TENNESSEE VALLEY AUTHORITY

EMPLOYEE CONCERN PROGRAM INVESTIGATION REPORT

Concern No:

ECP-86-SQ-252-01

Subject:

WEIR WALL INSTALLATION - NRC OPEN ALLEGATION (RII-85-A-0144)

Dates of Investigation:

Investigated By:

Reviewed By:

Approved By:

J. M. Jollnett 5 1/8/87 J. E. Boyles Date

May 24, 1986 - September 23, 1986 --

J. M. Jalbett 1/8/87 T. M. Galbreth Date

Zily 1/12/87 E. K. Sliger /Date



I. BACKGROUND

This allegation was referred to TVA by the NRC in the May 1, 1986 letter, John A. Olshinski to S. A. White. The allegation was documented by NRC. as follows:

Summary of Allegation RII-85-A-0144: This allegation stated to the effect that weir wall installation on some RCS piping was an issue at one point. The alleger did not think this matter was ever resolved. The alleger stated that TVA could not document that the weir walls were installed.

Further evaluation of this matter by NRC indicates that the apparent concern deals with reactor coolant pump weir plate installation. Disposition of this matter by TVA Should address whether or not the reactor coolant pump weir plates were installed at Sequoyah and Watts Bar. Should the evaluation show that the weir plates were not installed, then closeout of this issue must include a fully documented justification for concluding weir plates were not needed. Supporting documentation for the justification should contain correspondence between TVA and the vendor (Westinghouse) including vendor recommendations/positions. The justification should also address why this should not be considered a safety issue.

The allegation was assigned to the Employee Concern Program-Site Representative (ECP-SR) at Sequoyah Nuclear Plant (SQN) for investigation. The concern was determined to be nuclear safety related and categorized as "Construction". Approximately forty man-hours were expended by the ECP staff during the investigation and preparation of the report for this concern.

This concern is also being investigated by the ECP-SR at Watts Bar Nuclear Plant (ECP-86-WB-460-01).

II. SCOPE

Initial contact with the Plant Operations Review Staff (PORS) indicated that weir plates were not installed in the RCS. The ECP effort concentrated on compiling TVA and Westinghouse documentation relative to this concern. Interviews were conducted with PORS personnel and the SQN Project Engineer.

III. FINDINGS

On July 8, 1986 the PORS provided documentation relative to this concern. On September 23, 1986 additional documentation was provided by the Records and Information Management System. A chronological list of this documentation (attached) is as follows:

- Memorandum (Westinghouse), from D. J. Field to J. M. Baysden, dated August 1, 1973, "Code Requirements Concerning Weir Plate Installation of Reactor Coolant Pump"
- Engineering Change Notice (ECN) TEN-10515 dated August 22, 1973 "Weir Plate Installation in R.C. Pump"
- Engineering Change Notice (ECN) TVA-10524 dated August 22, 1973 "Weir Plate Installation in R.C. Pump"
- TVA Letter No. 3305 from D. R. Patterson to Westinghouse, Attention W. E. Wright, dated October 17, 1973 "Reactor Coolant Pump Weirs - N2M-2-5, N2M-2-15"
- Memorandum (Westinghouse) from J. J. Keenan to D. R. Patterson Dated November 7, 1973 "Reactor Coolant Pump Weir Plates Installation"
- Memorandum (Westinghouse) from J. E. Werle to D. R. Patterson dated July 10, 1974 "Reactor Coolant Pump Weir - Influence on ECCS Performance"
- TVA letter No. 3973 from D. R. Patterson to Westinghouse, attention J. E. Werle dated August 23, 1974 "Reactor Coolant Pump Weir N2M-2-5".
- Hemorandum from J. E. Werle (Westinghouse) to D. R. Patterson dated August 28, 1974 "Sequoyah R. C. Pump Weir Plate Cancellation - FDR (ECN) Nos. TVA-10524, TEN-10515"

Documentation Summary

Westinghouse initiated ECN'S TVA-10524 and TEN-10515 dated August 22, 1973 to install weir plates in each of the eight reactor coolant pumps at Sequoyah. TVA letter number 3305 dated October 17, 1973 states in part:

... sufficient analyses and performance test have not been made to evaluate the advantages and disadvantages of adding the 5-inch-height weirs into the discharge side of the 93-A R.C. Pumps.

