

MORRIS E. UDALL, ANTL. CHAIRMAN

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS
U.S. HOUSE OF REPRESENTATIVES
WASHINGTON, D.C. 20541

STANLEY BOVELE
STAFF DIRECTOR
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GENERAL COUNSEL

THOMAS W. GLENN
REPUBLICAN COUNSEL

October 18, 1982

Chairman Nunzio Palladino
U.S. Nuclear Regulatory Commission
1717 H Street, N.W.
Washington, D.C. 20555

Dear Chairman Palladino:

In preparation for the Interior and Insular Affairs Subcommittee on Oversight and Investigations' hearing on steam generator tube integrity at commercial nuclear power plants, I request that the Nuclear Regulatory Commission request answers to the questions listed below from all commercial licensees which operate pressurized water reactors in the United States.

The issue of steam generator tube problems is one of wide-spread importance within the nuclear power industry and those government bodies responsible for overseeing nuclear power development, regulation and operation. While my primary interest is with safety, I am also concerned about the costs involved in maintenance, repair and replacement, and worker exposure resulting from these steam generator tube problems. It is my understanding that the NRC does not have detailed information about these important and related issues. Therefore, I ask that you submit these questions to all utilities with operating plants so that we can know more about the ramifications of the problem. Please request answers to the following questions for the years 1979, 1980, 1981 and available information for 1982.

1. How many days of unscheduled outages can be attributed to steam generator-related difficulties per year at your site?
2. During each of the years in question, how many steam generator tubes have been (a) plugged and (b) sleeved in each steam generator?
3. Do you anticipate major steam generator repairs in any of your units in the next five years, and if so how much would these repairs cost, please specify?

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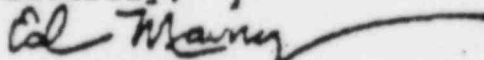
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Chairman Palladino
Page Two
October 18, 1982

4. What have been the total costs and specifically replacement power costs associated with steam generator maintenance, repair and replacement at your plant?
5. What has been the total occupational radiation exposure (in person-rams) caused by steam generator (a) maintenance and (b) repair/replacement?
6. What percentage of total annual employee dose has been attributable to steam generator-related work at your site(s)?
7. During the years in question, (a) how many workers have received measurable radiation doses from steam generator-related work, and (b) what percentage of the total workforce do these workers represent?
8. How many temporary workers (defined by the NRC as all workers other than those hired directly by nuclear powerplants on a conventional, long-term basis) received doses from steam generator-related work at your facility each year?
9. What percentage of (a) total workers involved with steam generator-related work do temporary workers represent, and (b) of the total workforce do temporary workers represent?
10. Has your company used independent firms to find temporary employees who have received an occupational dose from steam generator-related work?

I would greatly appreciate it if this matter could be handled as expeditiously as possible in order to obtain answers to these questions before the subcommittee's hearing on December 2, 1982. In advance, thank you for your assistance in this matter.

Sincerely,



EDWARD J. MARKEY
Chairman
Subcommittee on Oversight
and Investigations

LJM:sa
CC: Fred Combs

NUMBER OF PLANTS RESPONDING TO GENERIC LETTER

Responses to STeam Generator Integrity Letter of October 26, 1982
(Generic Letter No. 82-22)

- | | |
|----------------------------------|--|
| 1. Kewaunee | - Full Response |
| 2. Oconee Units 1, 2, 3 | - Declined |
| 3. McGuire Units 1, 2 | - Declined |
| 4. San Onofre | - Declined |
| 5. Palisades | - Full Response |
| 6. Rancho Seco | - Partial, minimum response |
| 7. Prairie Island Units 1, 2 | - Full Response |
| 8. Ft. Calhoun | - Full Response |
| 9. Beaver Valley | - Full Response |
| 10. Three Mile Island Unit 1 | - Full Response |
| 11. Trojan | - Full Response |
| 12. Calvert Cliffs Units 1 and 2 | - Declined |
| 13. Crystal River 3 | - Full Response |
| 14. North Anna 1 and 2 | - Full Response |
| 15. Surry 1 and 2 | - Partial Response |
| 16. Maine Yankee | - Partial, minimum response |
| 17. Zion 1 and 2 | - Partial Response |
| 18. Yankee Rowe | - Full Response |
| 19. Haddam Neck | - Partial Response |
| 20. Millstone 2 | - Partial Response |
| 21. Sequoyah 1 and 2 | - Full Response |
| 22. Cook 1 and 2 | - Full Response |
| 23. Robinson 2 | - Partial Response |
| 24. Arkansas 1 and 2 | - Full Response for 1981 and 1982 only |
| 25. Indian Point 3 | - Full Response for 1979 through 1981 |
| 26. Farley 1 and 2 | - Declined |
| 27. Turkey Point 3 and 4 | - Declined |

NUMBER OF PLANTS RESPONDING TO GENERIC LETTER

Responses to Steam Generator Integrity Letter of October 26, 1982
(Generic Letter No. 82-22)

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| 8. Ft. Calhoun | - Full Response |
| 9. Beaver Valley | - Full Response |
| 10. Three Mile Island Unit 1 | - Full Response |
| 11. Trojan | - Full Response |
| 12. Calvert Cliffs Units 1 & 2 | - Declined |

Question: In previous responses to the Markey sub-Committee, Udall's Committee, and the Union of Concerned Scientists, it was indicated that a number of questions would be included in the 45-day task force report. Are those questions answered in that report?

Answer: The "45-day task force report" was issued as NUREG-0909, "NRC Report on the January 25, 1982 Steam Generator Tube Rupture at R. E. Ginna Nuclear Power Plant" in April 1982. In that report, copies of which are in the PDR and were provided to your staff, all questions previously referred for answers to the 45 day report, are addressed.

Question: How many days of Unscheduled outages can be attributed to steam generator-related difficulties per year at your site?

Answer: Most plants had zero days out of service. Those that did ranged from 15 to 49 days.

	'79	'80	'81	'82
Kewaunee	0	0	0	0
Palisades	0	0	0	49
Prairie Island	21	34	24	0
Ft. Calhoun	0	0	0	0
Beaver Valley	0	0	0	15
TMI-1	0	0	0	0
Trojan	43	0	13	0

Question: During each of the years in question, how many steam generator tubes have been

Plugged in each steam generator?
Sleeved in each steam generator?

Answer: Tube plugging ranged from 0 to 92 tubes per steam generator.

No tube sleeving reported.

	SG#	'79 plug/sleeve	'80 P/S	'81 P/S	'82 P/S
Kewaunee	A	0/0	0/0	0/0	0/0
	B	0/0	0/0	0/0	0/0
Palisades	A	14/0	0/0	9/0	2/0
	B	9/0	0/0	40/0	1/0
Prairie Island (Unit 1)	11	6/0	0/0	25/0	Incomplete
	12	0/0	1/0	2/0	Incomplete
(Unit 2)	21	0/0	3/0	4/0	15/0
	22	0/0	15/0	38/0	12/0
Ft. Calhoun		0/0	0/0	0/0	0/0
Beaver Valley 1		0/0	0/0	0/0	1/0
TMI-1		3/0	1/0	0/0	0/0*
Trojan	A	2/0	4/0	88/0	0/0
	B	1/0	3/0	89/0	0/0
	C	1/0	1/0	92/0	0/0
	D	5/0	55/0	63/0	0/0

* All 31,000 tubes are to be kinetically expanded in the upper tube sheet to create a new mechanical joint below the damaged area. This work is expected to be completed by mid '83.

Question: What have been the total costs and specifically replacement power costs associated with steam generator maintenance, repair and replacement at your plant?

Answer: Only Trojan and Palisades broke down the replacement power costs (\$400K - \$700K/day).

Pancho Seco estimates replacement @ \$1,130 K/day, Maintenance costs range from \$90k per year (routine T/S surveillance) to \$35 million (TMI-1).

		'79	'80	'81	'82	Comments
Kewaunee	R 0	0	0	0	0	
	M 0	0	0	0	0	
Palisades	R 0	0	0	0	20,885,700	(49 days)
	M 774,000	0	927,000	581,500		
Prairie 1	R 1,560,000	3,888,000	2,786,000	1,141,000		Did not break down costs.
	M "	"	"	"		
Ft. Calhoun	R 0	0	0	0	0	
	M 0	100,000	90,000	0	0	T/S surveillance costs only.
Beaver Vly.	R 0	0	0	0	0	
	M 0	0	0	0	270,000	
TMI-1	R 0	0	0	0	0	12-13 million/mo. if allowed to operate
	M 0	0	0	0	35,000,000	Estimated final cost
Trojan	R 30,126,000	0	5,253,000	0	0	Only represents PGE share of Trojan plant
	M 937,000	857,000	2,062,000	0	0	

R - Replacement Power Costs

M - Maintenance Costs

Question: What has been the total occupational radiation exposure (in person-rem) caused by steam generator?

Maintenance?

Repair/Replacement?

Answer: Exposures range from less than 10 man-rem to approximately 150 man-rem depending on amount of work needed. TMI-1 expects an additional 380 to 450 man-rem before their work is completed in mid '83.

		'79	'80	'81	'82
Kewaunee	M 4.5		20.9	3.6	2.2
	R 0		0	0	0
Palisades	M 130		0	80	0
	R 0		0	0	43.4
Prairie I.	M 14.6		32	33	17.6
	R 0		0	0	0
Ft. Calhoun	M 0		2.7	15.8	0
	R 0		0	0	0
Beaver Vly	M 0		0	0	0
	R 0		0	0	0
TMI-1	M 25		-	18	154
	R 25		-	18	154
Trojan	M 41		46	139	15
	R 0		0	0	0

M - Maintenance
R - Repair/Replacement

Question: What percentage of total annual employee dose has been attributable to steam generator related work at your site(s)?

Answer: For most plants the steam generator dose represents about 10% of total plant dose. This number can increase dramatically for extensive S/G repairs (e.g., TMI-1).

	'79	'80	'81	'82	
Kewaunee	4.0	9.4	2.4	2.3	
Palisades	10	0	10	10	
Prairie I.	9.5	16.3	17.9	Inc.	Currently in 1982 refueling outage
Ft. Calhoun	0	0.4	3.5	0	
Beaver Vly	0	0	0	4	
TMI-1	3	-	11	60	
Trojan	17.8	11.9	26.0	4.1	

Question: During the years in question, how many workers have received measureable radiation doses for steam generator related work? What percentage of the total workforce do these workers represent?

Answer: Answer: Workers receiving doses range from 15 to over 300. The percent of those working who receive doses are generally less than 10% although some go higher.

	'79	'80	'81	'82	
Kewaunee	# 27 % 5%	47 8.8%	30 3.4%	15 2.3%	
Palisades	# 188 % 9.4%	0 0	195 10.5%	91 6.4%	
Prairie I.	# 60 % 5.5%	110 7.1%	90 6.7%	N/A N/A	In current refueling
Ft. Calhoun	# 0 % 0	15 1.4%	28 2.9%	0 0	
Beaver Vly	# 0 % 0	0 0	0 0	153 7%	
TMI-1	# - % -	- -	152 10%	244 28%	
Trojan	# 200 % 17%	211 12.2%	317 10.0%	78 7.3%	

- Total number people receiving doses.
% - Percent of people receiving doses.

Question: How many temporary workers (defined by the NRC as all workers other than those hired directly by nuclear power plants on a conventional, long-term basis) received doses from steam generator-related work at your facility each year?

Answer: The range varies between less than 10 to over 250. Average value appears to be near 100 temporary employees receiving doses each year.

