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July 21, 2000

Re: Indian Point Unit No. 2
Docket No. 50-247
NL-00-095

Document Control Desk
US Nuclear Regulatory Commission
Mail Station P1-137
Washington, DC 20555-0001

Subject: Responses to the NRC's Request For Additional Information Regarding
Steam Generator Operational Assessment Report (TAC No. MA9288)

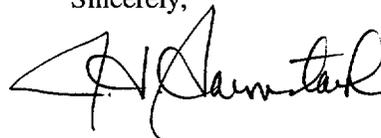
- References:
- 1) USNRC Letter to A. A. Blind from P. D. Milano, "Indian Point Nuclear Generating Unit No. 2 - Request For Additional Information Regarding Steam Generator Operational Assessment Report (TAC No. MA9288)," dated July 3, 2000.
 - 2) Con Edison Letter to NRC dated July 7, 2000
 - 3) Con Edison Letter to NRC dated July 13, 2000
 - 4) Con Edison Letter to NRC dated July 18, 2000

Pursuant to 10 CFR 50.54(f), Consolidated Edison Company of New York, Inc. (Con Edison) hereby provides its response to Question 3 contained in the Staff's request for additional information dated July 3, 2000. This letter, in addition to information previously provided by References 2, 3 and 4, completes Con Edison's responses to the subject request of additional information.

No new regulatory commitments are being made by Con Edison in this correspondence.

Should you or your staff have any questions regarding this matter, please contact Mr. John F. McCann, Manager, Nuclear Safety and Licensing.

Sincerely,



Attachment

A001

C: Mr. Hubert J. Miller
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ATTACHMENT

Response to RAI Question 3 from NRC Letter Dated July 3, 2000

Consolidated Edison Company of New York, Inc.
Indian Point Unit No. 2
Docket No. 50-247
July 2000

Question 3

The following questions stem from our review of the sludge pile operational assessment, specifically regarding your POD assumption.

- a. Provide the tube numbers for the three IP2 indications used in the development of the POD curve for the sludge pile operational assessment.*
- b. Discuss why you did not include all of the available IP2 data in the development of this POD curve. Discuss how the inclusion of this additional IP2 data would influence the POD curve.*
- c. Confirm that there was 1997 PlusPoint data available for the indications included in the POD database and discuss why the tubes were dispositioned as "NDD" (no detectable degradation) in 1997.*
- d. Discuss how the correlation of 1.257 between maximum depth and burst effective average depth applies to data not from IP2.*
- e. Discuss why you did not include the signal to noise ratios for all of the available plant and IP2 specific data not used in the POD database.*

Reply

- a. Provide the tube numbers for the three IP2 indications used in the development of the POD curve for the sludge pile operational assessment.*

The three IP2 tube numbers in the sludge pile POD are R30C46, R34C54 and R35C52. These are the only three sludge pile PlusPoint indications found in the 2000 inspection that were also inspected by RPC in 1997. The indications at R34C54 and R35C52 were +Point inspected and R30C46 was RPC 3-coil inspected. The indications were detected by bobbin and depth-sized as potential volumetric indications. All three indications were reported as NDD in the 1997 field +Point/RPC inspection. The depths used in the POD for these indications were based on reevaluation of the 1997 RPC data utilizing the knowledge and location of the indication found in the 2000 inspection.

- b. Discuss why you did not include all of the available IP2 data in the development of this POD curve. Discuss how the inclusion of this additional IP2 data would influence the POD curve.*

The sludge pile POD is based on all available +Point/RPC inspection data from the 1997 and 2000 eddy current inspections. The three indications included in the POD were the only 2000 indications in the sludge pile that were inspected by +Point/RPC in 1997. Therefore, only these three indications can be considered for inclusion in the POD.

- c. *Confirm that there was 1997 PlusPoint data available for the indications included in the POD database and discuss why the tubes were dispositioned as "NDD" (no detectable degradation) in 1997.*

The three IP2 tube numbers included as NDDs in the sludge pile POD are R30C46, R34C54 and R35C52. These are the only three sludge pile +Point indications found in the 2000 inspection that were also inspected by RPC in 1997. R35C52 and R34C54 were inspected with PlusPoint and R30C46 with a three-coil probe. As these indications were dispositioned as "NDD" in 1997; bobbin, Cecco and RPC data from the 1997 inspection were re-reviewed in response to this RAI to establish the indication characteristics and the bases for dispositioning those indications. Results are summarized in the table below.