The July 10, 1974 Westinghouse letter provides analysis data, "... to demonstrate the influence of the reactor coolant pump weir on ECCS performance including UHI." TVA's letter number 3973, dated August 23, 1974 responds to the Westinghouse letter and provided TVA's justification for not installing the weir plates. This letter states in part:

...based on the analytical results reported in your letter (which you claim are applicable to Sequoyah and Watts Bar), we do not believe that the stated reduction of 200 F in maximum clad temperature (From about 1200 F to 1000 F) resulting from adding weirs to the R.C. pumps improves the ECCS sufficiently to justify making the proposed changes which would also provide a penalty to plant operation by increasing the required pumping power.

This letter requested Westinghouse withdraw the ECN's. The ECN's TVA-10524 and TEN-10515 were cancelled by the Westinghouse memorandum dated August 28, 1974.

On July 9, 1986 the SQN Project Engineer confirmed that the Weir plates had not been installed. He restated the justification contained in the August 23, 1974 letter to Westinghouse.

IV. CONCLUSIONS

The concern is not substantiated.

It was concluded that the weir plates were not installed in the reactor coolant pump discharge nozzles. It was also concluded that TVA's justification is provided in the attached documentation.

V. RECOMMENDATIONS

None

VI DOCUMENTS REVIEWED

Documents listed under findings

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PA-PQ-4194 Imm. FWR Systems Division TMT: 249-5555 NWN: August 1, 1973 Sumpl. Code Requirements Concerning Weir Plate Installation on Reacter Coolant Pump

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NUCLEAR ENERCY SYSTEMS

J: N. Baysden NES Standards Engineering Penn Center

:c:	۸.	L. Dictrick
	J.	L. Fickling - EMD
	F.	Wellhofer - Penn Center
	₩.	E. Bennatt - Penn Center
1	٧.	W. Doutt - Penn Center
	s.	E. l'astuca - EMD
	R.	Pfeifer - EMD
	D.	R. Collier (302)
	R.	A. Worthen
	s.	Johnston/File: GEM-125/6 Subi. 26

This is to confirm your answer to the following question: What are the ASME Code requirements concerning hydrostatic pressure testing if a part (such as a weir plate installed in a reactor coolant pump discharge nozzle) is unled onto a pressure boundary component after the component has: (1) completed shop hydrostatic test and has received code inspection approval for NPT stamp; (2) completed shop hydrostatic test, received code inspection appreval for NPT stamp, and completed cold hydro and hot functional tests?

Your answer is as follows: The general intent of the code would be that a part should be re-hydrostatically tested, however, the following position can be taken for the two cases stated above.

- 1. <u>Weir Plate Welded Into Purp After Completion of Shop Hydrostatic Pressure</u> Test and After Receipt of Code Inspection Approval for NPT Stamp
 - A. The installation of the veir plate vill be considered a modification and will be proved adequate at system hydrostatic pressure test.
 - /B. No additional shop hydrostatic pressure test is required.
 - /c. An attachment to the original ASUE and QA data forms should be made describing what modification was made and that the modification will be proved out in the system hydrostatic pressure test.



Westinghouse Electric Corporation

Specification Number: 107RP026

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Issued: August 24, 1973

TITLE: Installation of Stainless Steel Weir Plate

Filmed From Best llegin Month Conv S.C. U366. ٨ V.S. 8-8-73 WE2 8-8-73 RFP 8-8-75 Revise 7.26 B 8.0 a note V.S. 8-24-73 F.D. C. 24-7.3 WEL 8-24-73

Veir Plate Welded Onto Pump in the Field After Completion of Shop and System Cold Hydrostatic Pressure Test (This condition also emplies if hot functional test performed.)

✓A. The position taken is that this is a modification to the component and should be treated the same as a repair to a component (reference Paragraph IS-411 of the ASNE Section XI Code).

Paragraph IS-411 states "After completion of such repairs, a hydrostatic test shall be performed on the component or components which were repaired in accordance with the provisions of IS-520." Referring to Paragraph IS-522 and IS-523 of the ASC Section XI, the hydrostatic pressure and temperature can be determined. Using the formula for determining system hydrostatic pressure (P₂), it can be seen that if system operating temperature and corresponding material yield strength is used, then system hydrostatic pressure (P₂) equals system operating pressure (P₀). Therefore, an adequate proof of the component after modification would be to bring the entire system up to system operating temperature and pressure and perform examinations by authorized inspectors per provisions in Paragraph IS-521 of the ASME Section XI Code.