	'79	'80	'81	'82	
Kewaunee	26	43	17	14	
Palisades	96	0	99	28	
Prairie I.	50	100	80	N/A	Still in refueling outage
Ft. Calhoun	0	5	12	0	
Beaver Vly.	0	0	0	83	
TMI-1	-	-	62	189	
Trojan	131	194	269	54	

Question: What percentage of: total workers involved with steam generator-related work do temporary workers represent? total workforce do temporary workers represent?

Answer: Temporary workers represent about 50 to 90% of the workforce for S/G related work. For other work, they compose a smaller percentage. Temporary workers represent from 5 to 70% of the overall workforce.

		'79	'80	'81	'82
Kewaunee	% S/G	96	91	85	91
	% Tot	63	64	81	52
Palisades	% S/G	51	0	51	31
	% Tot	4.85	0	5.3	2.0
Prairie Island	% S/G	83	90	90	N/A
	% Tot	15	15	15	15
Ft. Calhoun	% S/G	0	40	40	0
	% Tot	0	25	25	10
Beaver Valley	% S/G	0	0	0	54
	% Tot	0	0	0	72
TMI-1	% S/G	-	-	41	78
	% Tot	-	-	-	-
Trojan	% S/G	65.5	91.9	84.9	70.1
	% Tot	60.6	67.3	62.9	53.4

% S/G - % temporary workers on S/G related work
 % Tot - % temporary workers for entire workforce

Question: Has your company used independent firms to find temporary employees who have received an occupational dose from steam generator-related work?

Answer: Utilities seem evenly split on this.

	'79	'80	'81	'82
Kewaunee.	NO	NO	NO	NO
Palisades	NO	NO	NO	NO
Prairie Island	YES	YES	YES	YES
Ft. Calhoun	NO	YES	YES	NO
Beaver Valley	NO	NO	NO	YES
TMI-1	NO	NO	NO	NO
Trojan	YES	YES	YES	YES

Question: Do you anticipate major steam generator repairs in any of your units in the next five years, and if so how much would these repairs cost, please specify.

Answers: No work forecast that is not currently underway.

COPIES OF RESPONSES TO GENERIC LETTER

ROUTING AND TRANSMITTAL SLIP

Date 11/26/82

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. H Denton		
2. E. Case		
3. D. Eisenhower ✓		
4.		
5.		

Action	File	Note and Return
Approval	For Clearance	Per Conversation
As Requested	For Correction	Prepare Reply
Circulate	For Your Information	See Me
Comment	Investigate	Signature
Coordination	Justify	

REMARKS

I hand carried this to Tom Rehm on 11/26. The Licensee responses are also being included in the briefing note book now being prepared.

DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post)	Room No.—Bldg.
Tom Ippolito	Phone No.

5041-102

* GPO : 1981 O - 341-529 (101)

OPTIONAL FORM 41 (Rev. 7-76)
Prescribed by GSA
FPMR (41 CFR) 101-11.206

NUMBER OF PLANTS RESPONDING TO GENERIC LETTER

Responses to Steam Generator Integrity Letter of October 26, 1982
(Generic Letter No. 82-22)

- | | |
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| 1. Kewaunee | - Full Response |
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| 3. McGuire Units 1, 2 | - Declined |
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| 9. Beaver Valley | - Full Response |
| 10. Three Mile Island Unit 1 | - Full Response |
| 11. Trojan | - Full Response |
| 12. Calvert Cliffs Units 1 & 2 | - Declined |

WISCONSIN PUBLIC SERVICE CORPORATION

Kewaunee Nuclear Power Plant
Route 1, Box 48
Kewaunee, WI 54216

November 16, 1982

Mr. Darrell Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Attached are the responses to your Generic Letter No. 82-27, dated October 2, 1982. It should be noted that the Kewaunee Nuclear Power Plant has never experienced a breach in Steam Generator tube integrity during 9 years of operation.

Eddy current inspection of Steam Generator tubes was not performed in 1979, or 1982. The doses during these years is attributable to sludge blanketing only.

Sincerely,

Craig E. Long
Craig E. Long

Assistant Radiation Protection Supervisor

D. C. Hintz
D. C. Hintz
Plant Manager

cc - J. S. Richmond
M. T. Reinhart
Mr. Robert Nelson, US NRC

Attachment

bcc - Mr W L Keepers, WPL
Mr D J Helfrecht, MEE
Mr C R Lucas
Mr C A Schrock
Mr K H Weinbauer
Mr J J Wallace
Mr G A Soiering

Mr D W Sauer
Mr D C Wintz
Mr M L Marchi
Mr C R Steinhardt
Mr B W Lange
Mr J S Richmond

Mr E R Mathew
QA Vault
Dr J R Mueller
Mr L C Neuman

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Steam Generator - Related - Questionnaire

	Response by Year							
	1979		1980		1981		1982	
How many days of unscheduled outages can be attributed to Steam Generator - related difficulties per year at your site?	0		0		0		0	
During each of the years in question, how many steam generator tubes have been -	A	B	A	B	A	B	A	B
Plugged in each steam generator?	0	0	0	0	0	0	0	0
Riveted in each steam generator?	0	0	0	0	0	0	0	0
What have been the total costs and specifically replacement power costs associated with steam generator maintenance, repair and replacement at your plant?	0		2		0		0	
What has been the total occupational radiation exposure (in person-rams) caused by steam generator -								
Maintenance?	4.5		10.9		3.6		2.2	
Repair/Replacement?	0		0		0		0	
What percentage of total annual employee dose has been attributable to steam generator related work at your site(s)?	4.0		9.4		2.4		2.3	
During the years in question -								
How many workers have received measurable radiation doses for steam generator related work?	27		47		30		15	
What percentage of the total workforce do these workers represent?	5		8.0		3.4		2.3	
How many temporary workers (defined by the NRC as all workers other than those hired directly by nuclear power plants on a conventional, long-term basis) received doses from steam generator-related work at your facility each year?	26		43		17		14	
What percentage of -								
Total workers involved with steam generator - related work do temporary workers represent?	96		91		85		91	
The total workforce do temporary workers represent?	63		64		61		52	
Has your company used independent firms to find temporary employees who have received an occupational dose from steam generator - related work?	No		No		No		No	

Do you anticipate major steam generator repairs in any of your units in the next five years, and if so, how much would these repairs cost, please specify.

NO

* Eddy Current inspection of the steam generator tubes was not performed in 1979, 1981 or 1982. The dose in these years is attributable to sludge lancing operations only.

DUKE POWER COMPANY

P.O. BOX 31188

CHARLOTTE, N.C. 28242

November 24, 1982

AL B. TUCKER

TELEPHONE
(704) 373-4538

Mr. Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Subject: Oconee Nuclear Station
McGuire Nuclear Station
Docket Nos. 50-269, -270, -287; 50-369, -370

Dear Sir:

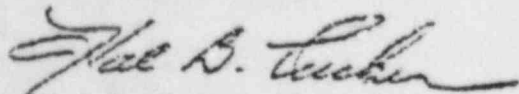
By letter dated October 26, 1982, the NRC forwarded Generic Letter 82-22, Congressional Request for Information Concerning Steam Generator Tube Integrity, and requested our response.

Over the past several years, Duke has provided to the NRC substantial information on both the Oconee and McGuire plants related to the operation and maintenance of steam generators. Duke has periodically provided technical information on steam generator operating history as initially requested by an NRC letter dated December 9, 1977 to all PWR facility licensees. Earlier this year, substantial technical information was provided to the NRC which was reflected in an earlier report to the Congress and in NUREG-0886, Steam Generator Tube Experience, February 1982. Furthermore, Duke meets the requirements of existing regulations dealing with operation of structures, systems, components that are safety related as well as the standards for protection against radiation. Permissible doses, levels, concentrations are not exceeded. The ALARA concept is followed. Reports are periodically provided on personnel monitoring as well as an annual statistical summary report on personnel monitoring.

Through these, and other activities, the NRC is knowledgeable of Duke's actions associated with the operation and maintenance of steam generators at our plants. This previously provided information should be used in responding to the Congressional request. Additional information, beyond that previously provided, would be time consuming to develop, would present an undue administrative burden to Duke.

Duke has operated and maintained our nuclear power plants fully within the requirements of the applicable rules and regulations, and will continue to do so.

Very truly yours,


Hal B. Tucker

RLG:scs

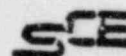
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NOV 24 1982
NRC REGULATORY

Southern California Edison Company



P. O. BOX 800

2244 WALNUT GROVE AVENUE

ROSEMEAD, CALIFORNIA 91770

October 29, 1982

ROBERT DIETCH

VICE PRESIDENT

TELEPHONE

213-872-4444

Mr. Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBJECT: Congressional Request for Information Concerning Steam
Generator Tube Integrity (Generic Letter No. 82-22)
San Onofre Nuclear Generating Station, Unit 1
Docket #50-206

Dear Mr. Eisenhut:

Your letter of October 26, 1982 to all Pressurized Power Reactor Licensees requests information regarding steam generator tube integrity. We understand this information is being requested in response to a request by Representative Edward J. Markey, Chairman of the Subcommittee on Oversight and Investigation. We further understand that the information is not required by the Nuclear Regulatory Commission but is being requested only because of Representative Markey's request to the Commission.

Compiling the requested information requires a significant expenditure of resources. Since we do not expect any benefit from supplying the information we do not feel the expenditure of resources is warranted. Accordingly, we do not plan to supply the requested information.

Very truly yours,

PALISADES QUESTIONNAIRE

SUBMITTED WITHOUT COVER LETTER

U. S. NUCLEAR REGULATORY COMMISSION
STEAM GENERATOR-RELATED - QUESTIONNAIRE

Approved by 0
3150-0092

PALISADES

	RESPONSE BY YEAR			
	1979	1980	1981	1982
YS OF UNSCHEDULED OUTAGES CAN BE ATTRIBUTED TO ATOR-RELATED DIFFICULTIES PER YEAR AT YOUR SITE?	0	0	0	49
OF THE YEARS IN QUESTION, HOW MANY STEAM GENERATOR EEN	A-14 B-9	0	A-9 B-40	A-2 B-1
D IN EACH STEAM GENERATOR?				
D IN EACH STEAM GENERATOR?	0	0	0	0
EEN THE TOTAL COSTS AND SPECIFICALLY REPLACEMENT ASSOCIATED WITH STEAM GENERATOR MAINTENANCE, REPLACEMENT AT YOUR PLANT?	774,000	0	927,000	581,5 20,885.7 replacer
EN THE TOTAL OCCUPATIONAL RADIATION EXPOSURE (IN) CAUSED BY STEAM GENERATOR	130 man rems	0	80 man rems	0
ANCE?				
REPLACEMENT?	0	0	0	43.41 man rems
AGE OF TOTAL ANNUAL EMPLOYEE DOSE HAS BEEN TO STEAM GENERATOR RELATED WORK AT YOUR SITE(S)?	10%	0	10%	10%
EARS IN QUESTION				
Y WORKERS HAVE RECEIVED MEASURABLE RADIATION DOSE IN GENERATOR RELATED WORK?	188	0	195	91
PERCENTAGE OF THE TOTAL WORKFORCE: DO THESE WORKERS NT?	9.47%	0	10.5%	6.47%
FORARY WORKERS (defined by the NRC as all workers hese hired directly by nuclear power plants on a long-term basis) RECEIVED DOSES FROM STEAM LATED WORK AT YOUR FACILITY EACH YEAR?	96	0	99	28
AGE OF ORKERS INVOLVED WITH STEAM GENERATOR-RELATED WORK ORARY WORKERS REPRESENT?	51%	0	51%	31%
AL WORKFORCE DO TEMPORARY WORKERS REPRESENT?	4.8%	0	5.3%	2.0%
PANY USED INDEPENDENT FIRMS TO FIND TEMPORARY O HAVE RECEIVED AN OCCUPATIONAL DOSE FROM STEAM LATED WORK?	NO	NO	NO	NO
PATE MAJOR STEAM GENERATOR REPAIRS IN ANY OF YOUR UNITS IN THE NEXT FIVE YEARS. I MUCH WOULD THESE REPAIRS COST, PLEASE SPECIFY.				
pairs are forecast at the present time.				

