



Northern States Power Company

414 Nicolet Mall
Minneapolis, Minnesota 55401
Telephone (612) 330-5500

November 11, 1982

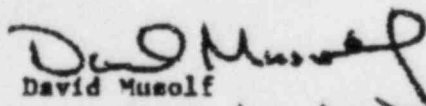
Director
Office of Nuclear Reactor Regulation
U S Nuclear Regulatory Commission
Washington, DC 20555

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
Docket Nos. 50-282 License Nos. DPR-42
50-306 DPR-60

Reply to Request for Information on Steam Generator Tube
Integrity (Generic Letter No. 82-22)

Your letter to us dated October 26, 1982, "Congressional Request for Information Concerning Steam Generator Tube Integrity (Generic Letter No. 82-22)" requested answers to questions generated by Mr E J Markey, Chairman of the Congressional Subcommittee on Oversight and Investigations. Our answers to these questions are tabulated by year on the attached table. The questions were answered as accurately as possible using the records that were available to us.

Please contact us if you have any questions concerning the information we have submitted.


David Musolf
Manager - Nuclear Support Services

DMM/SAP/bd

cc: Regional Admin-III, NRC
NRR Project Manager, NRC
NRC Resident Inspector
G Charnoff

Attachment

8212150246
XA

XA Copy Has Been Sent to PDR

PRAIRIE ISLAND NUCLEAR GENERATING PLANT - UNITS 1 & 2

Question Number

U. S. NUCLEAR REGULATORY COMMISSION

Approved by OMB
3150-0092

STEAM GENERATOR-RELATED - QUESTIONNAIRE

		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?	21 (3)	34 (3)	24 (3)	0
2.	DURING EACH OF THE YEARS IN QUESTION, HOW MANY STEAM GENERATOR TUBES HAVE BEEN PLUGGED IN EACH STEAM GENERATOR?	6 S/G 11 0 S/G 12 0 S/G 21 0 S/G 22	0 1 15	25 2 38	N/A (1) N/A (1) 15 12
4.	SLEEVED IN EACH STEAM GENERATOR?	0	0	0	0
4.	WHAT HAVE BEEN THE TOTAL COSTS AND SPECIFICALLY REPLACEMENT POWER COSTS ASSOCIATED WITH STEAM GENERATOR MAINTENANCE, REPAIR AND REPLACEMENT AT YOUR PLANT?	(in 1000 dollars) 1,560	3,888	2,786	1,141
5.	WHAT HAS BEEN THE TOTAL OCCUPATIONAL RADIATION EXPOSURE (IN PERSON-REMS) CAUSED BY STEAM GENERATOR MAINTENANCE?	14.6 Rem	32 Rem	33 Rem	17.6 Rem (2)
6.	REPAIR/REPLACEMENT?	0	0	0	0
6.	WHAT PERCENTAGE OF TOTAL ANNUAL EMPLOYEE DOSE HAS BEEN ATTRIBUTABLE TO STEAM GENERATOR RELATED WORK AT YOUR SITE(S)?	9.5%	16.3%	17.9%	N/A (1)
7.	DURING THE YEARS IN QUESTION				
	HOW MANY WORKERS HAVE RECEIVED MEASUREABLE RADIATION DOSES FOR STEAM GENERATOR RELATED WORK?	60 (4)	110 (4)	90 (4)	N/A (1)
	WHAT PERCENTAGE OF THE TOTAL WORKFORCE DO THESE WORKERS REPRESENT?	5.5%	7.1%	6.7%	N/A (1)
8.	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?	50 (4)	100 (4)	80 (4)	N/A (1)
9.	WHAT PERCENTAGE OF TOTAL WORKERS INVOLVED WITH STEAM GENERATOR-RELATED WORK DO TEMPORARY WORKERS REPRESENT?	83%	90%	90%	N/A (1)
10.	THE TOTAL WORKFORCE DO TEMPORARY WORKERS REPRESENT?	15%	15%	15%	15%
10.	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
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.	No			

(1) This data is not available since Unit 1 1982 refueling outage is not complete.

(2) This exposure was the amount received by personnel working on the steam generators for Unit 2 during 1982.

(3) Includes the days a refueling outage was extended due to problems discovered with the steam generator during the outage.

(4) These numbers are approximate.

Omaha Public Power District

1623 HARNEY ST. OMAHA, NEBRASKA 68102 • TELEPHONE 886-4000 AREA CODE 400

November 22, 1982
LIC-82-384



RECEIVED
NUCLEAR REGULATORY
COMMISSION
NOV 21 PM 3 24
L-82-384

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:jrm

Attachment

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

821202-0093
PDR/LPDR

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

	<u>1979</u>	<u>Response By Year</u>		<u>1982</u>
		<u>1980</u>	<u>1981</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

	<u>1979</u>	<u>Response By Year</u>			<u>1982</u>
		<u>1980</u>	<u>1981</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.					