D. H. Field Primary Equipment

/cb

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C.

1.0 CENTRAL SCOPE: This procedure outlines mathods, techniques and requirements of welding the weir plate (15280541101) into the discharge norrie of the 93A Fump Casing. This will be accomplished per the fabrication drawing 1309036. Within this procedure several specific procedure specifications will be referenced (i.e. qualified welding, cleaning and non-destructive testing). These specifications may be Westinghouse or .. those of a contractor. In the event that the contractor's specifications are selected and the work is to be done at the site, the assigned (") . NPS site weiding engineer will be responsible for approving the specifications. (W)EMD would also request a copy for our records. This procedure is specifically written to cover fabrication in the loop with the pump internals removed. In the event that the pump internals are not removed (such as Takahama) all requirements shall be the same except plate design and technique for fabrication (see 8. O alternate). In this case, weir plate Tak 955E936 will be used in conjunction with fabrication drawing Tak 1309C37.

Furthermore, if a vendor is to weld the plate prior to shipping, he must submit his welding procedure specification to (W) END for approval.

2.0 CENERAL REQUIREMENTS:

- 2.1 All procedure specifications used in conjunction with this procedure must be in accordance with the applicable sections of the ASHE Boiler and Pressure Vessel Code.
- 2.2 All velding operations to be under surveillance of (W) NES elding engineer if performed in the field.
- 2.3. Prior to any welding, the discharge nozzle must be isolated from the internal parts of the pump. This may be accomplished by taping a plastic servern to the casing or some similar method. Under no circumstances should slag or dirt be allowed to fall into the loop.

3.0 . WATER IALS:

- 3.1 Stainless steel electrode type 30S-15 shall be used
- 3.2 Stainless steel filler wire ER-308 shall be used if needed

3.3 The filler metal electrodes shall be procured to ASME Boiler and Pressure Versel Code Section II-C SFA 5.4 for 308-15 and SFA 5.9 for ER-303. All filler wire and electrodes must also be procured to Section III para. NB-2430.

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4.0 INSTRCTION:

- 4.1 Inspector shall be a NDT Lovel II inspector in accordance with ASEE Code.
- 4.2 Penetrant test procedure shall be (W) Process Spec. PS595139 (84350SW) or equivalent.
- 4.3 Prior to any welding, penetrant test the weld prep. Be sure to include the casing area designated on the applicable fabrication drawing. If a rejectable indication is found, notify ED.
- 4.4 Inspector shall be responsible for maintaining records.

5.0 CLIANTIG:

- 5.1 All cleaning shall be done in accordance with (W) Spec. PS597760 or equivalent.
- 5.2 Before velding the weld prep, must be cleaned. Inspector must verify that area is clean prior to welding.
- 5.3 During welding, precautions must be made to prevent slag and dirt from falling into the loop. Also the weld should be cleaned thousughly after each PT.
- 5.4 After welding, the surrounding area shall be inspected for weld spalls and spatter. Final cleaning shall be done according to the applicable sections of (U) specification PS597760 or equivalent.

6.0 RECORDS:

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- 6.1 Weld records and results shall be sent to END's Q.A. for filing
- 6.2 All reference documents used in this procedure shall be referenced at the end of this spec.
- 6.3 Any document used other than (W) shall be submitted to END

O WELDING PROUTELENTS:

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- 7.1. The qualified velding procedure specification shall be shielded metal-arc (stich) or a multi-process specification with a gas tungsten-arc (TIG) root with a shielded metal arc balance.
- 7.2 The welding procedure specification must be qualified in accordance with ASNE Boiler and Pressure Vessel Code Section IX and include the following essential variables:

7.21 The base material must have a P- number of 8.

- 7.22 Weld metal electrode must have a T- number 5 and an Anumber 7. Bare filler wire must have an F- number 7 and an A- number 7.
- 7.23 Procedure has to be qualified in at least the 2G and 3G positions.
- 7.24 The base material has to be preheated to a minimum of 60° F.