The costs listed above are estimates only.

* replacement power cost estimate is figured to be the maximum cost for the 49 day.
d. This figure may have been somewhat lower.

The numbers of workers and radiation doses listed are close approximations, actual
umbers may vary by 10 to 15%.

SMUD

SACRAMENTO MUNICIPAL UTILITY DISTRICT □ 428 1/2 Street, Box 13038, Sacramento, California 95813, (916) 451-1211

November 18, 1982

DIRECTOR DIVISION OF LICENSING
ATTENTION DARRELL B. EISENHUT
OFFICE OF NUCLEAR REACTOR REGULATION
U S NUCLEAR REGULATORY COMMISSION
WASHINGTON DC 20555

DOCKET 50-312
RANCHO SECO NUCLEAR GENERATING STATION
UNIT NO 1
CONGRESSIONAL REQUEST FOR INFORMATION CONCERNING
STEAM GENERATOR TUBE INTEGRITY (GENERIC LETTER 82-22)

We have received your October 26, 1982 letter, which requested a large amount of information related to Steam Generator problems at Rancho Seco. After reviewing your request and evaluating our available resources, we find that District will be unable to complete the tabulated information you requested time frame which would support the scheduled Congressional hearing date. This is due to the fact that a large amount of research would be required to answer all of your questions, and all available staff members are totally immersed in activities related to the upcoming refueling outage of Rancho Seco and efforts necessary to install numerous NRC mandated changes during that outage.

We would, however, like to remind you that, as required by our Technical Specifications, much of the information you have requested has been reported in Licensee Event Reports, Monthly Operating Reports, Special Reports, and annual radiation worker exposure summaries (Environmental Report), albeit in a different format. These reports do not generally include outage costs; currently, the District considers the cost of replacement power (assuming foreign oil is required) for Northern California electricity consumers to be approximately \$1.13 million per day. No major steam generator repairs are anticipated for the Rancho Seco Unit in the next five years.

John J. Mattimore
John J. Mattimore
General Manager

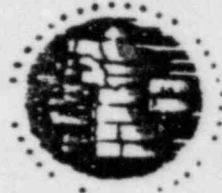
821123/86 LP

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RECEIVED
UTILITY

Omaha Public Power District

1623 HARVEY • OMAHA, NEBRASKA 68102 • TELEPHONE 886-4000 AREA CODE 400

November 22, 1982
LIC-82-384



2 NOV 23 PM 3 24
RECEIVED
NUCLEAR DIVISION

Mr. Darrell G. Eisenhut, Director
U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Division of Licensing
Washington, D.C. 20555

Reference: Docket No. 50-285

Dear Mr. Eisenhut:

Congressional Request for Information Concerning Steam Generator Tube Integrity (Generic Letter 82-22)

The subject request, forwarded by a letter dated October 26, 1982, requested the Omaha Public Power District's response on ten (10) questions related to steam generators. Please find attached the District's responses to the requested information. Please note that in preparing our responses, the District assumes that the questions only apply to steam generator tube-related difficulties and the information on the attached document addresses only tube-related problems.

Sincerely,

W. C. Jones
W. C. Jones
Division Manager
Production Operations

WCJ/TLP:jmm

Attachment

cc: LeBoeuf, Lamb, Leiby & MacPhee
1333 New Hampshire Avenue, N.W.
Washington, D.C. 20036

82-202-9093 3pp

U. S. NUCLEAR REGULATORY COMMISSION
STEAM GENERATOR TUBE INTEGRITY RELATED - QUESTIONNAIRE

	<u>1979</u>	<u>Response By Year</u>		
		<u>1980</u>	<u>1981</u>	<u>1982</u>
1. How many days of unscheduled outages can be attributed to steam generator-related difficulties per year at your site?	0	0	0	0
2. During each of the years in question, how many steam generator tubes have been:				
Plugged in each steam generator?	0	0	0	0
Sleeved in each steam generator?	0	0	0	0
3. What have been the total costs and specifically replacement power costs associated with steam generator maintenance, repair and replacement at your plant?	0	(1) \$100,000	(1) \$90,000	0
4. What has been the total occupational radiation exposure (in person-rems) caused by steam generator				
(a) maintenance, and	0	2.7	15.8	0
(b) repair/replacement?	0	0	0	0
5. What percentage of total annual employee dose has been attributable to steam generator related work at your site(s)?	0	0.4	3.5	0
6. During the years in question,				
(a) How many workers have received measureable radiation doses from steam generator related work, and	0	15	28	0
(b) What percentage of the total workforce do these workers represent?	0	1.4	2.9	0
7. How many temporary workers (defined by the NRC as all workers other than those hired directly by nuclear power plants on a conventional, long-term basis) received doses from steam generator-related work at your facility each year?	0	5	12	0

		Response By Year			
		<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
8.	What percentage of				
	(a) Total workers involved with steam generator-related work do temporary workers represent, and	0	40	40	0
	(b) The total workforce do temporary workers represent?	0	25	25	10(2)
9.	Has your company used independent firms to find temporary employees who have received an occupational dose from steam generator-related work?	No	Yes	Yes	No
10.	Do you anticipate major steam generator repairs in any of your units in the next five years, and if so how much would these repairs cost, please specify.	Yes, the possibility of partial tube support plate cutting (rim cutting), costing approximately \$500,000, exists during the next five years. The decision on this matter will be made following the examination of eddy current test data.			

TES:

- (1) Costs associated with routine surveillance of the primary and secondary sides of the steam generator required by the plant Technical Specifications. These surveillance tests were conducted during scheduled refueling shutdowns.
- (2) The work during 1982 was pertinent to routine operation and maintenance activities.



Duquesne Light

Nuclear Division
P.O. Box 4
Shippingport, PA 15677-0004

Telephone (412) 488-4000

November 24, 1982

Director of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Attn: Mr. Darrell G. Eisenhut, Director
Division of Licensing
Washington, DC 20555

Reference: Beaver Valley Power Station, Unit No. 1
Docket No. 50-334, License No. DPR-66
Generic Letter No. 82-22, Request for Information
Concerning Steam Generator Tube Integrity

Gentlemen:

This is in response to your letter of October 26, 1982, Generic Letter No. 82-22, Congressional Request for Information Concerning Steam Generator Tube Integrity, whereby you requested information pertaining to Steam Generator related work. Attached is an enclosure providing information in response to each of your concerns. It should be noted that the Beaver Valley Power Station, Unit No. 1 steam generators have performed extremely well with a minimum of repairs since the issuance of our operating license on January 30, 1976. We have experienced one outage which can be directly attributed to steam generator - related difficulties. This outage began August 27, 1982 and ended on September 11. The work scope consisted of plugging one steam generator tube. The attached enclosure contains information which pertains to this outage. Included with the enclosed table is a brief explanation supporting the entries made to the table. Activities associated with preventative maintenance have not been included with this submittal as it is considered outside the scope of this questionnaire.

If you have any questions, please contact my office.

Very truly yours,

J. J. Caray
Vice President, Nuclear

82120301484PP

U. S. NUCLEAR REGULATORY COMMISSION
STEAM GENERATOR-RELATED - QUESTIONNAIRE

	RESPONSE BY YEAR			
	1979	1980	1981	1982
HOW MANY DAYS OF UNSCHEDULED OUTAGES CAN BE ATTRIBUTED TO STEAM GENERATOR-RELATED DIFFICULTIES PER YEAR AT YOUR SITE?	0	0	0	15
DURING EACH OF THE YEARS IN QUESTION, HOW MANY STEAM GENERATOR TUBES HAVE BEEN:				
PLUGGED IN EACH STEAM GENERATOR?	0	0	0	1
SLEEVED IN EACH STEAM GENERATOR?	0	0	0	0
WHAT HAVE BEEN THE TOTAL COSTS AND SPECIFICALLY REPLACEMENT LOWER COSTS ASSOCIATED WITH STEAM GENERATOR MAINTENANCE, REPAIR AND REPLACEMENT AT YOUR PLANT?	0	0	0	\$275,000
WHAT HAS BEEN THE TOTAL OCCUPATIONAL RADIATION EXPOSURE (IN PERSON-REMS) CAUSED BY STEAM GENERATOR:				
MAINTENANCE?	0	0	0	0
PAIR/REPLACEMENT	0	0	0	18
WHAT PERCENTAGE OF TOTAL ANNUAL EMPLOYEE DOSE HAS BEEN ATTRIBUTABLE TO STEAM GENERATOR RELATED WORK AT YOUR SITE(S)?	0	0	0	4%
DURING THE YEARS IN QUESTION:				
HOW MANY WORKERS HAVE RECEIVED MEASURABLE RADIATION DOSES FOR STEAM GENERATOR RELATED WORK?	0	0	0	153
WHAT PERCENTAGE OF THE TOTAL WORKFORCE DO THESE WORKERS REPRESENT?	0	0	0	7%
HOW MANY TEMPORARY WORKERS (DEFINED BY THE NRC AS ALL WORKERS OTHER THAN THOSE HIRED DIRECTLY BY NUCLEAR POWER PLANTS ON A CONVENTIONAL, LONG-TERM BASIS) RECEIVED DOSES FROM STEAM GENERATOR-RELATED WORK AT YOUR FACILITY EACH YEAR?	0	0	0	83
WHAT PERCENTAGE OF:				
TOTAL WORKERS INVOLVED WITH STEAM GENERATOR-RELATED WORK DO TEMPORARY WORKERS REPRESENT?	0	0	0	54%
THE TOTAL WORKFORCE DO TEMPORARY WORKERS REPRESENT?	0	0	0	72%

RESPONSE BY YEAR			
1979	1980	1981	1982

YOUR COMPANY USED INDEPENDENT FIRMS TO FIND TEMPORARY
EMPLOYEES WHO HAVE RECEIVED AN OCCUPATIONAL DOSE FROM STEAM
GENERATOR-RELATED WORK?

NO	NO	NO	YES
----	----	----	-----

DO YOU ANTICIPATE MAJOR STEAM GENERATOR REPAIRS IN ANY OF
YOUR UNITS IN THE NEXT FIVE YEARS. AND IF SO HOW MUCH
WOULD THESE REPAIR COSTS, PLEASE SPECIFY.NO

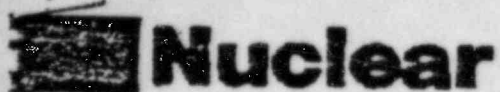
Generic Letter 82-22

Enclosure

Page 2 of 3

Summary of Information Presented in
NRC Steam Generator-Related-Questionnaire

- A. There has been one outage attributed to steam generator-related difficulties. A small leak developed which did not require an immediate unscheduled outage. The leak rate was within the allowable identified leakage rate as defined in the plant Technical Specifications. A scheduled outage was planned for the repair of the leaking tube. The repair was successfully completed by plugging the leaking tube.
- B. One tube plugged during a 15 day outage which began August 27, 1982.
- C. This cost reflects labor charges and material charges attributable to direct Duquesne Light Company activities and expenses incurred through the Westinghouse Electric Corporation for the steam generator tube repair previously referenced. During the steam generator tube repair outage, it was not necessary to purchase replacement power.
- D. All occupational radiation exposure is a result of the steam generator tube repair.
- E. No explanation necessary.
- F. The total work force is considered as those individuals who are badged to work in a restricted area.
- G. No explanation necessary.
- H. Temporary workers are individuals not directly employed by the Duquesne Light Company. The total work force is considered as those individuals who are badged to work in a restricted area.
- I. The Westinghouse Electric Corporation provided individuals to support the steam generator tube repair effort. Additionally, there is an on-site contracted work force supplementing the Beaver Valley staff which participated in the repairs. These are considered as temporary employees.
- J. No explanation necessary.



