Color _____

Weld Number NCR 2477R Cut Number NA Repair Number 1

Root Cap End Prep. Excavation Other NA

Results: VT+PT NAD

Acceptable
Rejectable

Weld Number _____ Cut Number _____ Repair Number _____

Root Cap End Prep. Excavation Other _____

Results: _____

Acceptable
Rejectable

Weld Number _____ Cut Number _____ Repair Number _____

Root Cap End Prep. Excavation Other _____

Results: _____

Acceptable
Rejectable

Weld Number _____ Cut Number _____ Repair Number _____

Root Cap End Prep. Excavation Other _____

Results: _____

Acceptable
Rejectable

Rod Maday
Operator
Rod Maday
NDE Inspector

II
NDE Level
II

8-680

DIVISION OF CONSTRUCTION
NONCONFORMING CONDITION REPORT

WBNP-QCP-1.2
ATTACHMENT A1 R9

<p>1. Nuclear Project: WATTS BAR NUCLEAR PLANT</p>	<p>Unit <u>1</u></p>	<p>NCR: 2477 R</p>
<p>2. Area: <input type="checkbox"/> Civil <input type="checkbox"/> Electrical <input checked="" type="checkbox"/> Mechanical <input type="checkbox"/> Instrumentation <input type="checkbox"/> Welding</p>		<p>ASME Code Item <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>3. Activity <input type="checkbox"/> Receiving <input type="checkbox"/> Storage <input type="checkbox"/> Fabricating <input checked="" type="checkbox"/> Installing <input type="checkbox"/> Other <input type="checkbox"/> Testing</p>		<p>Contract No. <u>N/A</u></p>
<p>4. Type: <input type="checkbox"/> Damage <input type="checkbox"/> Failure <input type="checkbox"/> Defect <input type="checkbox"/> Documentation <input checked="" type="checkbox"/> Other <u>Damage to pipe</u></p>		
<p>5. Item Description: Box anchor 47A060-70-2 Field weld 1-070A-D147-2A Dravo subassembly Mk# 70-CC-239 TVA Class C, ASME Class III</p> <div style="text-align: center; font-size: 2em; font-weight: bold; letter-spacing: 0.5em;">ASME</div>		
<p>6. Nonconformance Description: Subassembly received surface scratches and gouged while cutting (Include Apparent Cause) box anchor 47A060-70-2 from piping. Cutting operation sheet 1-70-F-29-41 was issued for this cut. Surface scratches and gouges occurred while an air hammer was being used to remove grout on 7-19-80.</p> <p>Recommended Disposition: <input checked="" type="checkbox"/> Rework <input type="checkbox"/> Reject <input checked="" type="checkbox"/> Repair <input type="checkbox"/> Use-As-Is <input type="checkbox"/> Other</p> <p>(Check Block & Detail Below) A base metal repair sheet to be issued per WBNP-QCP 4.10. subassembly to be repaired in accordance with necessary welding procedures.</p> <p>Action Required to Prevent Recurrence: <u>7/31/80</u></p> <p>Craft supervision to investigate the circumstances of this nonconformance and provide training/discipline as necessary.</p> <div style="text-align: right; border: 1px solid black; border-radius: 50%; padding: 10px; width: fit-content; margin: 0 auto;"> <p style="text-align: center; font-weight: bold;">OVER</p> <p style="text-align: center;">AUG 04 1980</p> <p style="text-align: center; font-size: 1.5em;">RTL</p> </div>		
<p>NCR Initiator: <u>James T. Dennis</u> Date <u>7-29-80</u></p>		
<p>7. Referred to Design Project Organization (DPO): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Disposition: <input checked="" type="checkbox"/> As Recommended <input type="checkbox"/> Other (Describe)</p>		<p>DPO Coordination Contact _____</p> <p>Significant Condition <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>Approved by Construction Engineer: <u>[Signature]</u> Date <u>8-1-80</u></p>		
<p>8. DPO Disposition: <input type="checkbox"/> As Recommended <input type="checkbox"/> Other (Describe)</p> <p>Approved by Design Project Organization: _____ Date _____</p>		
<p>9. Disposition Inspection and Release from Nonconforming Status: <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Inspected by: _____ Date _____</p>		
<p>10. Action Required to Prevent Recurrence Complete: <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Verified by Construction Engineer: _____ Date _____</p>		
<p>Distribution:</p> <ul style="list-style-type: none"> Site QA Records File Construction Engineer Project QA Unit QA Manager, OEDC Design Project Organization (Items for his action only) Authorized Nuclear Inspector (Code items only) EN DES NEB-NLS (Significant NCR's only) OHS NSRS (Significant NCR's only) MEDS 	<p>Disposition Reviewed and Accepted By:</p> <p style="text-align: center;"><u>[Signature]</u> <u>8-4-80</u></p> <p style="text-align: center;">Authorized Nuclear Inspector Date</p>	

EMPLOYEE CONCERN DISPOSITION REPORT

CONCERN NO. IN-85-534-002

Page 1 of 2

DATE OF PREPARATION: 10-28-85

CONCERN: Fire protection lines do not meet NFPA Code, both units. Some supply lines are 1/2", which is too small. Example: Located in fresh air handling room Aux Bldg Unit 1. 30' from air lock to Reactor Bldg, on left, 713' elevation.

INVESTIGATION PERFORMED BY: TVA NSRS

FINDING(S): The specific example given in the concern was investigated for validity. No 1/2-inch fire protection piping was found. However, two 1/2-inch pipes were found which were painted white (the same color as all of the sprinkler system lines). These two pipes were not fire protection lines; one was for control air and the other for service air.

