REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8205210143 DOC.DATE: 82/05/17 NOTARIZED: NO DOCKET #
FACIL:50-387 Susquehanna Steam Electric Station, Unit 1, Pennsylva 05000387
50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylva 05000388
AUTH.NAME AUTHOR AFFILIATION
CURTIS,N.W. Pennsylvania Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
SCHWENCER,A. Licensing Branch 2

SUBJECT: Forwards evaluation re fuel lift for SER Item 15.

DISTRIBUTION CODE: B001S COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 3
TITLE: PSAR/FSAR AMDTS and Related Correspondence

NOTES:

	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL
	A/D LICENSNG		1	0	LIC BR #2 BC		1	0
	LIC BR #2 LA		1	0	PERCH,R.	01	1	1
INTERNAL:	ELD/HDS4		1	0	IE FILE		1	1
	IE/DEP EPDS	35	1	1	IE/DEP/EPLB	36	3	3
	MPA		1	0	NRR/DE/CEB	11	1	1
	NRR/DE/EQB	13	3	3	NRR/DE/GB	28	2	2
	NRR/DE/HGEB	30	2	2	NRR/DE/MEB	18	1	1
	NRR/DE/MTEB	17	1	1	NRR/DE/QAB	21	1	1
	NRR/DE/SAB	24	1	1	NRR/DE/SEB	25	1	1
	NRR/DHFS/HFEB	40	1	1	NRR/DHFS/LQB	32	1	1
	NRR/DHFS/OLB	34	1	1	NRR/DHFS/PTRB	20	1	1
	NRR/DSI/AEB	26	1	1	NRR/DSI/ASB	27	1	1
	NRR/DSI/CPB	10	1	1	NRR/DSI/CSB	09	1	1
	NRR/DSI/ETSB	12	1	1	NRR/DSI/ICSB	16	1	1
	NRR/DSI/PSB	19	1	1	NRR/DSI/RAB	22	1	1
	NRR/DSI/RSB	23	1	1	NRR/DST/LGB	33	1	1
	REG FILE	04	1	1	RGN1		2	2
EXTERNAL:	ACRS	41	10	10	BNL(AMDTS ONLY)		1	1
	FEMA-REP DIV	39	1	1	LPDR	03	2	2
	NRC PDR	02	1	1	NSIC	05	1	1
	NTIS		1	1				

TOTAL NUMBER OF COPIES REQUIRED: LTTR 58 ENCL 53

PP&L Pennsylvania Power & Light Company
Two North Ninth Street • Allentown, PA 18101 • 215 / 770-5151

Norman W. Curtis
Vice President-Engineering & Construction-Nuclear
215 / 770-5381

MAY 17 1982

Mr. A. Schwencer, Chief
Licensing Branch No. 2
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Docket Nos. 50-387
50-388

SUSQUEHANNA STEAM ELECTRIC STATION
SER ITEM 15
ER 100450 FILE 841-2
PLA-1095

Dear Mr. Schwencer:

In accordance with SER Item 15, fuel lift has been analyzed for Susquehanna SES and has been found to be within acceptable limits. The results of the Susquehanna SES fuel lift analysis are attached.

This letter closes SER Item 15.

Very truly yours,

N. W. Curtis
Vice President-Engineering & Construction-Nuclear

CTC/mks

Attachment

cc: R. Perch - NRC

B001
S 1/1

SUSQUEHANNA FUEL LIFT ANALYSIS

INTRODUCTION

Table 1 Summary of Results is provided to confirm fuel lift analysis results expected in SSES Safety Evaluation Report Section 4.2.3.4, April, 1981.

TECHNICAL OVERVIEW

The fuel bundles in the reactor core are supported horizontally by the fuel-support casting and core-plate at their lower end and by the top-guide at their upper end. In the vertical direction, the fuel bundle weight is supported by a system composed of fuel-support casting, control-rod guide tube, control-rod-drive housing upper portion and RPV bottom head. During postulated abnomal conditions, the upward forces acting on the bundles increase and can potentially exceed the hold-down forces. In this event, the bundle would lift upward and, upon reseating the fuel supports, produce impact forces. An analysis has been performed to determine the magnitude of fuel lift and to assure fuel design acceptability.

METHODOLOGY

The dynamic analysis required to assess the amount of lift and associated impact forces is by nature a non-linear and complex process. The non-linearity is due to the hydrodynamic effects, frictional forces and the gaps between the components.

SUMMARY OF RESULTS

Fuel lift has been analyzed for Susquehanna and has been found to be within acceptable limits. The results of the Susquehanna fuel lift analysis are summarized in Table 1.

TABLE 1 SUMMARY OF RESULTS

DESIGN CONDITION	CASE NO.	LOAD COMBINATION	TYPE OF HORIZONTAL	GAP OPENING OF ELEMENT W6 ($x10^{-3}$inch) (1)	FUEL* LIFT	CORE** PLATE LOAD (LBS) (2)
UPSET	1	$N+\Delta P_u+OBE+SRV_{max}+S_s$	MAX	0.0	NO	45.
			MIN	0.0	NO	41.
EMERGENCY	2	$N+\Delta P_u+SRV_{ads}+CHUGGING$	MAX	0.0	NO	88.
			MIN	12.0	NO	165.
FAULTED	4	$N+\Delta P_u+SSE+SRV_{ads}+CHUGGING$	MAX	3.0	NO	264.
			MIN	2.2	NO	190.
FATIGUE	10	$N+\Delta P_u+SRV_{ads}+S_s$	MAX	0.0	NO	35.
			MIN	0.0	NO	34.

(1) Separation between Fuel Support Casting and Lower Tie Plate

(2) Load on ELEMENT Y4

* Acceptance Criterion:
Vertical lift-off forces must not disengage the lower tie plate from the fuel support casting such that the resulting loss of lateral fuel bundle positioning could interfere with control blade insertion.

** Loads per fuel assembly