GPU Nuclear
100 Interpace Parkway
Parampany, New Jersey 076
201 263-8500
TELEX 136-482
Writer's Direct Dial Number

November 24, 1982

Office of Nuclear Reactor Regulation
Attn: D. G. Eisenhut
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Sir:

Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
Congressional Request for Information Concerning
Steam Generator Tube Integrity (Generic Letter No. 82-22)

The following responses are supplied at your request for information dated October 26, 1982 for TMI Unit 1 operation from 1979 to the present.

- 1 How many days of unscheduled outages can be attributed to steam generator-related difficulties per year at your site?

None. Although TMI-1 is currently undergoing steam generator repairs, the unit would be in outage at the present time. Because these issues remain to be resolved, the extent to which steam generator-related work may impact the 1983 schedule is unknown.

2. During each of the years in question, how many steam generator tubes have been (a) plugged and (b) sleeved in each generator?

Twelve tubes in TMI-1's Once Through Steam Generators (OTSGs) were plugged prior to 1979. Three were plugged in 1979, and one in 1980. In late 1981, intergranular stress assisted cracking of the steam generator tubes was identified. In most cases, the damage is located high in the generator, where the tubes are held in place by the two foot thick upper tubesheet. The location of the damage permits the use of a repair method called kinetic expansion. The tube is expanded against the tubesheet, creating a new mechanical joint below the damage. The new joint effectively removes the damaged portion from service, while permitting the remainder of the tube to be used. The kinetic expansion is being performed on the upper ends of all 31,000 TMI-1 tubes. Where damage has occurred on a tube that is too low to be repaired by expansion, plugging is planned. Approximately 1,200 tubes total for the two generators have been or will be plugged as a result of this problem. No sleeving has been done or is planned.

GPU Nuclear is a part of the General Public Utilities System

82-1290367 bpp

3. Do you anticipate major steam generator repairs in any of your units in the next five years and, if so, how much would these repairs cost, please be specific?

The current repair program is scheduled to be complete in early 1983 with no further major repair work anticipated during the next five years. The final cost of all phases of this repair effort is estimated to be \$35 million.

4. What have been the total costs and specifically replacement power costs associated with steam generator maintenance, repair, and replacement at your plant?

The estimate of \$35 million given in response to Question No. 3 includes inspection, maintenance, and repair for the current program. As discussed in Question No. 1, no additional time has yet been spent in this outage as a result of steam generator difficulties; therefore, there are no associated replacement power costs. Should steam generator related work become the controlling item in the outage schedule, replacement power costs would be approximately \$12-13 million/month.

Note the following in considering responses to Items 3 - 9.

All man-rem values for OTSG work are taken from self reading dosimeter (SRD) records. Thermoluminescent dosimeter (TLD) data is more accurate, but is cumulative over a period of time, and does not provide breakdown by task. There is some uncertainty in the estimates since, in some cases, records of exposure do not include a task description which is adequate to definitively determine if OTSG work was involved.

5. What has been the total occupational radiation exposure (in person-rem) caused by steam generator (a) maintenance and (b) repair/replacement?

Data cannot be separated into maintenance and repair activities. Exposure estimates for 1979 were previously reported to the NRC. Dose from 1980 was not readily retrievable, but exposure estimates are low since steam generator work was limited to normal required eddy current testing and plugging of one tube. For 1979, 1981, and 1982, total OTSG exposure is estimated as follows:

1979	25 person-rem
1981	18 person-rem
1982 (Jan-Oct)	154 person-rem

The details of all the remaining operations have not been established. However, our current estimate is that about 380-450 additional person-rem can be anticipated in association with the current repairs for the period from October 1982 to completion. This estimate includes completing the kinetic expansion, expected plugging, and testing of the repair work.

6. What percentage of total annual employee dose has been attributable to steam generator related work at your site?

As discussed above, data available for 1980 cannot be specifically correlated to steam generator activity, but exposures are judged to have been low. Estimates for 1979, 1981, and 1982:

1979	3%
1981	11%
1982 (Jan-Oct)	60%

7. During the years in question (a) how many workers have received measurable radiation doses from steam generator related work, and (b) what percentage of the total work force do these workers represent?

Data available for 1979 and 1980 cannot be correlated with steam generator activity.

- a. For 1981 and 1982, our best estimates of persons who received measurable radiation dose from OTSG related work are as follows:

1981	152
1982 (Jan-Oct)	244

Measurable radiation dose was defined as greater than 10 mRem on a self reading dosimeter.

- b. These represent approximately the following percentages of all individuals monitored.

1981	10%
1982	28%

8. How many temporary workers (defined by NRC as all workers other than those hired directly by nuclear plants on a conventional, long-term basis) received doses from steam generator related work at your facility each year?

The definition given for temporary worker includes a number of individuals who have worked at TMI for long periods of time. Included in this category are representatives of specialized firms retained to assist in early evaluation of the OTSG damage, Babcock & Wilcox personnel, and advisors from the developers of the kinetic expansion process. There were also a limited number of local craft union personnel hired for short periods of time to perform specific tasks in the generators.

Information available for 1979-1980 has not been correlated with steam generator activities, but the number of temporary workers was small. For 1981 and 1982, the number of temporary workers receiving measurable exposures (greater than 10 mRem) and associated exposure are estimated to be:

	<u>No. Temporary OTSG Workers</u>	<u>OTSG Person-rem</u>
1981	62	13
1982 (Jan-Aug)	189	120

9. What percentage of (a) total workers involved with steam generator related work do temporary workers represent, and (b) of the total work force, do temporary workers represent?

- A. The temporary workers discussed above represent the following estimated percentages of all workers in the OTSGs.

	<u>% OTSG Workers</u>
1981	61%
1982 (Jan-Oct)	78%
1982 (Nov-Dec) (Projected Estimate)	5%

Now that the evaluation phase of the OTSG project is over and actual repair work has begun, approximately 95% of all workers involved with the steam generator kinetic expansion are regular, long-term GPU employees. For subsequent activities, we intend to use speciality contractors, where appropriate, and maximize the use of permanent GPU workers.

- b. Available records cannot readily be correlated to provide an estimate of the percentage of the total work force that temporary employees represent.
10. Has your company used independent firms to find temporary employees who have received an occupational dose from steam generator related work?

Our company has not used any independent firms for the purpose of finding and recruiting temporary employees to work for short periods of time in the steam generators. However, we have used independent firms to provide specified services in some areas of steam generator activity. For example, the NSSS vendor, B&W, has supplied assistance in the current repair effort and the developers of the kinetic expansion repair method have supplied experts in the process. In a very limited number of cases, an independent firm has employed temporary workers to perform portions of a contracted task in the generator.

Sincerely,

P. R. Clark

P. R. Clark
Executive Vice President

PRC:bjo
Enclosure

U. S. NUCLEAR REGULATORY COMMISSION
STEAM GENERATOR-RELATED - QUESTIONNAIRE

Approved by C
3150-0092

	RESPONSE BY YEAR			
	1979	1980	1981	1982
ANY DAYS OF UNSCHEDULED OUTAGES CAN BE ATTRIBUTED TO GENERATOR-RELATED DIFFICULTIES PER YEAR AT YOUR SITE?				
IF EACH OF THE YEARS IN QUESTION, HOW MANY STEAM GENERATORS HAVE BEEN PLUGGED IN EACH STEAM GENERATOR?				
SLEEVED IN EACH STEAM GENERATOR?				
HAVE BEEN THE TOTAL COSTS AND SPECIFICALLY REPLACEMENT COSTS ASSOCIATED WITH STEAM GENERATOR MAINTENANCE, REPAIR AND REPLACEMENT AT YOUR PLANT?				
HAS BEEN THE TOTAL OCCUPATIONAL RADIATION EXPOSURE (IN M-REMS) CAUSED BY STEAM GENERATOR MAINTENANCE?				
REPAIR/REPLACEMENT?				
PERCENTAGE OF TOTAL ANNUAL EMPLOYEE DOSE HAS BEEN ATTRIBUTABLE TO STEAM GENERATOR RELATED WORK AT YOUR SITE(S)?				
IF THE YEARS IN QUESTION				
IF ANY WORKERS HAVE RECEIVED MEASUREABLE RADIATION DOSES FROM STEAM GENERATOR RELATED WORK?				
WHAT PERCENTAGE OF THE TOTAL WORKFORCE DO THESE WORKERS REPRESENT?				
DO ANY TEMPORARY WORKERS (defined by the NRC as all workers other than those hired directly by nuclear power plants on a permanent, long-term basis) RECEIVED DOSES FROM STEAM GENERATOR-RELATED WORK AT YOUR FACILITY EACH YEAR?				
PERCENTAGE OF TOTAL WORKERS INVOLVED WITH STEAM GENERATOR-RELATED WORK DO TEMPORARY WORKERS REPRESENT?				
DOES YOUR COMPANY USED INDEPENDENT FIRMS TO FIND TEMPORARY WORKERS WHO HAVE RECEIVED AN OCCUPATIONAL DOSE FROM STEAM GENERATOR-RELATED WORK?				
DO YOU ANTICIPATE MAJOR STEAM GENERATOR REPAIRS IN ANY OF YOUR UNITS IN THE NEXT FIVE YEARS? IF SO HOW MUCH WOULD THESE REPAIRS COST, PLEASE SPECIFY.				

Letter to Mr. D. G. Eisenhower
Dated November 24, 1982

U. S. NUCLEAR REGULATORY COMMISSION

Approved by O
3150-0092

STEAM GENERATOR-RELATED - QUESTIONNAIRE

	RESPONSE BY YEAR			
	1979	1980	1981	1982
XY DAYS OF UNSCHEDULED OUTAGES CAN BE ATTRIBUTED TO GENERATOR-RELATED DIFFICULTIES PER YEAR AT YOUR SITE? (1)	0	0	0	0
EACH OF THE YEARS IN QUESTION, HOW MANY STEAM GENERATOR HAVE BEEN LOGGED IN EACH STEAM GENERATOR? (2)	3	1	0	~300 ~900(1)
LEEVED IN EACH STEAM GENERATOR? (2)	0	0	0	0
AVE BEEN THE TOTAL COSTS AND SPECIFICALLY REPLACEMENT COSTS ASSOCIATED WITH STEAM GENERATOR MAINTENANCE, AND REPLACEMENT AT YOUR PLANT? (4)	---	---	---	\$35 \$11110
AS BEEN THE TOTAL OCCUPATIONAL RADIATION EXPOSURE (IN REMS) CAUSED BY STEAM GENERATOR MAINTENANCE? (5)	} 25	---	} 18	} 154 (
PAIR/REPLACEMENT? (5)	} 25	---	} 18	} 154 (
PERCENTAGE OF TOTAL ANNUAL EMPLOYEE DOSE HAS BEEN ATTRIBUTABLE TO STEAM GENERATOR RELATED WORK AT YOUR SITE(S)? (6)	3	---	11	60 (
Y YEARS IN QUESTION				
ON ANY WORKERS HAVE RECEIVED MEASUREABLE RADIATION DOSES OR STEAM GENERATOR RELATED WORK? (7)	---	---	152	244 (
HAT PERCENTAGE OF THE TOTAL WORKFORCE DO THESE WORKERS REPRESENT? (7)	---	---	10	28 (
Y TEMPORARY WORKERS (defined by the NRC as all workers other than those hired directly by nuclear power plants on a full-time, long-term basis) RECEIVED DOSES FROM STEAM GENERATOR-RELATED WORK AT YOUR FACILITY EACH YEAR? (8)	---	---	62	189 (
PERCENTAGE OF TOTAL WORKERS INVOLVED WITH STEAM GENERATOR-RELATED WORK DO TEMPORARY WORKERS REPRESENT? (9)	---	---	41	78 (Jan 5 (Nov
HE TOTAL WORKFORCE DO TEMPORARY WORKERS REPRESENT? (9)	---	---	---	---
UR COMPANY USED INDEPENDENT FIRMS TO FIND TEMPORARY EMPLOYEES WHO HAVE RECEIVED AN OCCUPATIONAL DOSE FROM STEAM GENERATOR-RELATED WORK? (10)	No	No	No	No

ANTICIPATE MAJOR STEAM GENERATOR REPAIRS IN ANY OF YOUR UNITS IN THE NEXT FIVE YEARS, SO HOW MUCH WOULD THESE REPAIRS COST, PLEASE SPECIFY.