In discussion with Preoperational Testing personnel, it was determined that in accordance with design drawings, no 1/2-inch lines are in the sprinkler system other than lines to trim packages on deluge valves and possibly a few drain lines. None of these lines could be considered as "supply" lines, and all are in accordance with the NFPA code.

Preoperational Testing has performed flow-rate tests for both Unit 1 and 2 sprinkler systems. All tests indicated adequate flow rates. If 1/2-inch pipe was installed on the supply side of any part of the sprinkler system, the flow-rate tests would have revealed the rate to be unacceptably low.

Office of Engineering (OE) personnel have performed three separate walkdowns of the Unit 1 and 2 sprinkler systems. These inspections were accomplished in approximately late 1983, mid-1984, and late 1984 through mid-1985. These walkdowns included checking for improper sized piping such as that discussed in the employee concern.

Office of Construction (OC) Mechanical Quality Control group and Welding Quality Control group both performed inspections of the Units 1 and 2 sprinkler systems. Both groups checked for piping size adherence to design drawings.

EMPLOYEE CONCERN DISPOSITION REPORT

CONCERN NO. IN-85-534-002

Page 2 of 2

DATE OF PREPARATION: 10-28-85

FINDING(S) CONT.

DC's Quality Assurance group also performed verification activities of the fire protection system. Some of these verification activities included verifying proper sizing of piping.

Nuclear Mutual Limited is WBN's property insurer. In this capacity, the company employs fire inspectors who perform periodic inspections at WBN. Two such inspections have been performed to date. These inspections include checking for problem areas such as undersized piping in the sprinkler systems.

No 1/2-inch piping was found improperly located in any of the Unit 1 and 2 systems through any of the above inspections, walkdowns, or tests.

CORRECTIVE ACTION(S) None required.

CLOSURE STATEMENT: This concern was not substantiated.

ERT Form Q

PRELIMINARY

FINAL

REQUEST FOR REPORTABILITY EVALUATION

1. Request No. IN-85-534-002 _____
(ERT Concern No.) (ID No., if reported)

2. Identification of Item Involved: SPRINKLER SYSTEM
(Nomenclature, system, manuf., SN, Model, etc.)

3. Description of Problem (Attach related documents, photos, sketches, etc.)
1/2" PIPE W/SPRINKLER IS UTILIZED IN AUXILIARY BUILDING FIRE PROT-
ECTION - THIS IS AGAINST NFPA.

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 _____ If Yes, Explain: _____

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 _____ If Yes, Explain: _____

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 Yes _____ If Yes, Explain: _____

OR

PRELIMINARY

FINAL

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 perform its intended safety function.
No 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 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: W. P. Dubouk 365 4478
ERT Group Manager Phone Ext.

William P. Schu
ERT Project Manager Phone Ext.

Acknowledgment of receipt by NSRS

Bruce J. Sogler Date 11/6/85 Time _____
Signed

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS INVESTIGATION REPORT NO. I-85-454-WBN

EMPLOYEE CONCERN IN-85-534-002

MILESTONE 3

SUBJECT: FIRE PROTECTION LINES DO NOT MEET NFFPA CODE

DATES OF INVESTIGATION: October 4-16, 1985

INVESTIGATOR: P R Bevil 10/22/85
P. R. Bevil Date

VIEWED BY: Paul B. Border 10/22/85
P. B. Border Date

APPROVED BY: [Signature] 10/22/85
W. A. Harrison Date

BACKGROUND

A concern was received by Quality Technology Company Employee Response Team that stated:

Fire protection lines do not meet NFPA Code, both units. Some supply lines are 1/2", which is too small. Example: Located in fresh air handling room, Aux Bldg Unit 1. 30' from air lock to Reactor Bldg, on left, 713' elevation.

II. SCOPE

A personal inspection was made of the concerned area, applicable codes were reviewed, interviews were conducted with cognizant personnel, and as-constructed design drawings were reviewed in order to evaluate the concern of record.

III. SUMMARY OF FINDINGS

A. Applicable Requirements and Commitments

1. Codes and Standards Requirements

- a. 10CFR50.48, Fire Protection
- b. 10CFR50, Appendix A, Criterion 3, Fire Protection
- c. 10CFR50, Appendix R, Fire Protection
- d. FSAR, Paragraph 9.5.1.1, Criterion 8 (includes NFPA Codes by Reference)

2. The sprinkler system was designed in compliance with National Fire Codes Specification NFPA 13, Standard for the Installation of Sprinkler Systems, 1976 Edition.

B. Findings

1. The specific example given in the concern was investigated for validity. No 1/2-inch fire protection piping was found. However, two 1/2-inch pipes were found which were painted white (the same color as all of the sprinkler system lines). These two pipes were not fire protection lines; one was for control air and the other for service air.
2. In discussion with Preoperational Testing personnel, it was determined that in accordance with design drawings, no 1/2-inch lines are in the sprinkler system other than lines to trim packages on deluge valves and possibly a few drain lines. None of these lines could be considered as "supply" lines, and all are in accordance with the NFPA code.

Preoperational Testing has also performed flow-rate tests for both Unit 1 and 2 sprinkler systems. All tests indicated adequate flow rates. If 1/2-inch pipe was installed on the supply side of any part of the sprinkler system, the flow-rate tests would have revealed the rate to be unacceptably low.

3. Office of Engineering (OE) personnel have performed three separate walkdowns of the Unit 1 and 2 sprinkler systems. These inspections were accomplished in approximately late 1983, mid-1984, and late 1984 through mid-1985. These walkdowns included checking for improper sized piping such as that discussed in the employee concern.
4. Office of Construction's (OC) Mechanical Quality Control group and Welding Quality Control group both performed inspections of the Units 1 and 2 sprinkler systems. Both groups checked for piping size adherence to design drawings.
5. OC's Quality Assurance group also performed verification activities of the fire protection system. Some of these verification activities included verifying proper sizing of piping.
6. Nuclear Mutual Limited is WBN's property insurer. In this capacity, the company employs fire inspectors who perform periodic inspections at WBN. Two such inspections have been performed to date. These inspections include checking for problem areas such as undersized piping in the sprinkler systems.

