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PG&E Letter DCL-03-109

U.S. Nuclear Regulatory Commission  
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Washington, D.C. 20555-0001

Docket No. 50-323, OL-DPR-82  
Diablo Canyon Unit 2  
Supplemental Information to Support License Amendment Request 03-10, "Revised  
Steam Generator Voltage-based Repair Criteria Probability of Detection Method for  
Diablo Canyon Unit 2 Cycle 12"

Dear Commissioners and Staff:

On June 3, 2003, the NRC staff requested information on the characterization of indications detected in steam generator (SG) inspections that would affect PG&E's proposed SG voltage-based probability of detection method, referred to as probability of prior cycle detection (POPCD). Specifically, the NRC requested an assessment of the affect on POPCD with the proposed guideline that bobbin indications, not detected by rotating pancake coil (RPC), be treated as undetected. PG&E's proposed POPCD was submitted in License Amendment Request (LAR) 03-10 via PG&E letter DCL-03-078, "License Amendment Request 03-10, Revised Steam Generator Voltage-based Repair Criteria Probability of Detection Method for Diablo Canyon Unit 2 Cycle 12," dated June 26, 2003, and has characterized these types of indications as detected at cycle n.

Enclosure 1 provides PG&E's supplemental information on the NRC requested characterization of indications, and the resulting new NRC POPCD. Independent of the NRC request, Enclosure 1 also provides a revised LAR POPCD to replace the POPCD in LAR 03-10, to incorporate necessary changes based on a further review of the Diablo Canyon Units 1 and 2 inspection data. An assessment of the affects of these changes is provided in Enclosure 1.

PG&E concludes that the new NRC POPCD results in a slightly less conservative probability of burst for the limiting SG 2-4 in Unit 2 Cycle 12, compared to the revised LAR POPCD. The differences in leak rates between the two POPCD methods are insignificant. Therefore, PG&E recommends that bobbin indications, not detected by RPC, should be treated as detected, and that Unit 2 Cycle 12 Monte Carlo analysis be based on the revised LAR POPCD. This approach is also consistent with the Generic Letter 95-05 requirement that bobbin indications not

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detected by RPC are to be included in the operational assessment as detected indications.

The additional information does not affect the results of the safety evaluation or no significant hazards consideration determination previously transmitted in PG&E letter DCL-03-078.

If you have any questions regarding this response, please contact Stan Ketelsen at 805-545-4720.

Sincerely,

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*Vice President and General Manager - Diablo Canyon*

kjs/4328  
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**Supplemental Information on Characterization of Steam Generator Indications  
Regarding License Amendment Request 03-10, "Revised Steam Generator  
Voltage-based Repair Criteria Probability of Detection Method for  
Diablo Canyon Unit 2 Cycle 12"**

Response to NRC Questions Received on June 3, 2003

NRC Question 1

Steam generator (SG) indications that at end of cycle  $n$  ( $EOC_n$ ) were bobbin detected and rotating pancake coil (RPC) no detectable degradation (NDD), and that at end of cycle  $n+1$  ( $EOC_{n+1}$ ) were bobbin detected and RPC not inspected, should be treated as undetected.

PG&E Response

The Diablo Canyon Power Plant (DCPP) probability of prior cycle detection (POPCD) data is contained in Table 2 of PG&E license amendment request (LAR) letter DCL-03-078, "License Amendment Request 03-10, Revised Steam Generator Voltage-based Repair Criteria Probability of Detection Method for Diablo Canyon Unit 2 Cycle 12," dated June 26, 2003. The POPCD data in Table 2 of DCL-03-078 was used to determine the POPCD distribution contained in Figure 2 of DCL-03-078. Table 2 in DCL-03-078 considered these flaws as detected at  $EOC_n$  based on the bobbin call at  $EOC_n$ .

Table 2 of this enclosure provides the new NRC POPCD data to treat an indication, that at  $EOC_n$  was RPC NDD and that at  $EOC_{n+1}$  was RPC not inspected, as undetected (new indication) because it was RPC NDD at the prior inspection.

NRC Question 2

Indications that at  $EOC_n$  were bobbin detected and RPC NDD, and that at  $EOC_{n+1}$  were bobbin detected and RPC detected, should be treated as undetected.

PG&E Response

Table 2 in DCL-03-078 considered these flaws as detected at  $EOC_n$  based on the bobbin call at  $EOC_n$ . Table 2 of this enclosure provides the new NRC POPCD data to treat an indication, that at  $EOC_n$  was RPC NDD and at  $EOC_{n+1}$  was RPC detected, as undetected (new indication) because it was RPC NDD at the prior inspection.

NRC Questions 3

Indications that at  $EOC_n$  were bobbin detected and RPC NDD, and at  $EOC_{n+1}$  were bobbin NDD and RPC confirmed, should be treated as undetected.

PG&E Response

The databases were reviewed and there are no occurrences of this combination. Therefore, this NRC guideline does not affect Table 2 of this enclosure. Any indications, that at  $EOC_n$  were bobbin detected and RPC NDD, and at  $EOC_{n+1}$  were bobbin NDD and RPC confirmed, that occur in the future will be classified as axial outside diameter stress corrosion cracking (ODSCC) not detected by bobbin (AONDB) at  $EOC_{n+1}$  and included as a new indication independent of the call at  $EOC_n$ .