None beyond the repair currently in progress, scheduled for completion in early 1983.

NOTE: THE DATA IN THIS TABLE CANNOT BE UNDERSTOOD WITHOUT THE SUPPLEMENTARY INFORMATION IN THE FORWARDING LETTER. FOOTNOTES IN THE TABLE REFER TO PARAGRAPH NUMBERS IN THE LETTER.

L. Burton, D. Atwell, A. Holz, LRS, Reading File
TNP:GOV REL 7:WRC Chrono
TNP:GEN ENGR 7 PSAR:Sec.5.4.2:Steam Generator



Portland General Electric Company

November 24, 1982

Trojan Nuclear Plant
Docket 50-344
License NPP-1

Mr. Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington DC 20555

Dear Mr. Eisenhut:

Steam Generator Questionnaire

Attached is the completed Steam Generator Questionnaire for the Trojan Nuclear Plant requested by your letter of October 26, 1982. As reflected in the following table, outages solely for steam generator-related maintenance occurred in 1979 and 1981. The remaining steam generator-related maintenance reflected in the table was performed during scheduled refueling outages.

Sincerely,

Bart D. Withers
Vice President
Nuclear

SAF
BDR/SAB/461m2A14
Attachment

cc: Mr. Lynn Frank, Director
State of Oregon
Department of Energy

[Signature]
W. S. Graer

[Signature]
J. W. Lentach

[Signature]
C. F. Yundt

82-2030027 4pp

STEAM GENERATOR QUESTIONNAIRE FOR
THE TROJAN NUCLEAR PLANT

	Response by Year			
	1979	1980	1981	1982
1. How many days of unscheduled outages can be attributed to steam generator-related difficulties per year at your site?	43	0	13	0
2. During each of the years in question, how many steam generator tubes have been				
a. Plugged in each steam generator?	A-2 B-1 C-1 D-3	A-4 B-3 C-1 D-55	A-88 B-89 C-92 D-63	A-0 B-0 C-0 D-0
b. Served in each steam generator?	0	0	0	0
3. What have been the total costs and specifically replacement power costs associated with steam generator maintenance repair and replacement at your plant?				
a. Maintenance (approximate)	\$ 937,000	\$857,000	\$2,062,000	0 ^(a)
b. Replacement Power (estimated)	\$30,126,000 ^(b)	0 ^(b)	\$5,253,000 ^(b)	0 ^(a)
4. What has been the total occupational radiation exposure (in person-rms) caused by steam generator				
a. Maintenance?	41 ^(f)	46 ^(f)	139 ^(f)	15 ^(c,f)
b. Repair/replacement?	0	0	0	0

100-200000

	Response by Year			
	1979	1980	1981	1982
5. What percentage of total annual employee dose has been attributable to steam generator-related work at your site(s)?	17.8	11.9	26.0	4.1 ^(d)
6. During the years in question				
a. How many workers have received measurable radiation doses for steam generator-related work?	200 ^(g)	211 ^(g)	317 ^(g)	78 ^(g)
b. What percentage of the total work force do these workers represent?	17	12.2	10.0	7.3
7. How many temporary workers (defined by the NRC as all workers other than those hired directly by nuclear power plants on a conventional, long-term basis) received doses from steam generator-related work at your facility each year?	131 ^(g)	194 ^(g)	269 ^(g)	54 ^(g)
8. What percentage of				
a. Total workers involved with steam generator-related work do temporary workers represent?	65.5	91.9	84.9	70.1
b. The total work force do temporary workers represent?	60.6 ^(a)	67.3 ^(a)	62.9 ^(a)	53.6 ^(a)

Response by Year			
1979	1980	1981	1982

9. Has your company used independent firms to find temporary employees who have received an occupational dose from steam generator-related work?

Yes Yes Yes Yes

10. Do you anticipate major steam generator repairs in any of your units in the next five years, and if so, how much would these repairs cost? Please specify.

We do not anticipate any major steam generator repairs in the next five years. The only tube failures experienced to date have been due to short-radius tube cracking. This phenomenon appears to be localized to first row tubes and all of these have been plugged. No evidence of other problems has been observed during previous inspections.

-
- [a] The steam generators have not been opened for maintenance to date in 1982.
- [b] These estimated replacement power costs reflect only PGE's share of the Trojan Nuclear Plant output. There were no replacement power costs specifically related to steam generator work in 1980.
- [c] As of 11/9/82. This exposure is attributable to work involved with sludge-lancing.
- [d] As of 10/31/82.
- [e] Temporary workers are defined as those who have a TLD and an entered pocket ionization chamber (PIC) reading with a work code other than that for Plant workers.
- [f] These are estimates because they are based only on PIC data. In addition, a small fraction of the total Plant dose for the year, beyond the amount stated here, is attributable to steam generator work (eg, from scaffolding setup, etc.)
- [g] These are workers who had PIC readings associated with specific steam generator maintenance procedures.
-

BALTIMORE
GAS AND
ELECTRIC

CHARLES CENTER • P.O. BOX 1475 • BALTIMORE, MARYLAND 21203

ARTHUR E. LUNDVALL JR
VICE PRESIDENT
Supply

November 24, 1982

U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, DC 20555

Docket Nos. 90-317
90-318

ATTENTION: Mr. Darrell G. Eisenhut, Director
Division of Licensing

Dear Sir:

This refers to your letter of October 26, 1982, (Generic Letter 82-22) by which you requested various information associated with the maintenance and repair of Steam Generators. Unfortunately, due to the constraints imposed by the Unit 2 outage, we have been unable to spare the resources necessary to research and summarize the information specified by your request. However, we can qualitatively state that the need to repair or perform maintenance on the Calvert Cliffs Steam Generators has never contributed to a plant reduction or outage. As a consequence of this excellent performance, the occupational radiation exposure attributable to Steam Generator routine inspection and minor modification has been minimal and does not constitute a significant portion of the total annual occupational radiation exposure at Calvert Cliffs.

Very truly yours,

Vice President - Supply

AEL/RED/gja

cc: Mr. Loring Mills, Vice President
Nuclear Activities, Edison Electric Institute
J. A. Biddison, Esquire
G. F. Trowbridge, Esquire
O. H. Jaffe, NRC
R. E. Architzel, NRC

0212660071 LP

**Florida
Power**
CORPORATION

November 24, 1982
#3F-1182-30
File: 3-0-3-a-3

Mr. Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

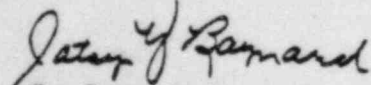
Subject: Crystal River Unit 3
Docket No. 50-302
Operating License No. DPR-72
Generic Letter No. 82-22
Congressional Request for Information
Concerning Steam Generator Tube Integrity

Dear Mr. Eisenhut:

Florida Power Corporation (FPC) has received and reviewed the subject letter. Attached is the questionnaire which summarizes the questions of and responses for Representative Markey.

FPC has always submitted the information required by 10CFR20.407 and Crystal River Unit 3 (CR-3) Technical Specification 6.9.1.5.a. In addition, CR-3 has experienced no steam-generator induced problem that has lead to significant dose to our personnel nor has any routine steam generator inspection (and resultant corrective action) caused an extension to an outage at CR-3.

Very truly yours,



Dr. Patsy Y. Baynard
Assistant to Vice President
Nuclear Operations

RMB:mmm

cc: Mr. J. P. O'Reilly, Regional Administrator
Office of Inspection & Enforcement
U.S. Nuclear Regulatory Commission
101 Marietta Street N.W., Suite 3100
Atlanta, GA 30303

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U. S. NUCLEAR REGULATORY COMMISSION
STEAM GENERATOR-RELATED - QUESTIONNAIRE *

Approved by OME
3150-0092

	RESPONSE BY YEAR			
	1979	1980	1981	1982
HOW MANY DAYS OF UNSCHEDULED OUTAGES CAN BE ATTRIBUTED TO STEAM GENERATOR-RELATED DIFFICULTIES PER YEAR AT YOUR SITE?	0	0	0	0
DURING EACH OF THE YEARS IN QUESTION, HOW MANY STEAM GENERATOR TUBES HAVE BEEN PLUGGED IN EACH STEAM GENERATOR?	0	2	Only Leaker 1	0
SLEEVED IN EACH STEAM GENERATOR?	0	0	0	0
WHAT HAVE BEEN THE TOTAL COSTS AND SPECIFICALLY REPLACEMENT POWER COSTS ASSOCIATED WITH STEAM GENERATOR MAINTENANCE, REPAIR AND REPLACEMENT AT YOUR PLANT?	0	0	0	0
WHAT HAS BEEN THE TOTAL OCCUPATIONAL RADIATION EXPOSURE (IN PERSON-REMS) CAUSED BY STEAM GENERATOR MAINTENANCE?	0	98.69	Bubble Test 27.574	0
REPAIR/REPLACEMENT? FPC does not break down any further than Special Maintenance	Not Avail.	Not Avail.	Not Avail.	Not Avail.
WHAT PERCENTAGE OF TOTAL ANNUAL EMPLOYEE DOSE HAS BEEN ATTRIBUTABLE TO STEAM GENERATOR RELATED WORK AT YOUR SITE(S)? DURING THE YEARS IN QUESTION	0	17%	5%	0
HOW MANY WORKERS HAVE RECEIVED MEASUREABLE RADIATION DOSES FOR STEAM GENERATOR RELATED WORK?	0	159	55	0
WHAT PERCENTAGE OF THE TOTAL WORKFORCE DO THESE WORKERS REPRESENT?	0	9.2%	2.7%	0
HOW MANY TEMPORARY WORKERS (defined by the NRC as all workers other than those hired directly by nuclear power plants on a conventional, long-term basis) RECEIVED DOSES FROM STEAM GENERATOR-RELATED WORK AT YOUR FACILITY EACH YEAR?	0	109	40	0
WHAT PERCENTAGE OF TOTAL WORKERS INVOLVED WITH STEAM GENERATOR-RELATED WORK DO TEMPORARY WORKERS REPRESENT?	0	68%	63%	0
THE TOTAL WORKFORCE DO TEMPORARY WORKERS REPRESENT?	0	6.3%	1.9%	0
HAS YOUR COMPANY USED INDEPENDENT FIRMS TO FIND TEMPORARY EMPLOYEES WHO HAVE RECEIVED AN OCCUPATIONAL DOSE FROM STEAM GENERATOR-RELATED WORK?	NO	NO	NO	NO

DO YOU ANTICIPATE MAJOR STEAM GENERATOR REPAIRS IN ANY OF YOUR UNITS IN THE NEXT FIVE YEARS, AND IF SO HOW MUCH WOULD THESE REPAIRS COST, PLEASE SPECIFY.

Do not anticipate major S/G Repairs in the next five (5) years.

* The responses are based on steam generator work that is related to steam-generator-induced problems.