No 1/2-inch piping was found improperly located in any of the Unit 1 and 2 systems through any of the above inspections, walkdowns, or tests.

IV. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The concern was not substantiated. The specific example of noncompliance given in the concern was not found. In addition, due to all of the numerous inspections, walkdowns, and other verification activities performed on the WBN sprinkler systems for Units 1 and 2, the existence of noncompliant 1/2-inch sprinkler supply lines at WBN is extremely unlikely. It is therefore concluded that this problem does not exist, and all fire protection lines meet the NFFA code.

Recommendations

None.

EMPLOYEE CONCERN DISPOSITION REPORT

CONCERN NO. IN-85-581-002

Page 1 of 2

DATE OF PREPARATION: 10-28-85

CONCERN: Welders which were not qualified as Electricians were used to terminate electrical cables. This was done on day shift at Senior Manager's (known) direction in the Aux Bldg - to - intake pump structure underground ducts. (Circa 1979, Construction)

INVESTIGATION PERFORMED BY: TVA NSRS

FINDING(S): During the middle to late 70s the WBN electrical section utilized welders to weld conduit and cable tray supports. This was done prior to the adequate availability of electrician welders; i.e., those who are qualified to perform both welding and electrician work. The concern of record alleges that at least some of these welders who were not qualified as electricians were directed by higher management to terminate cables. Therefore, the possibility of improper termination of CSSC cables and a resultant safety concern exists. During the investigation, NSRS attempted to identify the specific questionable cable terminations involved based on the information in the stated concern. The exact cable terminations, however, could not be identified from among potentially several hundred with the limited information given.

To help determine if a problem actually existed and, if applicable, its frequency of reoccurrence, NSRS interviewed several electrical section personnel who worked at WBN in 1979, the general timeframe of the identified problem.

EMPLOYEE CONCERN DISPOSITION REPORT

CONCERN NO. IN-85-581-002

Page 2 OF 2

DATE OF PREPARATION: 10-28-85

FINDING(S) CONT.

Except for very few isolated instances, the interviewees stated that they had not observed anyone performing electrician activities, such as terminating cable, other than electricians during the stated time period. Since these few instances did occur, however, NSRS reviewed the inspection process to determine the degree of assurance that any improper termination would have been corrected. After reviewing the inspection process and the inspection procedure in effect at the time of the identified problem (WBNP-QCP-3.6, R7-R11), it was judged that if CSSC cable was initially improperly terminated, the electrical engineering unit inspectors would have inspected, identified, and had corrected any cable termination anomaly. The WBN cable termination inspection process included: having an electrician disconnect each wire, checking for continuity, shorts, and grounds; checking for adequate crimping; verifying proper location of each wire; and then having the wires reterminated by an electrician.

CORRECTIVE ACTION(S) None required.

CLOSURE STATEMENT: The concern appeared to be substantiated. Interviews with craft personnel indicated the specific concern of record could have occurred. There is a high degree of assurance, however, that if it had occurred, the frequency of occurrence would have been small and electrical quality control inspections would have both found and corrected any inadequate termination(s).

ERT Form Q

FINAL

REQUEST FOR REPORTABILITY EVALUATION

1. Request No. IN-85-581-002 _____
(ERT Concern No.) (ID No., if reported)
2. Identification of Item Involved: CABLE TERMINATION
(Nomenclature, system, manuf., SN, Model, etc.)
3. Description of Problem (Attach related documents, photos, sketches, etc.)
WELDERS WHO WERE NOT QUALIFIED AS ELECTRICIANS WERE USED TO TERM-
INATE ELECTRICAL CABLES.
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 _____ If Yes, Explain: _____
- 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 _____ If Yes, Explain: _____
- 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 Yes _____ If Yes, Explain: _____
- OR

FINAL

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 perform its intended safety function.
No 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 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: W. Rubach 305 4478
ERT Group Manager Phone Ext.

William S. Schu
ERT Project Manager Phone Ext.

Acknowledgment of receipt by NSRS

Bruce P. Dugler Date 4/6/85 Time _____
Signed

TENNESSEE VALLEY AUTHORITY
NUCLEAR SAFETY REVIEW STAFF
NSRS INVESTIGATION REPORT NO. I-85-445-WBN
EMPLOYEE CONCERN IN-85-581-002
MILESTONE 1

SUBJECT: WELDERS TERMINATING ELECTRICAL CABLE

DATES OF INVESTIGATION: September 27-October 4, 1985

LEAD INVESTIGATOR: P. R. Bevil 10/17/85
P. R. Bevil Date

INVESTIGATOR: G. R. Owens 10/17/85
G. R. Owens Date

REVIEWED BY: F. B. Border 10/17/85
F. B. Border Date

APPROVED BY: M. A. Harrison 10/17/85
M. A. Harrison Date

FINAL

BACKGROUND

NSRS has investigated the following employee concern which was identified to Quality Technology Company (QTC) during the WBN employee concern program.

Welders which were not qualified as Electricians were used to terminate electrical cables. This was done on day shift at Senior Manager's (known) direction in the Aux Bldg - to - intake pump structure underground ducts. (Circa 1979, Construction)

II. SCOPE

NSRS reviewed plant records and interviewed plant personnel to determine if any evidence exists to indicate that nonelectrician welders have terminated cables. If applicable, a determination was made as to whether this situation could have caused a safety problem.