7.25 Interpass temperature must not exceed 350° F.

- Y 7.26 Procedure must be qualified for the thickness of the weir plate
- 1 7.27 Precedure must state what type of backing was used if any.
 - 7.28 Procedure must state whether or not heat treatment was used.
 - 7.29 The gas tungsten are process must include the type of electrode used and type of shielding gas used.
- 7.3 The weld shall be a full penetration weld. Back grinding shall be used to assure full penetration.
- 7.4 All welding done with 303-15 shall also carry the following restriction on current.

	Dia.	of 308-15		•	Current Lange	
		1/16"	•		40 - 50 Amps	
••	•	5/64"		• •	50 - 65 Amps	
••		3/33"		5-	55 - 80 Amps	
•		1/8"		7-	80 -105 Amps · ·	
		5/32"		100	110- 135 Amps 'YS	
		3/16"		, ;	130- 170 Amps / 1'5	

7.5 (W) NES qualified welding specification 8214SEF or equivalent may be used.

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8.0 TECHNITOUE:

8.1 Weld 1/16" pads on weld prep land of weir plate 1528D54HOI in appreximately 4 places. These will be used to obtain the desired root opening of 1/16" (see sketch A). The qualified procedure for SHAW or GTAW may be used.

the state the number of the

- 8.2 Assemble weir plate in place as indicated on fabrication drawing 1309036 and sketch 'A.' Pads may need ground to obtain proper fitup. Tack weld weir plate to casing. Qualified shielded metal are (SNAW) or gas tungsten are (GTAW) process may be used. All tacks shall be visually inspect per ASNE Boiler and Pressure Vessel Code Section III para. NB 4231.1. Record visual examination on weld record.
- 8.3 Weld root of side 'A.' Shielded metal arc or gas tungsten arc welding way be used. PT root. Weld balance of side 'A' per SMAW. PT every layer. Record all penetrant examinations on welding records.
- 8.4 Backgrind into root of side 'A' from side 'B' (sketch A). Care must be taken as not to grind into the ID of the casing nozzle. Penetrant examine the ground root. Record results on records.
- 8.5 Weld side 'B' of sketch 'A' full and finish with a 1/2" fillet as shown on fab. dug. 1309036. Use shielded metal-arc process Penetrant test root and every layer. Record results on welding records.
- 8.6 Clean surrounding system per para. 5.4 of this specification.
 Inspector to verify final cleaning on weld records.

8.0 a Takshama Alternate Technique*

8.1 a Veld 1/3" pads on veld prep land of veir plate 95529361101 in approximately 4 places. These will be used to obtain the desired root opening of 1/3" (see sketch 'B'). The qualified SNAW or GTAN process may be used with the applicable weld metal.

8.2 Assemble veir plate in place as indicated on fabrication drawing 1309C37 and shetch 'B' of this specification. The weld pads may need ground to improve fitup. Also check the accessibility of welding side 'A' of shetch B. If a problem exists, material may be removed provided the plate thickness is not altered.

*These techniques are to be used at Takahama and any other site where the pupp internals are installed. DD must also be notified.

8.3 a Tack weld weir plate in place with the qualified SNAW or GFAW process. All tacks shall be visually inspected par ASIE Boiler and Pressure Vessel Code Section III para. NB 4231.1. Record visual examination on weld record.

- 8.4 a Weld the root of side 'A.' Shielded metal-are or gas tungstenare welding process may be used. Penetrant test the root. Record results on weld records.
- 8.5 a Backgrind the root of side 'A' from side 'B' of sketch B. Care must be taken as not to grind into the ID of the casing nozzle. Penetrant examine the ground area. Record results on weld record.
- 8.6 n Weld side 'B' of sketch 'B' with the qualified SHAW process. Penetrant examine every layer. Record results on weld records. Final fillet dimension should be 1/2" as shown in Fab. Dwg. 1309037.
- 8.7 a Weld balance of side 'A' with the qualified SMAW process. Penetrant test every layer and record results on welding records.

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8.8 a Clean surrounding area per para. 5.4 of this specification. Inspector to verify final cleaning on weld records.