EDISON DRIVE
AUGUSTA, MAINE 04330
(207) 623-3521

November 22, 1982
MN-82-234

United States Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. Darrell G. Eisenhut
Division of Licensing
Office of Nuclear Reactor Regulation

Reference: (a) USNRC Letter to all Licensees dated October 26, 1982

Subject: Steam Generator Tube Integrity Questionnaire

Dear Sir:

We regret our current workload does not permit a detailed response to the subject questionnaire in the time frame requested. Like most nuclear utilities we are already burdened with a too heavy workload of regulatory matters that must be addressed at the expense of betterment projects which are being deferred. In addition, our nuclear unit is currently undergoing refueling operations coupled with its tenth year inservice inspection program.

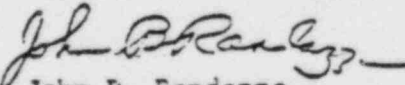
Maine Yankee has a CE nuclear system with three steam generators, each containing 5,703 tubes, has been operating for ten years, and has never had a steam generator tube leak. (We believe ten years without a leak may be a record for PWR's.)

Maine Yankee has plugged 12 tubes due to inspection indicated degradation, all during the current maintenance outage. Maine Yankee has not experienced a forced outage due to steam generator tube problems and does not anticipate any major steam generator repairs during the next five years.

While steam generator inspection and maintenance involves a large portion of total worker radiation exposure, we have not experienced an incident of exposure above regulatory limits and worker exposures at Maine Yankee are below the industry average.

We hope the foregoing has been of some help.

Very truly yours,


John B. Randazza
Vice President

82113/248 lp

JBR:pjp



Commonwealth Edison
One First National Plaza Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690

November 24, 1982

Mr. Darrell G. Eisenhut, Director
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Zion Station Units 1 and 2
Response to Generic Letter No. 82-22
Steam Generator Tube Integrity
NRC Docket Nos. 50-295/304

Reference (a): October 26, 1982 letter from D. G. Eisenhut
to All PWR Licensees

Dear Mr. Eisenhut:

This is to provide information concerning steam generator tube integrity at Zion Station, as requested by your letter of reference (a).

This information is being provided in a narrative rather than a tabular format. In our judgement, it is more appropriate to present a general discussion that provides an overall perspective on the subject. The material that follows provides that perspective for Zion Station.

Over a period of approximately 9 years of operation, Zion's steam generator performance has been generally satisfactory. No unscheduled outages can be attributed to steam generator-related difficulties. While some forms of tube degradation have been observed at Zion, no tube sleeving has been required to repair tube degradation. Prior to 1982, only a few tubes on each unit had been plugged as a result of routine inservice inspections. In 1982 a relatively larger number of tubes were plugged on Unit 1, bringing the total to approximately 4%. Most of this total resulted from a decision to plug all tubes in Row 1 of the steam generator as a precautionary measure, due to a potential problem caused by the manufacturing process which is unique to the first two rows.

Costs associated with steam generator maintenance and repair have included those of routine eddy current examinations, manway cover removal and replacement, and sludge lancing. With the exception of 1982, these costs have been small, and no replacement power costs have been attributable to steam generator work. In

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1982, the Unit 1 steam generator tube ends were damaged as a result of a loose part having been left in the primary system at the previous refueling outage. Extensive costs were incurred in the performance of the necessary repairs and additional eddy current examinations were required, including some costs associated with replacement power. Corrective action has been taken to prevent the recurrence of steam generator damage due to loose parts.

Both the number of workers receiving measurable radiation doses from steam generator work and the percentage of total annual employee dose attributable to steam generator work has been small (on the order of a few percent), with the exception of 1982. The repair of the damage to the Unit 1 steam generator resulted in an increase in radiation exposure for 1982.

Temporary workers represented an average of 80% of the total of workers involved in steam generator work over the period 1979-1982. However, it should be noted that temporary workers represented an average of 63% of the total work force employed at the Station. This reflects Commonwealth Edison's practice, common to all of our nuclear and large fossil stations, of hiring temporary workers to fill peak needs during maintenance and refueling outages. Commonwealth Edison has used independent firms to recruit some of these temporary workers.

Finally, Commonwealth Edison anticipates no major steam generator repairs for the Zion units in the next five years.

Please address questions regarding this matter to this office.

Very truly yours,



L. O. DelGeorge
Director of Nuclear Licensing

cc: B. Lee, Jr.

5485N

NORTHEAST UTILITIES



THE LOWELL, MA, AND FORTY OTHER
NORTH AND SOUTH EASTERN
NORTHWEST AND SOUTHWEST COMPANIES
NORTHEAST UTILITIES COMPANY

General Offices • Selden Street, Barhn, Connecticut

P.O. BOX 270
HARTFORD, CONNECTICUT 06141-0270
(203) 666-8911

November 29, 1982

Docket No. 50-213

50-336

510618

Mr. Darrell G. Eisenhower, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

References: (1) D. G. Eisenhower letter to All Pressurized Power Reactor
Licensees, dated October 26, 1982.

Gentlemen:

Haddam Neck Plant
Millstone Nuclear Power Station, Unit No. 2
Response to Generic Letter No. 82-22

In Response to the Reference (1) request, Connecticut Yankee Atomic Power
Company (CYAPCO) on behalf of the Haddam Neck Plant and Northeast Nuclear
Energy Company (NNECO) on behalf of Millstone Unit No. 2 hereby provide the
following information.

Haddam Neck Plant

The performance of the steam generators at the Haddam Neck Plant has been
exceptional to date. There have been no unscheduled outages attributed to
steam generator maintenance or repair activities. The number of tubes plugged
in any one steam generator has been a maximum of 21 for the years in question.
There have been no sleeves installed in the Haddam Neck Plant steam
generators.

The costs attributable to steam generator maintenance are those associated with
the required inservice inspection programs conducted to ensure continued
operability of the equipment. These costs are on the order of one million dollars
each year that steam generator inspections are conducted.

The occupational radiation exposure incurred during steam generator
maintenance activities at Haddam Neck Plant was a maximum of 263 person-rem
in any one year, representing 24% of the annual employee radiation exposure.
The average radiation exposure incurred over the four year period in question
was 122 person-rem.

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Millstone Unit No. 2

The steam generators at Millstone Unit No. 2 continue to perform satisfactorily. There have been no unscheduled outages for steam generator maintenance or repair activities. Routine inservice inspection is performed at each refueling above and beyond the operating license requirements. The maximum number of tubes plugged in any one of the two steam generators at Millstone Unit No. 2 from 1979 to present is 429. No sleeves have been installed at the facility.

The costs attributable to steam generator maintenance are those associated with the required inservice inspection programs conducted to ensure continued operability of the components. These costs are on the order of one million dollars each year that steam generator inspections are conducted. Additional steam generator related costs were incurred during the 1981-1982 refueling outage due to the installation of nozzle dams, preventative tube plugging and welded plug repairs. These costs totaled approximately ten million dollars.

Occupational radiation exposures incurred during steam generator maintenance and modification work at Millstone Unit No. 2 was a maximum of 390 person rem (1981-1982 refueling outage) representing 63% of the annual employee radiation exposure. The average radiation exposure incurred over the four year period in question was 310 person-rem.

Both CYAPCO and NNECO institute a radiation protection program based on the principle of maintaining exposures to individuals as-low-as-reasonably-achievable (ALARA). The program includes personnel training, planning and use of equipment mock-ups for activities which could result in significant radiation exposures, the use of an occupational radiation exposure data accounting system, the incorporation of ALARA considerations into plant and equipment design changes as well as special programs and studies for identifying the locations, operations and conditions which have a potential for causing or have caused significant radiation exposure to personnel. CYAPCO and NNECO's commitment to the ALARA programs will ensure that personnel exposures incurred as a result of steam generator maintenance will be minimized.

Both CYAPCO and NNECO realize the importance of steam generator integrity as reflected by the extensive resources expended for steam generator inspections, chemistry control, condenser integrity, special studies and owners group participation. The steam generators in use at the Haddam Neck Plant and Millstone Unit No. 2 have only experienced limited degradation. This can be attributed to CYAPCO and NNECO's commitment to programs designed to ensure the continued operability of the steam generators as well as safe plant operation.

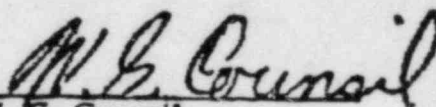
The information presented above is that which both CYAPCO and NNECO could obtain with reasonable effort within the time period provided. The remaining information requested by Reference (1) is not readily available and requires a substantial expenditure of our internal resources to compile.

-3-

We trust you find this information responsive to the Reference (1) request.

Very truly yours,

CONNECTICUT YANKEE ATOMIC POWER COMPANY
NORTHEAST NUCLEAR POWER COMPANY

A handwritten signature in dark ink, appearing to read "W. G. Coursil". The signature is written in a cursive style with a large, looped "C" at the end.

W. G. Coursil
Senior Vice President

SEQUOYAH 1,2

QUESTIONNAIRE

SUBMITTED

WITHOUT

COVER

LETTER

INDIANA & MICHIGAN ELECTRIC COMPANY

P. O. BOX 18
BOWLING GREEN STATION
NEW YORK, N. Y. 10004

November 29, 1982
AEP:NRC:0727A

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
CONGRESSIONAL REQUEST FOR INFORMATION CONCERNING
STEAM TUBE INTEGRITY (GENERIC LETTER NO. 82-22)

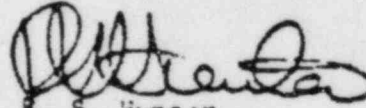
Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Denton:

This letter serves to submit the information requested in Generic Letter No. 82-22 regarding the Congressional Request for Information concerning steam generator tube integrity at the Donald C. Cook Nuclear Plant Unit Nos. 1 and 2. The completed questionnaire forms are attached.

This document has been prepared following Corporate Procedures which incorporate a reasonable set of controls to ensure its accuracy and completeness prior to signature by the undersigned.

Very truly yours,


R. S. Hunter
Vice President

/cs

cc: John E. Dolan - Columbus
M. P. Alexich
R. W. Jurgensen
W. G. Smith, Jr. - Bridgman
R. C. Callan
G. Charnoff
Joe Williams, Jr.
NRC Resident Inspector at Cook Plant - Bridgman

82-206072-3pr

U. S. NUCLEAR REGULATORY COMMISSION
STEAM GENERATOR-RELATED - QUESTIONNAIRE

Approved by DM.
3150-3092

DONALD C. COOK NUCLEAR PLANT, UNIT NOS. 1 AND 2	RESPONSE BY YEAR			
	1979	1980	1981	1982
HOW MANY DAYS OF UNSCHEDULED OUTAGES CAN BE ATTRIBUTED TO STEAM GENERATOR-RELATED DIFFICULTIES PER YEAR AT YOUR SITE?				
DURING EACH OF THE YEARS IN QUESTION, HOW MANY STEAM GENERATOR TUBES HAVE BEEN PLUGGED IN EACH STEAM GENERATOR?	SEE SEPARATE ATTACHMENT			
SLEEVED IN EACH STEAM GENERATOR?				
WHAT HAVE BEEN THE TOTAL COSTS AND SPECIFICALLY REPLACEMENT POWER COSTS ASSOCIATED WITH STEAM GENERATOR MAINTENANCE, REPAIR AND REPLACEMENT AT YOUR PLANT?				
WHAT HAS BEEN THE TOTAL OCCUPATIONAL RADIATION EXPOSURE (IN PERSON-REMS) CAUSED BY STEAM GENERATOR MAINTENANCE?	35.366	32.952	48.470	32.42
REPAIR/REPLACEMENT?	0	5.878	4.503	16.398
WHAT PERCENTAGE OF TOTAL ANNUAL EMPLOYEE DOSE HAS BEEN ATTRIBUTABLE TO STEAM GENERATOR-RELATED WORK AT YOUR SITE(S)? DURING THE YEARS IN QUESTION	5.34	8.62	8.76	11.46
HOW MANY WORKERS HAVE RECEIVED MEASUREABLE RADIATION DOSES FOR STEAM GENERATOR RELATED WORK?	167	260	295	271
WHAT PERCENTAGE OF THE TOTAL WORKFORCE DO THESE WORKERS REPRESENT?	17.5	32.9	32.9	15.4
HOW MANY TEMPORARY WORKERS (defined by the NRC as all workers other than those hired directly by nuclear power plants on a conventional, long-term basis) RECEIVED DOSES FROM STEAM GENERATOR-RELATED WORK AT YOUR FACILITY EACH YEAR?	115	198	218	218
WHAT PERCENTAGE OF TOTAL WORKERS INVOLVED WITH STEAM GENERATOR-RELATED WORK DO TEMPORARY WORKERS REPRESENT?	68.9	76.2	73.9	80.4
THE TOTAL WORKFORCE DO TEMPORARY WORKERS REPRESENT?	73.8	72.7	72.5	62.4
HAS YOUR COMPANY USED INDEPENDENT FIRMS TO FIND TEMPORARY EMPLOYEES WHO HAVE RECEIVED AN OCCUPATIONAL DOSE FROM STEAM GENERATOR-RELATED WORK?	NO	NO	NO	NO
DO YOU ANTICIPATE MAJOR STEAM GENERATOR REPAIRS IN ANY OF YOUR UNITS IN THE NEXT FIVE YEARS, AND IF SO HOW MUCH WOULD THESE REPAIRS COST, PLEASE SPECIFY.				