III. SUMMARY OF FINDINGS

A. Applicable Requirements and Commitments

The applicable procedure in effect at the time of the identified concern was WBNP-QCP-3.6, "Electrical and Instrumentation Equipment Installation, Standard Tests, Inspections, and Documentation," R7, 5/30/78; R8, 2/23/79; R9, 3/8/79; R10, 5/23/79; and, R11, 8/10/79.

B. Findings

1. During the middle to late 70s the WBN electrical section utilized welders to weld conduit and cable tray supports. This was done prior to the adequate availability of electrician welders; i.e., those who are qualified to perform both welding and electrician work. The concern of record alleges that at least some of these welders who were not qualified as electricians were directed by higher management to terminate cables. Therefore, the possibility of improper termination of CSSC cables and a resultant safety concern exists. During the investigation, NSRS attempted to identify the specific questionable cable terminations involved based on the information in the stated concern. The exact cable terminations, however, could not be identified from among potentially several hundred with the limited information given.
2. To help determine if a problem actually existed and, if applicable, its frequency of reoccurrence, NSRS interviewed several electrical section personnel who worked at WBN in 1979, the general timeframe of the identified problem.

3. Except for very few isolated instances, the interviewees stated that they had not observed anyone performing electrician activities, such as terminating cable, other than electricians during the stated time period. Since these few instances did occur, however, NSRS reviewed the inspection process to determine the degree of assurance that any improper termination would have been corrected. After reviewing the inspection process and the inspection procedure in effect at the time of the identified problem (WBNF-QCF-3.6, R7-R11), it was judged that if CSSC cable was initially improperly terminated, the electrical engineering unit inspectors would have inspected, identified, and had corrected any cable termination anomaly. The WBN cable termination inspection process included: having an electrician disconnect each wire, checking for continuity, shorts, and grounds; checking for adequate crimping; verifying proper location of each wire; and then having the wires reterminated by an electrician.
4. Based on personnel discussion, there did not appear to be any NCRs or NRC findings on the specific subject concern.

Note: During the investigation it was also noted that TVA recently developed a craft position within the electrical section entitled subjourneyman. Plant personnel in these "helper" positions, it was found, terminate cable and perform other electrician work at times, although they are not classified as qualified electricians. No Construction QA procedures or instructions appeared to exist which govern what safety-related activities should not be performed by these unqualified personnel in these positions. The only document available which describes the duties of a subjourneyman is in a job description in the Division of Construction Policy Manual. This document describes only vague, general duties for the subjourneyman position; and the document is not a QA procedure or instruction.

IV. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The concern appeared to be substantiated. As stated previously, interviews with craft personnel indicated the specific concern of record could have occurred. There is a high degree of assurance, however, that if it had occurred, the frequency of occurrence would have been small and electrical quality control inspections would have both found and corrected any inadequate termination(s).

Recommendations

No action is required concerning the specific concern of record; however, the recommendations are proposed relative to work performed by subjourneymen and are addressed in NSRS Report IN-85-130-001.

EMPLOYEE CONCERN DISPOSITION REPORT

CONCERN NO. IN-85-671-004

DATE OF PREPARATION: 10-29-85

CONCERN: Welds (structural) in North & South valve rooms in Aux Bldg Unit 1 were rejected by RT but after rework/repair were finally accepted by VT, instead of RT. This practice occurred in June 1985. Location: col. line 1 & C, 6 & C or E, Unit 1.

INVESTIGATION PERFORMED BY: TVA NSRS

FINDING(S): No evidence could be found of any RT being performed on any of the structural welds in the valve rooms. UT was performed on certain structural welds in conjunction with the investigation of an NCR, but was not required by codes or specifications. A possible basis of the concern could have been UT, had the concerned individual mistaken UT for RT.

CORRECTIVE ACTION(S) None required

CLOSURE STATEMENT: This concern was not substantiated. There was no evidence that structural welds in the valve rooms were rejected by RT.

FINAL

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 perform its intended safety function.
No 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 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:

J.P. Dubouche

ERT Group Manager

365-4478

Phone Ext.

William S. Schu

ERT Project Manager

Phone Ext.

Acknowledgment of receipt by NSRS

Bruce P. Pfeiffer
Signed

Date *4/5/85*

Time _____

TENNESSEE VALLEY AUTHORITY
NUCLEAR SAFETY REVIEW STAFF
NSRS INVESTIGATION REPORT NO. I-85-499-WBN
EMPLOYEE CONCERN IN-85-671-004
MILESTONE 3

SUBJECT: WELDING INSPECTION

DATES OF INVESTIGATION: October 1-17, 1985

INVESTIGATOR:

John C. Catlin SA

J. C. Catlin

22 OCT 85

Date

REVIEWED BY:

Paul B. Border

P. B. Border

10/22/85

Date

APPROVED BY:

M. A. Harrison

M. A. Harrison

10/22/85

Date

I. BACKGROUND

An investigation was conducted to determine the validity of an employee concern received by Quality Technology Company (QTC) on August 22, 1985. The concern was in regard to structural welds in Unit 1 auxiliary building. It was alleged that certain welds were rejected following radiographic examination (RT). It was further alleged that these same welds were subsequently reworked/repared and later accepted by visual examination (VT) but without further examination by RT. The location was defined as in north and south valve rooms, column line 1 and C, 6 and C (or E), on Unit 1. The practice occurred during June 1985.

II. SCOPE

The original scope of the investigation was to include identification of the questioned welds, review of weld records and inspection reports, review of inspectors' certifications in the forms of nondestructive examinations (NDE) required, identification of applicable specifications and procedures, and verification of the observation noted in the concern. However, the scope was modified during the process of the investigation because some of the findings indicated that some redefinition of the problem was required.