S/G	Row	Col	Bobbin	Cecco	RPC
22	35	52	Indication at TSH +0.90" - 0.74 Vpp - 38%TWD	Indication at TSH +0.68" - marginal phase angle, possible deposit	Small volumetric indication - interpreted to be pit-like and left in service based on bobbin %
22	34	54	Indication at TSH +0.93" - 0.83Vpp - 28% TWD	Indication at TSH +0.81" - marginal phase angle, possible deposit	Small volumetric indication - interpreted to be a deposit and left in service based upon bobbin %
23	30	46	Indication at TSH +0.99" - 1.15Vpp - 25% TWD	Indication at TSH +1.11"	Small volumetric indication - interpreted to be pit-like and left in service based upon bobbin %

- d. *Discuss how the correlation of 1.257 between maximum depth and burst effective average depth applies to data not from IP2.*

An analysis was performed, using available pulled tube data from other operating plants for ODSCC in the freespan and sludge pile, to further evaluate the applicability of the 1.257 ratio of the maximum depth to the burst effective crack length average depth. Table RAI-3-1 (below) includes the data that were used in this analysis. Figure RAI-3-1 (below) shows the ratio between the maximum depth and the average burst effective depth to be 1.303. The most appropriate value of the maximum average ratio to use is that based on IP-2 specific data, 1.257. This results in a more conservative POD value as discussed below.

The POD curve for average depth is derived by dividing the maximum POD curve values

by the maximum average ratio. The result is to shift the POD curve to the left (e.g., Figure 4.2-3 of SG-00-06-010) of the recommended POD curve. Consequently, the recommended POD curve, based on the ratio of 1.257, is more conservative than the POD derived from application of the larger maximum average ratio of 1.303.

- e. *Discuss why you did not include the signal to noise ratios for all of the available plant and IP2 specific data not used in the POD database.*

NDE data for signal to noise (S/N) evaluations are available only for pulled tube examinations performed by Westinghouse. The available NDE data were evaluated to supplement the S/N data as shown in Table RAI-3-2 (below). This table now includes all IP2 sludge pile indications. The original data set in Table 4.3-1 of the CMOA was selected because it accurately represented the range of the signal/noise ratio that was measured in the inspection. The average for the ratio in Table 4.3-1 is 2.6 and the median is 1.6. Compared to the data in Table RAI-3-2 that is included in this response, the average for the total set is 2.7 and the median is 1.6. Therefore, the data set represented in Table 4.3-1 and Table RAI-3-2 are both sufficiently accurate for the purposes for which they are used, and the use of either would not materially affect the analysis.

Table RAI-3-1

Pulled Tube Database for Evaluating Maximum to Average Depth Ratio for ODSCC

Plant	Row	Col	Crack No.	Burst Eff. Avg. Depth	Max Depth
A	6	10	1	32.6%	55.0%
			2	51.5%	80.0%
			3	28.9%	63.0%
			4	26.6%	63.0%
			5	33.7%	43.0%
			6	33.4%	78.0%
			7	26.0%	47.0%
			8	26.9%	53.0%
			9	44.8%	70.0%
			10	38.6%	54.0%
			11	33.0%	50.0%
			12	36.1%	57.0%
	25	51	10	20.3%	42.0%
			1	96.1%	100.0%
			8	43.3%	77.0%
			9	28.2%	45.0%
			2	86.7%	100.0%
			3	25.5%	36.0%
			4	57.0%	78.0%
			5	56.7%	76.0%
			6	21.4%	34.0%
			7	48.0%	78.0%
	6	28	1	29.9%	47.8%
			2	29.9%	45.0%
			3	24.9%	44.0%
			4	17.3%	38.0%
			5	22.0%	49.0%
	28	35	1	37.9%	46.1%
29	47	1	79.6%	100.0%	
AB	20	102	1	69.9%	92.7%
			2	53.6%	61.3%
AA	42	44	1	78.2%	95.1%
			2	72.4%	95.5%
	37	34	1	48.5%	52.9%
			2	81.0%	100.0%
P	12	45	1	62.5%	69.7%
			2	67.4%	76.9%
			3	76.9%	88.0%
	16	28	1	32.7%	35.7%
			2	44.0%	47.6%
	18	30	1	48.1%	52.0%
	18	36	1	39.3%	47.2%
Y	37	32	1	58.1%	66.8%