No major repairs are anticipated in the next five years.

U. S. NUCLEAR REGULATORY COMMISSION
STEAM GENERATOR-RELATED - QUESTIONNAIRE

Approved by W
3130-0092

DONALD C. COOK NUCLEAR PLANT, UNIT NO. 1	RESPONSE BY YEAR			
	1979	1980	1981	1982
HOW MANY DAYS OF UNSCHEDULED OUTAGES CAN BE ATTRIBUTED TO STEAM GENERATOR-RELATED DIFFICULTIES PER YEAR AT YOUR SITE?	-0-	-0-	-0-	-0-
DURING EACH OF THE YEARS IN QUESTION, HOW MANY STEAM GENERATOR TUBES HAVE BEEN		1) 10 2) 0 3) 0 4) 10		1) 0 2) 10 3) 10 4) 0
PLUGGED IN EACH STEAM GENERATOR?	NONE		NONE	
SLEEVED IN EACH STEAM GENERATOR?	NONE	NONE	NONE	NONE
WHAT HAVE BEEN THE TOTAL COSTS AND SPECIFICALLY REPLACEMENT POWER COSTS ASSOCIATED WITH STEAM GENERATOR MAINTENANCE, REPAIR AND REPLACEMENT AT YOUR PLANT?	(1) -0-	(1) \$32,318	(1) \$101,591	(1) \$153,680

U. S. NUCLEAR REGULATORY COMMISSION
STEAM GENERATOR-RELATED - QUESTIONNAIRE

Approved by W
3150-0032

DONALD C. COOK NUCLEAR PLANT, UNIT NO. 2	RESPONSE BY YEAR			
	1979	1980	1981	1982
HOW MANY DAYS OF UNSCHEDULED OUTAGES CAN BE ATTRIBUTED TO STEAM GENERATOR-RELATED DIFFICULTIES PER YEAR AT YOUR SITE?	-0-	-0-	28	17
DURING EACH OF THE YEARS IN QUESTION, HOW MANY STEAM GENERATOR TUBES HAVE BEEN		1) 6 2) 0 3) 0 4) 0	1) 7 2) 0 3) 0 4) 10	1) 2 2) 0 3) 0 4) 0
PLUGGED IN EACH STEAM GENERATOR?	NONE			
SLEEVED IN EACH STEAM GENERATOR?	NONE	NONE	NONE	NONE
WHAT HAVE BEEN THE TOTAL COSTS AND SPECIFICALLY REPLACEMENT POWER COSTS ASSOCIATED WITH STEAM GENERATOR MAINTENANCE, REPAIR AND REPLACEMENT AT YOUR PLANT?	(1) \$2,373	(1) \$23,092	(1) \$147,570	(1) \$95,121

(1) Maintenance Cost Only. Power available from System capacity.

Not necessary to purchase replacement power.



Carolina Power & Light Company

November 29, 1982

Mr. Darrell G. Eisenhut, Director
Division of Licensing
United States Nuclear Regulatory Commission
Washington, D.C. 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261
LICENSE NO. DPR-23
CONGRESSIONAL REQUEST FOR INFORMATION CONCERNING
STEAM GENERATOR TUBE MAINTENANCE

Dear Mr. Eisenhut:

Generic Letter No. 82-22 dated October 26, 1982 requested information regarding steam generator tube maintenance. Carolina Power & Light Company (CP&L) has conducted maintenance on the Robinson Unit 2 steam generators using effective procedures to ensure proper control of radiation exposure to workers. In addition, our Corporate ALARA Program has continued to assess methods of restricting and reducing radiation exposure to workers during these steam generator maintenance activities. Since initial operation of the H. B. Robinson Unit 2 in 1971, the steam generators have performed well with minimal leaks and it has been only recently that we have experienced corrosion of steam generator tubes to a sufficient extent to require long term corrective action.

During plant operation over the past four years, the plant has experienced occasional minor steam generator tube leakage which approached stringent technical specification limits, at which time we have shut down the plant to perform steam generator maintenance activities. These outages have averaged only three weeks per year over the past four years. During these maintenance periods CP&L has made entries in the primary side of the steam generators to conduct eddy current testing of the steam generator tubes and plugging of those tubes which are approaching a corrosion limit that could cause future operational problems. Carolina Power & Light Company has not conducted any tube sleeving operations. Full power operations have not been restricted as a result of steam generator tube maintenance since total plugging of steam generator tubes has been limited to thirteen percent of available steam generator tubes.

Most recently industry experience indicates that steam generator tube corrosion can be controlled by operating at a lower primary temperature; thus, we have restricted our operations to a lower primary temperature in

82-206069 2pp

Mr. D. G. Eisenhut

- 2 -

order to further limit tube corrosion and maintenance activities and limit further occupation radiation exposure. Through these operational practices and stringent maintenance procedures which adhere to Corporate ALARA Policy, CP&L has been successful in limiting occupational radiation exposure due to steam generator maintenance to an average of only 215 person-rems per year over the last four years. This means that an average of 22 percent of the total annual employee dose has been attributable to steam generator tube maintenance.

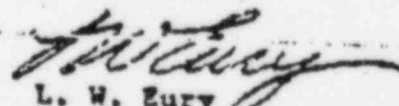
Carolina Power & Light Company requires all temporary workers to present a NRC Form 4 prior to allowing that worker to conduct steam generator tube maintenance activities. This procedure prohibits a temporary worker from receiving excessive occupational radiation exposure due to previous exposure at other job locations. These NRC regulations to control temporary worker occupation exposures at different locations throughout the United States are effective and there is no need for additional oversight in this area.

During the past four years an average of 286 workers per year received measurable radiation doses from steam generator tube maintenance. This represents an average of 32 percent of the total work force. Of the average 286 steam generator maintenance personnel, 219 were temporary workers. This represents an average of 76 percent of the total workers involved with steam generator tube maintenance, which would be expected, since 73 percent of the total outage work force consists of temporary workers. During this period, Carolina Power & Light Company has not used independent firms to find temporary employees for steam generator maintenance activities.

Carolina Power & Light Company has ordered replacement steam generators and will be prepared to start replacement in late 1983 if necessary. It is estimated that the replacement cost will be approximately \$100,000,000. Since return to power in August 1982, H. B. Robinson Unit 2 has been operating with negligible steam generator tube leakage.

Should you have further questions about H. B. Robinson steam generator tube maintenance activities, please contact us.

Yours very truly,


L. W. Eury
Senior Vice President
Power Supply

EEU/cr (5794C6T2)



ARKANSAS POWER & LIGHT COMPANY
POST OFFICE BOX 551 LITTLE ROCK, ARKANSAS 72203 (501) 371-4000

November 24, 1982

ØCAN118219

Mr. Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: Arkansas Nuclear One - Units 1 & 2
Docket Nos. 50-313 and 50-368
License Nos. DPR-51 and NPF-6
Congressional Request for Information
Concerning Steam Generator Tube
Integrity (Generic Letter No. 82-22)

Gentlemen:

We are providing the attached information in response to your request dated October 26, 1982 (ØCNA1Ø8223).

Due to the short response time allowed by your letter, we were unable to accumulate all the requested information. Your letter requested extensive information concerning exposure associated with steam generator activities and requires a significant amount of investigation into areas where information is not readily retrievable. For example, prior to 1981 radiation doses were categorized by the NRC Major Job Functions and only recently have been tabulated by specific Radiation Work Permit; therefore, it would be extremely difficult, if not impossible, to determine the number of employees who received radiation doses from only steam generator related work prior to 1981. Therefore, the only information we are able to provide at this time, is that information readily available as a result of steam generator-related forced outages for the years 1981 and 1982. Other information is indicated "NA" (not presently available).

Very truly yours,

John R. Marshall
Manager, Licensing

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JRM: LVP: jm

Attachment

STEAM GENERATOR QUESTIONNAIRE

<u>Question</u>	Response by Year ¹	
	<u>1981</u>	<u>1982</u>
1. How many days of unscheduled outages can be attributed to steam generator-related difficulties per year at your site?	0	16
2. During each of the years in question, how many steam generator tubes have been		
a. plugged in each steam generator?	NOTE 2	NOTE 3
b. sleeved in each steam generator?	0	0
3. What have been the total costs and specifically replacement power costs associated with steam generator maintenance, repair and replacement at your plant?	0	NOTE 4
4. What has been the total occupational radiation exposure (in person-rems) caused by steam generator?		
a. Maintenance?	NA	NA
b. Repair/Replacement?	51.065	52.705
5. What percentage of total annual employee dose has been attributable to steam generator-related work at your site(s)?	NA	NA
6. During the years in question		
a. How many workers have received measureable radiation doses for steam generator related work?	NOTE 5	NOTE 5
b. What percentage of the total workforce do these workers represent?	NOTE 5	NOTE 5
7. How many temporary workers (defined by the NRC as all workers other than those hired directly by nuclear power plants on a conventional, long-term basis) received doses from steam generator-related work at your facility each year?	NOTE 5	NOTE 5

Question	Response by Year ¹	
	<u>1981</u>	<u>1982</u>
8. What percentage of		
a. Total workers involved with steam generator-related work do temporary workers represent?	NOTE ⁵	NOTE ⁵
b. The total workforce do temporary workers represent?	NOTE ⁵	NOTE ⁵
9. Has your company used independent firms to temporary employees who have received an occupational dose from steam generator-related work?	No	No
10. Do you anticipate major steam generator repairs in any of your units in the next five years, and if so how much would these repairs cost, please specify.	No major repairs are expected at either ANO-1 or ANO-2.	