The revised scope of the investigation included identification of the method of NDE actually conducted, the reason for conducting this NDE, inspection and/or NDE requirements for the questioned welds, and ancillary events leading up to the statement of this concern.

III. SUMMARY OF FINDINGS

A. Requirements and Commitments

1. Codes and Standards Requirements (in effect at the time of design and construction)
 - a. 10CFR50.55a Paragraph (a) (1) Structures
 - b. American Welding Society - Structural Welding Code AWS D1.1 - 1975
 - c. Quality Assurance Topical Report TR75-1A R8, Paragraph 17.1.10, Inspection
 - d. American Society for Nondestructive Testing SNT-TC-1A (1975 and 1980)
2. Procedures Requirements
 - a. G-29C Process Specification O.C.1.1, Welding of Structures, Paragraphs 6.7 and 8.6
 - b. G-29C Process Specification 3.C.5.2 (R2), Visual Examination of Welds
 - c. G-29C Process Specification 3.C.5.4, Final Visual Weld Examination at WBNP
 - d. G-29C Process Specification 3.C.5.5, Visual Examination of Welds

B. Findings

1. Both the AWS Code and the G-29C Process Specification required visual inspection only for structural welds unless otherwise required by drawing or specification.
2. There were no additional requirements other than visual for any of the structural welds in the valve rooms.
3. The AWS Code stated that any repaired or replaced weld shall be retested by the method originally used.
4. No evidence could be found that any RT had been performed on any of these structural welds.
5. Noncompliance Report (NCR) 4753 had been written covering some of the welds in the valve rooms. This NCR states:

Structural steel in main steam valve rooms shown on the EN DES drawings series 48W1707 and 48W1708 (excluding protective devices). The quality of welding is not in strict compliance with drawing and specification requirements. This structural steel has minor discrepancies which deal with joint and weld configuration. Welding was previously accepted but not inspected with strict adherence to visual inspection requirements of G29-C.

6. During the process of investigating NCR 4753, Construction Quality Control used ultrasonic examinations (UT) on some of the structural welds in the valve rooms to determine the configuration of these welds. They were made in an earlier timeframe, probably during 1984 in Unit 1.
7. Welds which Construction QC examined by UT were ground smooth, and all weld spatter and other surface irregularities were removed by grinding prior to performing the UT. Inspection stamps showing prior VT were also removed.
8. It was decided to repair some of these welds. After the repairs were made, inspection was made by VT. Welds were stamped with a new inspection stamp showing VT acceptance.
9. Inspection by VT after repairs complies with the requirements of G-29C PS 3.C.5.2, R2.

CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

1. Because no evidence could be found of any RT being performed on any of the structural welds in the valve rooms, the allegation as stated could not be substantiated.
2. The UT which was performed on certain structural welds in the valve rooms was conducted in conjunction with the investigation of an NCR. It was not required by codes or specifications.
3. Assuming that the concerned individual mistook UT for RT, the allegation as restated with UT substituted for RT, and in an earlier time period, could be substantiated.
4. Even though the allegation could be substantiated, there was no violation of codes or procedures.

B. Recommendations

None.

EMPLOYEE CONCERN DISPOSITION REPORT

CONCERN NO. IN-85-853-X02

DATE OF PREPARATION: 10-29-85

CONCERN: Manager tells workers to do things that are not according to procedures.

INVESTIGATION PERFORMED BY: ERT

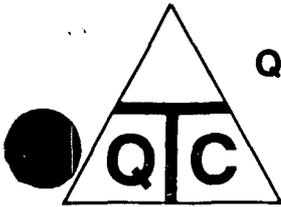
FINDING(S): At the initial interview the CI stated that a valve had been accidentally dropped and damaged because a repair shop crane malfunctioned. The manager (name known) asked the craftsmen to install the damaged valve in the IPS. The Nuc Power organization was contacted and were questioned as to whether or not they were aware of any situations in which the CI described. Nuc Power provided a copy of a Maintenance Request (#A-529287) which identified valve #2-FCV-67-22B as requiring repair due to the valve being dropped. This valve number was verified by the CI.

Valve #2-FCV-67-22B was installed in the Intake Pumping Station, which started leaking and eroded at the seat and ring joints. A Maintenance Request (MR) was written to repair the valve. The craftsmen (name known) were moving the valve after the repair had been completed, from the west end of the machine shop, (elev. 713') to a truck located at the east end of the shop (elev. 729'). The valve was lifted by a crane approximately 6'-0" to 12' off the floor. When they reached the east end of the shop, a craftsman noticed that the cable of the crane seemed to be frayed at the drum. The foreman (name known) attempted to lower the load, but it fell down to the floor. The valve was damaged and was unable to be installed. Another Maintenance Request (MR) #A-529287, was generated by the Mechanical QC Inspector to repair the valve per the MR instructions and the specification. It was verified during the investigation, that the crane was operated by one of the pipefitters, who was not authorized and/or properly trained to operate the crane. After this incident, a memo was issued stating the proper training required of the craftsmen to operate such equipment. It was also verified by interviewing other craftsmen that the G.F. (name known) did not ask the crew to fit the damaged valve into the IPS, but the valve was evaluated by the Engineer and was repaired and inspected to the required specifications.

CORRECTIVE ACTION(S) None required

CLOSURE STATEMENT: This concern was not substantiated.

ERT Form Q



**QUALITY
TECHNOLOGY
COMPANY**

P.O. BOX 600
Sweetwater, TN
37874

ERT INVESTIGATION REPORT

PAGE 1 OF 2

CONCERN NO: IN-85-853-X02

CONCERN: Manager (name known) tells workers (known) to do things that are not according to TVA procedures.