9.0 REFERENCE DOCUMENTS:

9.1 Qualified welding procedure - (1) 82148 FF

9.2 Cleaning procedure - (1) PS597760

9.3 Fenetrant procedure - (W) PS595139





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WC/Cheswick		
10 1 1 100 61 CAN'ST		
Supply four (4) weir plates in accord	ance with drawing no. 1528554, re-	v. 2
Places shaft be shipped to site no la	ter than December 1974.	
Cost per plate = \$497.00		
Total Cost for Four (4) plates . S	51,988.00	
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SPIN NO: TVA-RCPCPC- 1, 02, 03,	04	
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	D. 11.	(c) /2/2/22
TVA-125		Territess
A. L. Dietrick	D. E. Thorn	I. E. Wright

CC-FDR- 1383

INT : INR SYSTEMS DIVISION WW : 373-5217 Dur Suptember 11, 1973 South Authorization of Char-FDR'S

NUCLEAR ENERGY SYSTEMS Cost Accounting R. A. Jacobs, Manager (Bay 205)

cc: M. Molnar - Bay 202 D. S. Zebraskey - Day 271

.W. E. Wright

Effective immediately, labor and material charges are authorized against the following FDR's:

FDR DESCRIPTION

FOR HOLDER

FDR KO.

..

Weir Plate Installation In R.C. Pump W. E. Wright Weir Plate Installation In R.C. Pump W. E. Wright

TVA-10524 TEN-10515

- PKR SYSTENS DIVISION - Cost Estimating and Cost Control - P. M. Furr, Manager



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u. H. Field 1 W. E. Bennett	SERIAL NO. 16N-10515 -
F. C. Wellhofer 1 S. Johnston/File	TEN 125/40
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SUBJECT: Weir Plate Installation in P	.C. Pump
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This ECH is issued to have a weir plat	e installed in each of the
four (4) TEN B.C. Pump Discharge Nozzi	es in accordance with drawing
number 1309C35. Rev. 1. "Casing and Wei	r Plate Assembly". The welding
and inspection procedure is specified	on this drawing (REE CREC No 107RP026)
The Voir Plate detailed drawing nurbe	is 1529551 Pay 2 These
Ine werr Frate detailed drawing humber	The forwarded
parts are being fabrirated by Westing:	
to the site as schedule requires. On	e (1) Weir Plate is required ber
pump	
- Reference letter no. PA-PO-4194 dated	_B/1/73 for position concerning
hydrostatic pressure requirement afte	r installation of Meir Plate.
Attachments: 1) Dwg No. 1309036, R	ev.
2) Dwg. No. 1528854, 8	ev. 2
3) Letter No. PA-PO-41	94 dated 8/1/73
(4) SPEC No. 107 5	P026 Pou."B"
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SUBJECT: Weir Plate Installation in	n R.C. Pump
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four (4) IVA R.C. Jump Discharge Vie	zles in accordance with drawing
number 1309035 Fay "Casing and 1	Veir Plate Assently" The velding
and inspection proceedure is specific	ed on this drawing (235 SPEC No. 1072926)
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The Weir Plate detailed drawing num	ber is 1529954, Foy. 2. These
parts are being fabricated by Mesti	nghouse FMD and will be forwarded
to the site as schedule requires.	One (1) Meir Plate is required pay
<u>× 1</u>	
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Attachments: 1) Dug No. 1309036	Day
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Westinghouse Electric Corporation Post Office Box 355 Pittsburgh, Pennsylvania 15230

Gentlemen: Attention: Mr. W. E. Wright

Ripho ling (2) lito 103. 475:7 STOLOY A MUCLEAR PLANT NUCLZAR BTZAM SUPPLY SYSTEMS CUTTRACT 68060-91934 LETTER NO. 3305

REACTOR COOLANT MMP WEIRS - (M2M-2-5,) M2L-2-15

We acknowledge receipt of your letter No. TVA-4026.

It is apparent from the information given in your lotter and from discussions between Westinghouse and TVA personnel that sufficient analyses and performance tests have not been made to evaluate the advantages and disadvantages of adding the 5-inch-high weirs into the discharge side of the 93-A RC pumps. We were advised in a telephone conference on October 15, 1973, that Westinghouse has performed analyses which incorporated both Upper Head Injection and the subject veirs into the analytical model, but that similar analyses had not been made without the weirs. Also, your letter indicates that you intend to make flow tests at Cheswick, but these tests have not yet begun.

Since the information we have received is inconclusive, TVA does not at this time agree to the installation of the proposed weirs into the RC pump discharge nozzles. We realize that there may be advantages to including the veirs into the system; however, we also have some serious concerns. The advantages and justifications for making this change must be shown in the form of analytical and test results and must be provided for review before TVA will consider approving the proposed change.