Figure RAI-3-1

Maximum Depth vs. Burst Effective Average Depth

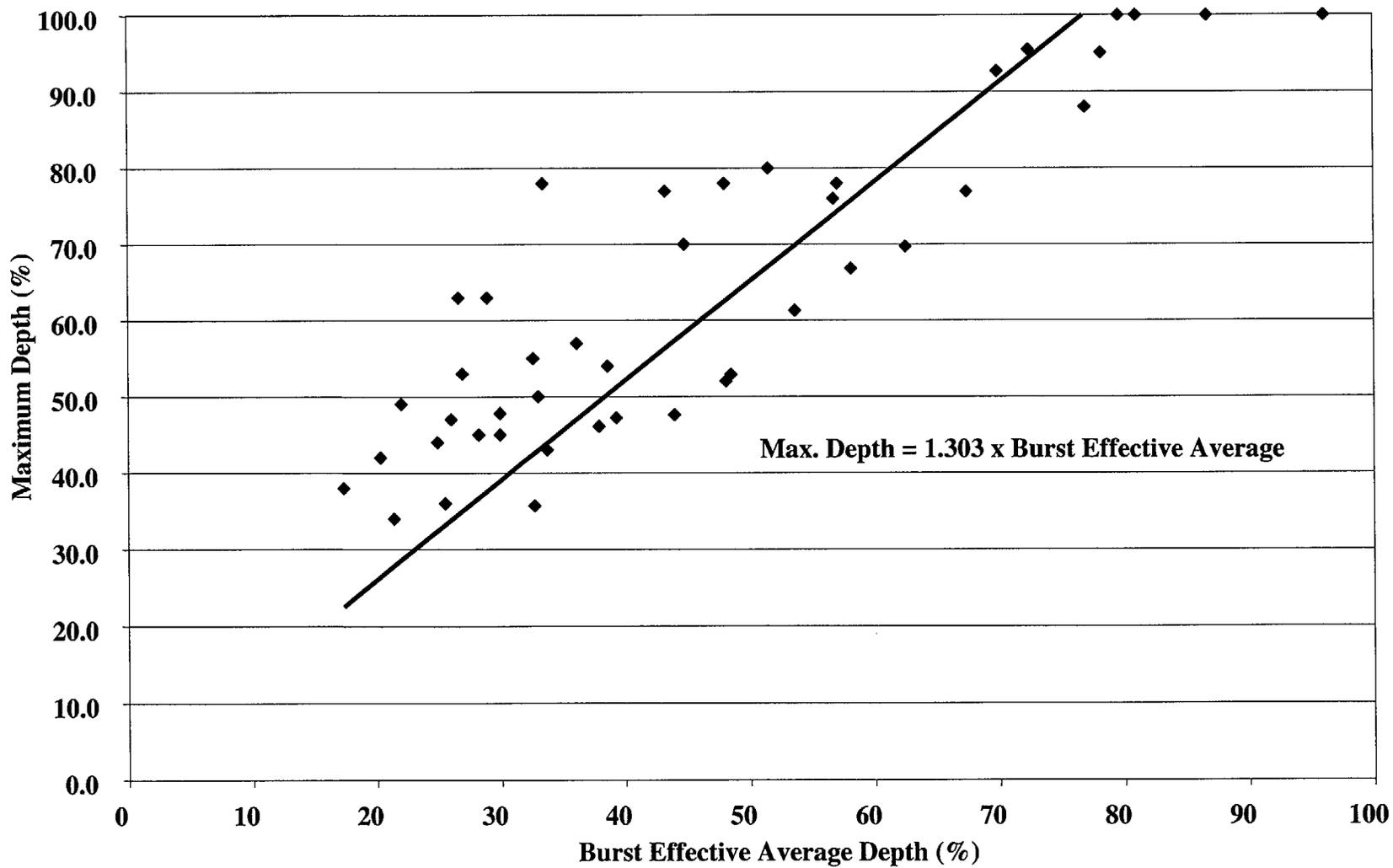


Table RAI-3-2

Signal to Noise Ratios (S/N) for ODSCC Pulled Tubes and Indian Point-2 Data

Plant	Row/Col	Location	Crack No.	S/N Ratio	Plant	Row/Col	Location	Crack No.	S/N Ratio	
Pulled Tube Data										
ALA	6/28	TTS+10"	1	~2	ALA	29/47	TTS +1.13	2	~1	
		TTS+23.7"	2	~2			TTS +0.16	3	1.7	
		TTS+39.3"	3	~2			TTS +0.7	1	10.1	
		TTS+47"	4	~1		25/51	SI +4.3	1	~1	
	TTS+9"	2	~1	SI +5.9			2	~0.6		
	TTS+22.3"	4	~3	SI +14.4			3	~1.3		
CAE	20/102	3H	1	~3.5			SI + 15.3	4	~0.7	
		5H	1	< 0.5			SI +15.6	5	~0.9	
CCE	42/44	5H	1	~3	NSP	32/41	3H	1	~1.4	
		3H	1	~4			1H	1	~1	
	37/34	5H	1	~10	TVA	4/15	1H	1	~3	
		3H	1	~ 0.5			8/60	1H	1	1.4
DLW	12/45		2	~1.5	STP	18/100	3H	1	3	
			4	~0.5			19/83	2H	1	3
			5	~1			8/19	TSP1	1	2.7
	16/28		1	~1	TSP2	1		1.6		
			2	~1	PGE	2/66		2H	1	13
	18/30		1	~1.5		37/53	2H	1	5.8	
18		1	~1							
PGE	37/32	3H	1	> 6						
Indian Point-2 Data										
	34/51		1	~5						
			2	~5.5						
	33/51			~5						
	34/54		1	~3						
	35/52			~1.6						
	3/88			~1						
	44/36			< 1						