INVESTIGATION
PERFORMED BY: Rana L. Ahmed

DETAILS

Personnel Contacted: Confidential

Documents Reviewed:

Mechanical Maintenance Procedure - Cranes, Hoists, Operating Training.

- (1) MSL-5.5 Cranes, hoist, operating training.
- (2) AI-6.4 Cranes, hoists, riggings, equipment and control of heavy load.
- (3) HCI-M7 Hazard Control Instruction
- (4) DNP-2-84 Maintenance Request Form

Summary of Investigation

This concern is not substantiated. The documents that were reviewed during this investigation, revealed that the proper corrective action was taken to resolve the concern. This concern was investigated from September 25, 1985 to October 1, 1985.

Findings:

At the initial interview the CI stated that a valve had been accidentally dropped and damaged because a repair shop crane malfunctioned. The manager (name known) asked the craftsmen to

CONCERN NO: IN-85-853-X02

DETAILS, continued

Findings:

install the damaged valve in the IPS. The Nuc Power organization was contacted and were questioned as to whether or not they were aware of any situations in which the CI described. Nuc Power provided a copy of a Maintenance Request (#A-529287) which identified valve #2-FCV-67-22B as requiring repair due to the valve being dropped. This valve number was verified by the CI.

Valve #2-FCV-67-22B was installed in the Intake Pumping Station, which started leaking and eroded at the seat and ring joints. a Maintenance Request (MR) was written to repair the valve. The craftsmen (name known) were moving the valve after the repair had been completed, from the west end of the machine shop, (elev. 713') to a truck located at the east end of the shop (elev. 729'). The valve was lifted by a crane approximately 6'-0" to 12' off the floor. When they reached the east end of the shop, a craftsman noticed that the cable of the crane seemed to be frayed at the drum. The foreman (name known) attempted to lower the load, but it fell down to the floor. The valve was damaged and was unable to be installed. Another Maintenance Request (MR)#A-529287, was generated by the Mechanical QC Inspector to repair the valve per the MR instructions and the specification. It was verified during the investigation, that the crane was operated by one of the pipefitters, who was not authorized and/or properly trained to operate the crane. After this incident, a memo was issued stating the proper training required of the craftsmen to operate such equipment. It was also verified by interviewing other craftsmen that the G.F. (Name known) did not ask the crew to fit the damaged valve into the IPS, but the valve was evaluated by the Engineer and was repaired and inspected to the required specifications.

Conclusion:

This concern is not substantiated because the corrective action had been taken, and management did not direct his workers to violate the procedures.

PREPARED BY *Randy Johnson* 10/12/85
DATE

REVIEWED BY *O.H. News* 10/12/85
DATE

Report Reviewed & Accepted:
[Signature]
NERS
10/12/85

REQUEST FOR REPORTABILITY EVALUATION

1. Request No. IN-85-853-X02 (ERT Concern No.) (ID No., if reported)
2. Identification of Item Involved: Mechanical Maintenance (Nomenclature, system, manuf., SN, Model, etc.)
3. Description of Problem (Attach related documents, photos, sketches, etc.)

Management tells workers to do things that are not according to TVA procedures.

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 If Yes, Explain: _____

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 If Yes, Explain: _____

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 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 perform its intended safety function.

No Yes If Yes, Explain: _____

OR

E. This deficiency represents a significant deviation from 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 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:

O B Thew 365-4464
ERT Group Manager Phone Ext.

O B Thew Jr 365-4414
ERT Project Manager Phone Ext.

Acknowledgment of receipt by NSRS

[Signature]
Signed

Date 10/17/85 Time 1228

EMPLOYEE CONCERN DISPOSITION REPORT

CONCERN NO. IN-85-915-002

DATE OF PREPARATION: 10-29-85

CONCERN: TVA requires drawing transmittals being returned to DCU to have the superseded drawing corners (containing title, number, etc) attached. Why does DCU no longer verify these corners to be correct?

INVESTIGATION PERFORMED BY: TVA NSRS

FINDING(S): An early revision of the controlling procedure, WBN-QCI-1.01, Revision 4, dated June 14, 1982, specified that Drawing Control Unit personnel were to review ". . . that the required title blocks of the superseded drawings . . . have been returned." This requirement for verifying correctness of returned title blocks was deleted at Revision 5 dated September 1982. Revision 15 dated October 9, 1985 deleted the requirement for return of the title blocks by document holders.

Verification of drawing control is accomplished in three ways: (1) document holders periodically receive a list of controlled documents assigned to them and are required by procedure WBN-QCI-1.01-1, "Document Control Sampling," to ensure that the documents held are as shown by the issuing unit records; (2) DCU periodically samples holders of controlled documents to ensure that the documents held are as shown by the issuing unit records; and, (3) Quality Assurance performs document control audits which include verifications of drawing controls at work stations.

CORRECTIVE ACTION(S) None required

CLOSURE STATEMENT: This concern was not substantiated. The previous title block verification has been replaced with other controls.

FINAL

REQUEST FOR REPORTABILITY EVALUATION

1. Request No. IN-85-915-002 _____
(ERT Concern No.) (ID No., if reported)

2. Identification of Item Involved: DRAWING CONTROL
(Nomenclature, system, manuf., SN, Model, etc.)

3. Description of Problem (Attach related documents, photos, sketches, etc.)
TVA REQUIRES DRAWING TRANSMITTALS BE RETURNED TO DCU TO HAVE
CORNERS ATTACHED. WHY ARE THESE CORNERS NO LONGER VERIFIED AS
BEING CORRECT?

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 _____ If Yes, Explain: _____

 - 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 _____ If Yes, Explain: _____

 - 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 Yes _____ If Yes, Explain: _____

OR

FINAL

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 perform its intended safety function.
No 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 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: W. P. Ruback 365 4478
ERT Group Manager Phone Ext.