It is our understanding that Westinghouse has prepared sections of the FSAR to include the veirs and that a change to these sections at this time to delete the references to veirs would cause unacceptable delays to filing the JEAR. Therefore, we agree to leave the references to veirs in the FEAR, and if subsequent analyses and test results by Westinghouse do not justify adding the woirs, then the FEAR will be amended accordingly.

SENT OCT 19 197

Westinghouse Electric Corporation October 17, 1973

Please provide the proper supporting justification for your proposal as soon as possible.

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Lines - Careta Barala Manual Langer and Control - Contro

Very truly yours,

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D. R. Patterson

TEH: HBY CC: Mr. R. Z. Lyman CC: G. G. Stack, Daisy (3) R. S. Patton, 402 LB-C R. M. Stewart, 400 FB-K (3) R. M. Pierce, 315 LB-K (2) R. H. Davidson, 303 FRB-C C. S. Walker C. Michelson E. R. Taylor M. H. Bressler E.



The purpose of this letter is to formally submit the Engineering Change Notice, (TVA-10524), which was telecopied to TVA in mid October, 1973. TVA's reluctance to accept the R.C. pump weir plates has been documented by TVA letter 3305 and will be replied to at a later time with additional information.

As a follow-up to $\underline{\underline{N}}$ letter TVA-4026, subject, "Emergency Core Cooling System", $\underline{\underline{N}}$ telecopied thirteen (13) pages of ECN instructions to TVA for review, comment and approval. The attachments to this letter duplicate the engineering change notice (TVA-10524) telecopied to TVA. $\underline{\underline{N}}$ acknowledges TVA reply and comments in TVA letter 3305 dated 10/17/73. Additional information is being prepared to reinforce the judgment decision for $\underline{\underline{N}}$ to back-fit 8 R.C. pumps with weir plates at no cost to TVA.

Very truly yours,

WESTINGHOUSE ELECTRIC CORPORATION NOV. 15 1973 IEC.B J. J. Keenan, Project Engineer GEG TVA Projects tis LWL cc: R. E. Lymant. F. E. Rolstor, CH Wm. E. Wright, Manager R. S. Patton The TVA Projects R. H. Davidsop 10-1 ESW 11-12-73--DRP:JSC

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Lo u Stald Ul V. E. Bennett	SERIAL NO. TVA-10524
1. A. Field II & Johnston/File	TVA 125/48
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SUBJECT: Meir Pate Installation in	R.C. Pump
This FCII is issued to have a weir pla	ate installed in each of the
four (4) TVA B C. Pump Discharge lloz	zlos in accordance with drawing
n then 1209026 Rev "Casing and W	eir Plate Assembly". The welding
and inspection_procedure_is_specifie	d on this drawing (ISE SPEC NA. 107RP22;
The Moir Plate detailed drawing numb	er is 1528854, Rev. 2. These
parts are being fabricated by lestin	obouse FMD and will be forwarded
parts_are_being_boncetto ay ite	ine (1) Veir Plate is required per
pump	
Reference_letter_NoPA-PO-Al9A_date hydrostatic_pressure_requirement_aft	a 2/1/23 for position concerning
Attachmats: 7 Drg_No_1309036,	sex 7
2) Drg_ 10_1528B54.	Rey. 2
3) Letter No. PA-PO-4	195 dated 8/1/73
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At the May 15, 1974 meeting in Knoxville on the ECCS subject. TVA requested that Westinghouse provide an analysis to demonstrate the influence of the reactor coolant pump wier on ECCS performance including UHI. This analysis has been performed for a small break LOCA using the same basis and parameters as the UHI small break analysis presented in Section 15.3 of WCAP-8185. The analysis was performed for the 6 inch cold leg break since this break resulted in the highest small break ilad temperature for the UHI plant analysis in WCAP-8185 and since the pump wier has a significant influence on the small break LOCA transient.

The attached figures demonstrate the differences in the 6 inch break transients for a UHI plant with and without a wier installed in the reactor coolant pump. Figures 1 and 2 show the core mixture level transients for the two cases. In the absence of the wier some of the safety injection flow to the cold leg can flow into the crossover leg resulting in less flow to the vessel. As shown in Figure 2 this results in lower core mixture level and a longer period of core uncovery in the case without a wier. This difference in core mixture level transients results in differences in peak clad temperature transients as shown in Figures 3 and 4. The maximum clad temperature for the case with no wier is about 200°F higher than the case with the wier.