NOTES:

1. ANO-1 & ANO-2 combined
2. Scheduled outage - 7 for Unit 1 A steam generator
3. 10 for Unit 1 A steam generator (unscheduled outage); 1 for Unit 2 A steam generator (scheduled outage)
4. Replacement power cost only \$4,282,964 (Unit 1 A steam generator)
5. The only information we are able to provide at this time is the average number of total personnel per steam generator work (plugging and testing):

	<u>AP&L</u>	<u>Other</u>
1981	79	54
1982	67	51

1 of 3

POWER AUTHORITY OF THE STATE OF NEW YORK
10 COLUMBUS CIRCLE NEW YORK, N. Y. 10019
212 387-6200

MUSTARD
N. E. DYSON
HARRIS
JAMES L. HARRIS
ICE CHIEFMAN
HARD M. FLYNN
JAMES J. MILLER
ICE L. LARSEN



December 3, 1982
IDN-82-76

LEWIS W. BIRCHALL
PRESIDENT & CHIEF
EXECUTIVE OFFICER
WALTER F. HICKEY
VICE PRESIDENT
AND CHIEF OF
GENERAL ADMINISTRATION
JOSEPH R. SCHMIDT
VICE PRESIDENT
AND CHIEF OF
ENGINEERING
STEPHEN J. BAUM
VICE PRESIDENT
AND CHIEF OF
FINANCE

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Mr. Darrell C. Eisonhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Subject: Indian Point 3 Nuclear Power Plant
Docket No. 30-286
Congressional Request for Information
Concerning Steam Generator Tube
Integrity (Generic Letter No. 82-22)

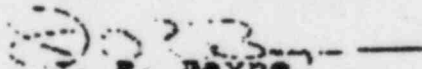
Re: Sir:

By letter dated October 26, 1982 you transmitted the subject request of Congressman Edward J. Markey, Chairman of the Subcommittee on Oversight and Investigation.

Enclosed herewith as Attachment A are the Authority's responses to the steam generator questionnaire.

Should you or your staff have any questions please contact Mr. P. Kokolakis of my staff.

Very truly yours,


J. P. Payne
Executive Vice President
Nuclear Generation

Att.

cc: Attached

To: Phil Polk (NRC)
From: Boris Benderick

82/2130/330 (3)

42 5 13 5 07 11

STEAM GENERATOR-RELATED - QUESTIONNAIRE

	RESPONSE BY YEAR			
	1979	1980	1981	1982
HOW MANY DAYS OF UNSCHEDULED OUTAGES CAN BE ATTRIBUTED TO STEAM GENERATOR-RELATED DIFFICULTIES PER YEAR AT YOUR SITE?	0	0	34	
IN EACH OF THE YEARS IN QUESTION, HOW MANY STEAM GENERATORS HAVE BEEN PLUGGED IN EACH STEAM GENERATOR? (See Note 1)	440	0	371	
HOW MANY SLEEVES IN EACH STEAM GENERATOR? HAVE BEEN THE TOTAL COSTS AND SPECIFICALLY REPLACEMENT COSTS ASSOCIATED WITH STEAM GENERATOR MAINTENANCE, REPAIR AND REPLACEMENT AT YOUR PLANT? (See Note 2 and 3)	2910K/ \$4,000K	570K/ \$0	\$2,000K/ \$43,200K	
HAS BEEN THE TOTAL OCCUPATIONAL RADIATION EXPOSURE (IN mrem) CAUSED BY STEAM GENERATOR MAINTENANCE? (See Note 4)	10.7	4.42	0	
REPAIR/REPLACEMENT? PERCENTAGE OF TOTAL ANNUAL EMPLOYEE DOSE HAS BEEN ATTRIBUTABLE TO STEAM GENERATOR RELATED WORK AT YOUR SITE(S)? IN THE YEARS IN QUESTION	44.2	10.8	206	
HOW MANY WORKERS HAVE RECEIVED MEASUREABLE RADIATION DOSES FOR STEAM GENERATOR RELATED WORK?	204	94	574	
PERCENTAGE OF THE TOTAL WORKFORCE DO THESE WORKERS REPRESENT? (See Note 5)	1.63	0.66	215	
TEMPORARY WORKERS (defined by the NRC as all workers other than those hired directly by nuclear power plants on a contractual, long-term basis) RECEIVED DOSES FROM STEAM GENERATOR-RELATED WORK AT YOUR FACILITY EACH YEAR?	144	54	224	
PERCENTAGE OF TOTAL WORKERS INVOLVED WITH STEAM GENERATOR-RELATED WORK DO TEMPORARY WORKERS REPRESENT? (See Note 6)	109	1.1	167	
THE TOTAL WORKFORCE DO TEMPORARY WORKERS REPRESENT? (See Note 7)	2800	504	604	
DO YOU ANTICIPATE MAJOR STEAM GENERATOR REPAIRS IN ANY OF YOUR UNITS IN THE NEXT FIVE YEARS? IF SO HOW MUCH WOULD THESE REPAIRS COST, PLEASE SPECIFY.	444	834	744	

(See Note 8)

The estimated cost of the current steam generator tube repairs is \$19 million (see Note 8). There are no other major steam generator repairs anticipated within the next five years.

NOTES

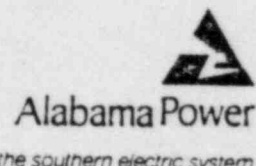
1. Total number of steam generator tubes plugged for All four (4) steam generators.
2. An estimated value of \$800,000/day has been used to calculate replacement power costs.
3. The first dollar amount represents the total costs of repair and maintenance, whereas the second indicates the replacement power cost associated with the periods given in response to question 1 above.
4. Maintenance is considered to be routine eddy current testing (ECT), in-service inspection and sludge lancing. Repair is considered to be tube plugging and ECT directly related to the repair.
5. Total work force is defined as all radiation workers which includes both employees and contractor workers.
6. All the data concerning the number of workers for 1979 is not accessible within the given time period. Therefore the 1979 values are extrapolated from 1981 data since the type of steam generator work performed in both years was similar in nature.
7. The percentage values are high due to used definition of the total work force (see Note 5) and the fact that the percentage is calculated from the ratio of workers rather than of person-days (e.g., a temporary worker at the site for only one day would be considered as equivalent to any regular full time Authority employee).
8. Presently, sleeving and plugging repairs to the steam generators are in progress. These efforts are expected to be completed in early 1983 at which time the final information requested will be available.

from: Boris Benderick

425

Mailing Address
Alabama Power Company
600 North 18th Street
Post Office Box 2641
Birmingham, Alabama 35291
Telephone 205 783-6081

F. L. Clayton, Jr.
Senior Vice President
Flintridge Building



November 24, 1982

Docket Nos. 50-348
50-364

Mr. D. G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Reference: Alabama Power Company to NRC letter dated April 12, 1982
(F. L. Clayton, Jr. to J. F. Stoltz)

Joseph M. Farley Nuclear Plant - Units 1 and 2
Steam Generator Tube Integrity (Generic Letter 82-22)

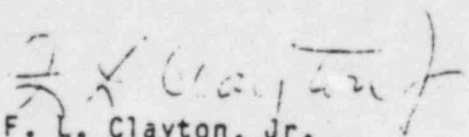
Dear Mr. Eisenhut:

Generic Letter 82-22 entitled, "Congressional Request for Information Concerning Steam Generator Tube Integrity" requested each licensee to provide information regarding steam generator tube maintenance, repair and worker exposures. Alabama Power Company has reviewed these questions and determined that much of the requested information has been supplied to the NRC via reports required annually by the Code of Federal Regulations and the above referenced letter.

Since receipt of this request for information, Alabama Power Company has been in the midst of the first refueling outage for Farley Unit 2 and has also been preparing for the upcoming Unit 1 refueling outage. Resources required to provide additional specific and detailed responses beyond current regulatory requirements are not available.

If you have any questions, please advise.

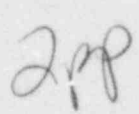
Yours very truly,


F. L. Clayton, Jr.

A001

FLCJr/RWS:1sh-D4
Attachment
cc: See Page 2

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Mr. D. G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

November 24, 1982
Page 2

cc: Mr. R. A. Thomas
Mr. G. F. Trowbridge
Mr. J. P. O'Reilly
Mr. E. A. Reeves
Mr. W. H. Bradford



November 24, 1982
L-82-518

Office of Nuclear Reactor Regulation
Attention: Mr. Darrell G. Eisenhut, Director
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Eisenhut:

Re: St. Lucie Unit 1, Turkey Point Units 3 & 4
Docket No. 50-335, 50-250 & 50-251
Generic Letter 82-22, Congressional Request
For Information Concerning Steam Generator
Tube Integrity

Generic Letter 82-22 transmitted a questionnaire regarding steam generator tube integrity and contained a request for our plans concerning this matter. This information request was in response to a similar request made to the NRC by Representative Edward J. Markey, Chairman of the Subcommittee on Oversight and Investigations.

As you are aware, Representative Markey has toured our Turkey Point units on November 27, 1982 to inspect the progress of the Steam Generator Repair Project. During that visit Representative Markey was given the opportunity to ask questions of the people directly involved in this work (and the specific inquiries covered by the Questionnaire) or otherwise obtain the requested information.

In addition, the majority of financial information requested has already been submitted to various public agencies, including the NRC, and is available for review at any time. FPL reports the radiation exposure received by personnel working on our sites on a yearly basis. The reports we submit to NRC do not specifically show the exposure received due specifically to steam generator work. However, our periodic reports issued in conjunction with the Steam Generator Repair Project do in fact show the exposure received in various tasks performed in replacing the steam generators. In view of the fact the progress reports already submitted to the NRC contains much of the information requested, we do not plan on submitting any further information, or completing the questionnaire at this time.

Very truly yours,

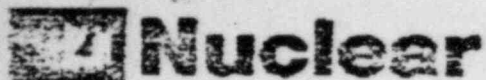
Robert E. Uhrig
Vice President
Advanced Systems & Technology

A001

REU/JEM/cab

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PDR ADOCK 05000250
PDR

cc: Mr. James P. O'Reilly, Region II
Harold F. Reis, Esquire



GPN Nuclear
100 Interpace Parkway
Parsippany New Jersey 07054
201 263-6500
TELEX 35-402
Writer's Direct Dial Number

5211-82-292
December 10, 1982

(201) 263-6797

Mr. Darrell G. Eisenhut
Office of Nuclear Reactor Regulation
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Sir:

Subject: Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
Congressional Request for Information Concerning
Steam Generator Tube Integrity (Generic Letter No. 82-22)

The purpose of this letter is to update our response of November 24, 1982 to NRC generic letter 82-22 based on information developed since that time.

As part of our response to Item 5 of that letter, we projected an sure estimate for the remainder of the current steam generator project although it extended beyond calendar year 1982. We noted in our letter that the remainder of the program on which the estimate was based had not yet been detailed.

The timing of your request was such that it required response during the early stages of a complete reassessment being made of the program. This reassessment includes consideration of many factors including continuing development of methods and tools, ongoing laboratory work, input from our independent third party review group, and our experience as the project moved from evaluation and testing in mockups to actual field repair.

Although our reevaluation is not yet complete, it is already evident that the exposure estimate will be higher than that supplied to you in November. Recognizing that your request was made in connection with an imminent Congressional Hearing, we are providing this revised information now. We understand that our original letter, along with those of other licensees, has been provided to the Subcommittee on Oversight and Investigations, Committee on Interior and Insular Affairs. Therefore, we are providing a copy of this letter directly to the Staff Director of that Subcommittee.

Mr. Darrell G. Eisenhut

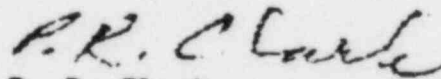
Page 2

December 10, 1982 (5211-82-292)

Our earlier letter provided an actual exposure from steam generator work from January through September 1982 of 154 person-rems. In the months of October and November 1982, an additional 168 person-rems exposure resulted from repair activities for a total of 322 person-rems as of November 30, 1982. Our assessment to date, which will need continuing review as activities become better defined, indicates that additional exposure beyond November 30, 1982, for the effort as it is now envisioned, is likely to be in the range of 700-800 person-rems. As program definition is completed, we will continue to keep the NRC informed.

The remaining information in our letter of November 24, 1982 is unchanged.

Very truly yours,



P. R. Clark
Executive Vice President

pk

cc: Staff Director

Subcommittee on Oversight and Investigations
Committee on Interior and Insular Affairs