William J. Schu
ERT Project Manager Phone Ext.

Acknowledgment of receipt by NSRS

Bruce L. Hooper Date 11/6/85 Time _____
Signed

TENNESSEE VALLEY AUTHORITY
NUCLEAR SAFETY REVIEW STAFF
NSRS INVESTIGATION REPORT NO. I-85-458-WBN
EMPLOYEE CONCERN IN-85-915-002
MILESTONE 6

SUBJECT: DRAWING CONTROL

DATES OF INVESTIGATION: October 1-7, 1985

INVESTIGATOR: John Knightly 10/17/85
J. J. Knightly Date

VIEWED BY: Paul B. Border 10/17/85
P. B. Border Date

APPROVED BY: W. A. Harrison 20/17/85
W. A. Harrison Date

FINAL

I. BACKGROUND

The Nuclear Safety Review Staff (NSRS) investigated employee concern IN-85-915-002 which Quality Technology Company (QTC) identified during the Watts Bar Employee Concern Program. The concern was worded as follows:

TVA requires drawing transmittals being returned to DCU to have the superseded drawing corners (containing title, number, etc.) attached. Why does DCU no longer verify these corners to be correct? CI has no further information.

II. SCOPE

NSRS has reviewed drawing control requirements, implementing instructions, sample drawing transmittals and receipts, logs of the verification sampling program for drawings, and recent audit findings concerning this subject. Additionally, several individuals responsible for transmittal, receipt, and audit of the drawings have been contacted to discuss effectiveness of the drawing control process as it relates to the employee's concern.

III. SUMMARY OF FINDINGS

A. Applicable Requirements and Commitments

1. 10CFR50, Appendix B - Document control measures shall assure that documents, including changes, "are distributed to and used at the location where the prescribed activity is performed."
2. Topical Report TVA-TR-75-1, Revision 8, Paragraph 17.1.64 - "Provisions shall be established, delineated, and executed to preclude the use of obsolete or superseded documents at locations where the prescribed activities are being performed. . . . An updated document list or equivalent shall exist to assure that obsolete or superseded documents are replaced in a timely manner by updated applicable document revisions."
3. NRC, NSRS, and TVA Office of Construction Quality Assurance Branch Audits and Reviews - One deviation related to the employee's concern was identified. This deviation is discussed later in this report under B.4.
4. Watts Bar Nuclear Plant Quality Control Instruction 1.01, "Drawing and Document Control."

B. Findings

1. In accordance with Quality Control Instruction QCI-1.01, "Drawing and Document Control," document holders acknowledge receipt of drawings by signing the drawing transmittal and returning it to the Document Distribution Center (DDC) along with the title block corners of superseded N and W size drawings, or the whole drawing for A and B size and vendor drawings. The Document Distribution Center personnel review the returned drawing transmittals to verify document holders have acknowledged receipt, and followup on document holders who fail to acknowledge. All returned title block corners and superseded drawings are discarded.

2. An early revision of the controlling procedure, WBN-QCI-1.01, Revision 4, dated June 14, 1982, specified that Drawing Control Unit personnel were to review ". . . that the required title blocks of the superseded drawings . . . have been returned." This requirement for verifying correctness of returned title blocks was deleted at Revision 5 dated September 1982. Revision 15 dated October 9, 1985 also deletes the requirement for return of the title blocks by document holders. The document control office supervisor stated that the administrative philosophy in the procedure is to place ultimate responsibility for controls with the document holders rather than with DCU.
3. Verification of drawing control is accomplished in three ways: (1) document holders periodically receive a list of controlled documents assigned to them and are required by procedure WBN-QCI-1.01-1, "Document Control Sampling," to ensure that the documents held are as shown by the issuing unit records; (2) DCU periodically samples holders of controlled documents to ensure that the documents held are as shown by the issuing unit records; and, (3) Quality Assurance performs document control audits which include verifications of drawing controls at work stations.
4. Document Distribution Center (DDC) personnel accomplish document control verification in accordance with Quality Control Instruction QCI-1.01-1, "Document Control Sampling" (initial issue 12/20/83). The results of their sampling verification are maintained by DDC in the Document Control Sample Results Logs. A review of these logs for 1985 showed levels of accuracy as follow: Of 3,974 drawings sampled at 48 engineers' and crafts' work stations, 3,908 (98.4 percent) were accurate in all attributes checked, with 3,958 (99.6 percent) accurate for revision level. Twenty drawings were found for which the holder was not on distribution. Only 2 drawings of the 3,974 were found to be old revisions not properly dispositioned.
5. A recent TVA Office of Construction Quality Assurance Branch audit (WB-A-85-07) evaluated document controls and reported that controlled documents at work stations were verified to be the current revisions. One audit finding of deviation (WB-A-85-07-D02) stated that the document control sampling program requirements were not always implemented on schedule and that some holders had not been checked. Following corrective action, this deviation was closed July 26, 1985 with a comment that the "self-audit verification appears to be in compliance." Additional discussions with the quality assurance personnel indicated considerable confidence in the present controls.

CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

A concern in this area is not substantiated. The previous title block verification has been replaced with other controls including: (1) DCU sampling; (2) Quality Assurance auditing; and, (3) document holders' self-verification from lists provided by the DCU. These verifications, which now indicate high levels of accuracy, are considered adequate.

B. Recommendation

None.

EMPLOYEE CONCERN DISPOSITION REPORT

CONCERN NO. IN-86-155-004

DATE OF PREPARATION: 10-29-85

CONCERN: Welds in the dome, RB #1 and 2, may not have been inspected and bought off.