Although the analyses presented here are for a typical 3425 MWt 4 loop plant with UHI and were not performed specifically for the Sequoyah or Watts Bar plants, the results here concerning the influence

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D. R. Patterson Page 2 July 10, 1974

of the wier are certainly applicable to Sequoyah and Watts Bar. On the basis that the wier provides a relatively simple means of improving ECCS performance and thus providing additional margin in the small break spectrum Westinghouse continues to strongly recommend incorporation of the wier in the Sequoyah and Watts Bar reactor coolant pumps.

Very truly yours.

WESTINGHOUSE ELECTRIC CORPORATION

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R. P. Vijuk, Manager Safeguards Analysis II

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Jack E. Werle, Manager TVA Project

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204 Union Building (TER) August 23, 1974

Westinghouse Electric Corporation Post Office Dox 355 Pittsburgh, Pennsylvania 15230

Gentlogon: Attn: Lt. J. E. Worls

LERUTAH NULLAH PLANT NULLAR FILM SULPH SISTES CUTEACT 68050-51934 LETTER 10 (3973)

PEACTOR COOLANT PLAP WEIR - MEI-2-5

We acknowledge receipt of your letters TVA-4037, 4122, and 4735 to TVA.

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TVA has considered carefully Westinghouse lotter 5%1-1735 in which you recommend incorporation of the weir in the Eequoyah and Watts Ear reactor coolant pumps. Based or the analytical results reported in your letter (which you claim are applicable to Eequoyah and Watts Eer), we do not ballows that the stated reduction of 200 F in maximum claim temperature (from about 1200 F to 1000 F) resulting from edding weirs to the EC pumps improves the ECCC sufficiently to justify making the proposed changes which would also provide a penalty to plant operation by increasing the required pumping power.

Although it is an improvement in ECCO performance and provides additional margin, we can find no reasonable basis for needing udditional margin on the already low marinum temperature reported in your latter for plants with UHL. Therefore, please withdraw the Engineering Charge Hoticus for the installation of reaster coolant pump weir plates for Sequerah Huelear Plant. The Sequerah FEAR and its supporting documents such reflect this decision.

Floase inform TTA of any future changes in your analytical results which might significantly alter the basis for our decision and thereby reopen this incus.

Vary traly yours,

D. R. Patteros

D. R. Pattarson, Chiaf Mechanical Engineering Branch

CC: Mr. Z. J. Louisn.

CI:LEB CC: G. G. Stack, Daley (3) R. H. Stevart, 400 TB-E (3) BLIPLICATE E. R. Taylor Cleto Walles R. S. Patton, 402 LB-C R. H. Pierce, 315 13-1 (2) E. G. Beasley RAR

TO: A. L. Dietrick C. L. Caso R. J. Sero R. D. Hill T. C. Smith P. M. Furr

CC: D. Collier

- F. C. Wellhofer R. II. Mathieson W. E. Bennett S. Johnston J. D. McAdoo L. E. Conway G. L. Augustine R. A. Jacobs C. Eicheldinger
- H. N. Andrews H. J. von Hollen R. A. Worthen J. M. Giglio P. L. Walker M. E. Stella J. D. Campbell E. A. Novotnak C. R. Good R. P. Vijuk

WATER REACTOR DIVISIONS FWR Systems Division WH 249-5283 We August 28, 1974 Free Sequoyah R.C. Pump Weir-Plate Cancellation --FDP. (ECN) Nos. TVA-10527 TEN-10515

Ref: (a) TVA Letter No. 3973 dated 8/23/74 attacr

S.O. TVA/TEN-125

TVA has rejected [reference (a)] our offer to install weir plates in the Reactor Coolant Pump Casings.

Addressees are requested to:

- (1) Cancel subject ECN and close the FDR.
- (2) Initiate action to provide a new small break LOCA analysis for Sequoyah.

(3) Amend the Sequoyah FSAR to reflect this change.

(4) Cancel existing P/R and credit TVA/TEN account.

Jáck E. Werle, Manager Tennessee Valley Authority Projects

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