NOTES:

- (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 15077-0004

Telephone (412) 456-8000

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. Carey
Vice President, Nuclear

8212030148
PDR/LPDR

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 POWER COSTS ASSOCIATED WITH STEAM GENERATOR MAINTENANCE, REPAIR AND REPLACEMENT AT YOUR PLANT?	0	0	0	\$270,000
WHAT HAS BEEN THE TOTAL OCCUPATIONAL RADIATION EXPOSURE (IN PERSON-REMS) CAUSED BY STEAM GENERATOR				
MAINTENANCE?	0	0	0	0
REPAIR/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
------	------	------	------

HAS 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

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.

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.

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 5 - 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:

No. Temporary
OTSG Workers

OTSG
Person-rem

1981
1982 (Jan-Aug)

62
189

13
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.

% OTSG Workers

1981
1982 (Jan-Oct)
1982 (Nov-Dec)
(Projected Estimate)

41%
78%
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 O
3150-0092

	RESPONSE BY YEAR			
	1979	1980	1981	1982
Y DAYS OF UNSCHEDULED OUTAGES CAN BE ATTRIBUTED TO GENERATOR-RELATED DIFFICULTIES PER YEAR AT YOUR SITE?				
EACH OF THE YEARS IN QUESTION, HOW MANY STEAM GENERATORS HAVE BEEN				
MISSED IN EACH STEAM GENERATOR?				
REPAIRED IN EACH STEAM GENERATOR?				
HAVE BEEN THE TOTAL COSTS AND SPECIFICALLY REPLACEMENT COSTS ASSOCIATED WITH STEAM GENERATOR MAINTENANCE, AND REPLACEMENT AT YOUR PLANT?				
HAS BEEN THE TOTAL OCCUPATIONAL RADIATION EXPOSURE (IN 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)?				
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?				
DO 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?				
PERCENTAGE OF TOTAL WORKERS INVOLVED WITH STEAM GENERATOR-RELATED WORK DO TEMPORARY WORKERS REPRESENT?				
DOES THE TOTAL WORKFORCE 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 SO HOW MUCH WOULD THESE REPAIRS COST. PLEASE SPECIFY.				

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

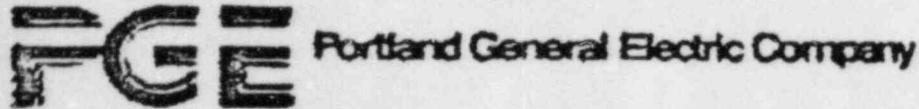
Approved by Of
3150-0092

	RESPONSE BY YEAR			
	1979	1980	1981	1982
DAYS OF UNSCHEDULED OUTAGES CAN BE ATTRIBUTED TO GENERATOR-RELATED DIFFICULTIES PER YEAR AT YOUR SITE? (1)	0	0	0	0
OF THE YEARS IN QUESTION, HOW MANY STEAM GENERATORS HAVE BEEN MAINTAINED IN EACH STEAM GENERATOR? (2)	3	1	0	~300 ~900(1)
REPLACEMENT IN EACH STEAM GENERATOR? (2)	0	0	0	0
BEHIND THE TOTAL COSTS AND SPECIFICALLY REPLACEMENT COSTS ASSOCIATED WITH STEAM GENERATOR MAINTENANCE, AND REPLACEMENT AT YOUR PLANT? (4)	---	---	---	\$35 M11110
BEHIND THE TOTAL OCCUPATIONAL RADIATION EXPOSURE (IN MS) CAUSED BY STEAM GENERATOR MAINTENANCE? (5)	} 25	---	} 18	} 154 (
REPLACEMENT? (5)	---	---	---	---
PERCENTAGE OF TOTAL ANNUAL EMPLOYEE DOSE HAS BEEN ATTRIBUTED TO STEAM GENERATOR RELATED WORK AT YOUR SITE(S)? (6)	3	---	11	60 (
THE YEARS IN QUESTION				
HOW MANY WORKERS HAVE RECEIVED MEASUREABLE RADIATION DOSES FROM STEAM GENERATOR RELATED WORK? (7)	---	---	152	244 (
PERCENTAGE OF THE TOTAL WORKFORCE DO THESE WORKERS REPRESENT? (7)	---	---	10	28 (
TEMPORARY WORKERS (defined by the NRC as all workers in those hired directly by nuclear power plants on a seasonal, 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
TOTAL WORKFORCE DO TEMPORARY WORKERS REPRESENT? (9)	---	---	---	---
DOES YOUR COMPANY USED INDEPENDENT FIRMS TO FIND TEMPORARY WORKERS 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, AND HOW MUCH WOULD THESE REPAIRS COST, PLEASE SPECIFY.
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.

E. Burton, D. Axtell, A. Holm, LLS, Reading File
TBT:DOV REL 7:REC Chrono
TNP:GEN EMGR 7 PSAR:Sec.5.4.2:Steam Generator



202 203 002

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

Self
BDR/SAB/461m2A14
Attachment

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

W. S. Orser

J. W. Lentach

821203002
PDR/LPOR

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. 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?				
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-rem) caused by steam generator				
a. Maintenance?	41 ^[f]	46 ^[f]	139 ^[f]	15 ^[c,f]
b. Repair/replacement?	0	0	0	0

	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 [e]	67.3 [e]	62.9 [e]	53.4 [e]

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 PG&E'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. 50-317
50-318

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

Dear Sirs:

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/gls

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

8212060071
pan/LPOR

50-317
50-318
11/11/82
59