INVESTIGATION PERFORMED BY: TVA NSRS

FINDING(S): Chicago Bridge and Iron Company was required as part of the erection contract (73C61-75320) for the reactor buildings to perform all required inspections. Radiography of welds was done on the reactor building dome for Unit 1 starting in mid-January 1977 with a completion date of June 1977. The Unit 2 dome was radiographed during the period of August 1977 to February 1978. The dome-plate welds were all ASME class A or B welds.

The attachments to the dome are the ASME Category C and D welds that were examined by magnetic particle, liquid penetrant, or ultrasonic methods.

The CB&I weld map on file in the Construction Document Control Center lists weld numbers, welder numbers (for welder certification checks), NDE report number for each weld, and repair number (if repair was done). From this report it can be verified that each weld on the containment dome was inspected by the appropriate NDE method.

Engineering personnel in Knoxville have reviewed the inspection results.

A problem with inspection documentation for weld repairs was identified in 1977. CB&I was not providing quality documentation on the repairs. This problem was resolved early, and the required documentation was provided. For each weld repair TVA prepared a nonconformance report. Each NCR documents the repair and problem resolution for each weld repair.

CORRECTIVE ACTION(S) None required

CLOSURE STATEMENT: This concern was not substantiated.

FINAL

REQUEST FOR REPORTABILITY EVALUATION

1. Request No. IN-86-155-004 _____
(ERT Concern No.) (ID No., if reported)

2. Identification of Item Involved: WELDS
(Nomenclature, system, manuf., SN, Model, etc.)

3. Description of Problem (Attach related documents, photos, sketches, etc.)
THE WELDS IN THE DOME, RB #1 & 2, MAY NOT HAVE BEEN INSPECTED AND ACCEPTED.

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 _____ If Yes, Explain: _____

 - 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 _____ If Yes, Explain: _____

 - 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 Yes _____ If Yes, Explain: _____

FINAL

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 perform its intended safety function.
No 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 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: W. A. Rubach 365 4478
ERT Group Manager Phone Ext.

William A. Schu
ERT Project Manager Phone Ext.

Acknowledgment of receipt by NSRS

Bene L. Pugh Date 4/6/85 Time _____
Signed

TENNESSEE VALLEY AUTHORITY
NUCLEAR SAFETY REVIEW STAFF
NSRS INVESTIGATION REPORT NO. I-85-500-WBN
EMPLOYEE CONCERN IN-86-155-004
MILESTONE 1 - FUEL LOAD

SUBJECT: REACTOR BUILDING DOME WELD INSPECTIONS

DATES OF INVESTIGATION: September 30-October 4, 1985

LEAD INVESTIGATOR: *Frank T. Brantley for*
R. N. Russell

10/22/85
Date

REVIEWED BY: *G. G. Brantley*
G. G. Brantley

10/24/85
Date

APPROVED BY: *M. A. Harrison*
M. A. Harrison

10/22/85
Date

BACKGROUND

The employee concern as received from the ERT stated: "The welds in the dome, RB#1 and #2, may not have been inspected and bought off."

This concern was Quality Technology Company No. IN-86-155-004 dated August 26, 1985.

II. SCOPE

Documentation related to weld inspection requirements, inspections performed, and inspection results were reviewed to ensure that dome weld inspections were done and the records of those inspections existed in storage.

III. SUMMARY OF FINDINGS

A. Weld Inspection Requirements

FSAR section 3.8.2.7.2 lists the inspection requirements for the welds in the reactor building domes. It states: "Welds in the cylinder wall and dome in ASME Code Section III, Categories A and B, were 100 percent radiographed. Welds in Categories C and D were examined by magnetic particle, liquid penetrant, or by ultrasonic methods."

B. Weld Inspections

1. Chicago Bridge and Iron Company was required as part of the erection contract (73C61-75320) for the reactor buildings to perform all required inspections. Radiography of welds was done on the reactor building dome for Unit 1 starting in mid-January 1977 with a completion date of June 1977. The Unit 2 dome was radiographed during the period of August 1977 to February 1978. The dome-plate welds were all ASME class A or B welds. These dates were determined from meeting notes between TVA and CB&I that are on file in RIMS.
2. The attachments to the dome are the ASME Category C and D welds that were examined by magnetic particle, liquid penetrant, or ultrasonic methods.
3. The CB&I weld map on file in the Construction Document Control Center contains considerable information. It lists weld numbers, welder numbers (for welder certification checks), NDE report number for each weld, and repair number (if repair was done). From this report it can be verified that each weld on the containment dome was inspected by the appropriate NDE method.
4. Engineering personnel in Knoxville have reviewed the inspection results. This was verified through telephone conversations with personnel in Knoxville.

C. Inspection Results

1. Radiographs and other inspection test results are in storage at the Federal Storage Depository at East Point, Georgia. Chicago Bridge and Iron drawings showing weld locations for correlation to the radiographs were located in the Construction Drawing Control Center.
2. A problem with inspection documentation for weld repairs was identified in 1977. CB&I was not providing quality documentation on the repairs. This problem was resolved early, and the required documentation was provided. For each weld repair TVA prepared a nonconformance report. Each NCR documents the repair and problem resolution for each weld repair.

IV. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The allegation is unsubstantiated for the following reasons.

- A. Requirements for dome-weld inspections appear in the CB&I contract and the Final Safety Analysis Report.
- B. Radiographs and other weld inspection records are on file in East Point, Georgia.
- C. Weld maps showing weld numbers, welder identification, inspection number, nonconformance identification (if necessary), and location of welds are available in the Construction Document Control Center. These maps also identify the inspections done on each weld.
- D. Weld inspections have been reviewed by OE personnel.

Recommendations

None.