NRC Question 4

If an indication is RPC confirmed at  $EOC_n$ , then RPC of the indication at  $EOC_{n+1}$  should be required.

PG&E Response

For indications which are AONDB at  $EOC_n$  and bobbin NDD at  $EOC_{n+1}$ , PG&E will perform RPC inspection of these indications at  $EOC_{n+1}$ , to ensure that all known ODSCC indications are included in the Monte Carlo calculations.

For all other  $EOC_n$  RPC indications, PG&E disagrees with the NRC recommendation since it may require thousands of unneeded RPC inspections. PG&E may elect to perform RPC of bobbin indications at  $EOC_n$  for various purposes, but that should not dictate that RPC inspection at  $EOC_{n+1}$  is then required. For example, many bobbin indications were RPC inspected in DCP Unit 2 Refueling Outage 11 (100 percent of bobbin indications in SG 2-1 and 100 percent of greater than 1 volt bobbin indications in SGs 2-2, 2-3, and 2-4) to identify and characterize any high voltage RPC indications that may be returned to service for DCP Unit 2 cycle 12. These indications are not required to be RPC inspected again in DCP Unit 2 Refueling Outage 12 unless they meet Generic Letter (GL) 95-05 or plant specific criteria at that time.

NRC Question 5

For indications at  $EOC_n$  that were bobbin detected and RPC confirmed, and at  $EOC_{n+1}$  were bobbin detected and RPC NDD, provide an explanation for the disappearing flaw.

PG&E Response

There was only one case of this occurrence in all DCP alternate repair criteria inspections to date. In DCP Unit 1 Refueling Outage 9 (1R9), an ODSCC signal was detected by bobbin and Plus Point coils in SG 1-2 row 29 column 61 (0.8 volt dent). In Unit 1 Refueling Outage 10 (1R10), bobbin coil detected ODSCC, but Plus Point coil did not. In Unit 1 Refueling Outage 11 (1R11), both bobbin and Plus Point coils detected ODSCC. A second review of the bobbin and Plus Point data in these inspections was performed to determine why the Plus Point coil detected a flaw in 1R9 and 1R11 but not in 1R10.

The bobbin coil signals did not change from outage to outage. In 1R9, a bobbin call was made although the bobbin signal was not like a typical ODSCC signal. The Plus Point coil data showed small signals in each outage (about 0.1 volts), but the signals were not flaw like (signal rotates out), and the signals could be attributed to deposits. Thus, the Plus Point calls were very conservative in 1R9 and 1R11, and could have been called as NDD. Likewise, the 1R9, 1R10, and 1R11 bobbin call could have been NDD as well. Similar low voltage, marginal signals can be expected to be called as a flaw or NDD in the future based on nondestructive examination (NDE) analyst judgment.

#### NRC Question 6

For indications that at  $EOC_n$  were bobbin detected and RPC confirmed, and at  $EOC_{n+1}$  were bobbin NDD and RPC NDD, provide an explanation for the disappearing flaw.

#### PG&E Response

There was only one case of this occurrence in all DCPD alternate repair criteria inspections to date. In DCPD 1R9, an ODSCC indication was reported by bobbin and RPC in SG 1-2 row 6 column 69 (0.8 volt dent). In 1R10, both bobbin and RPC were NDD. In 1R11, bobbin was NDD and RPC inspection was not performed. A second review of the bobbin coil and Plus Point coil data in these inspections was performed to determine why the Plus Point coil detected a flaw in 1R9 but not in 1R10.

The bobbin coil signals did not change from outage to outage. In 1R9, a bobbin call was made although the bobbin signal was not like a typical ODSCC signal. The Plus Point data showed small signals in each outage (about 0.1 volts), but were not flaw like (signal rotates out), and the signals could be attributed to deposits. Thus, the Plus Point coil signal call was very conservative in 1R9, and could have been called as NDD. Likewise, the 1R9 bobbin call could have been NDD as well. Similar low voltage, marginal signals can be expected to be called as a flaw or NDD in the future based on NDE analyst judgment.

#### NRC Question 7

For indications that at  $EOC_n$  were bobbin NDD and RPC confirmed, and at  $EOC_{n+1}$  were bobbin detected and RPC NDD, provide an explanation for the disappearing flaw.

#### PG&E Response

The databases were reviewed and there are no occurrences of this combination. Therefore, no assessment is required.

Discussion of Changes in POPCD Data

PG&E has made two sequential changes to the POPCD data contained in LAR 03-10. These are described below.

Revised LAR POPCD

The LAR POPCD data in Table 2 of PG&E letter DCL-03-078 has been revised to reflect necessary changes as a result of further review of DCPD inspection data. The updated data is termed "Revised LAR POPCD." Table 1 of this enclosure provides the Revised LAR POPCD data table, and replaces Table 2 of PG&E letter DCL-03-078. The reasons for the most significant changes are summarized below:

- Column K was added in Table 1. This column accounts for indications that were found only by RPC inspection at  $EOC_n$  and were plugged at  $EOC_n$ . Since these intersections have confirmed ODSCC with no bobbin detection, they should be considered as 'misses' at  $EOC_n$ . Previous versions of POPCD did not account for these indications. The formula in column N for 'New  $EOC_{n+1}$  ODSCC Indications' was also updated to include column K.
- All cases of a distorted inner diameter (ID) support signal indications at  $EOC_n$  were considered as bobbin detected at  $EOC_n$  unless confirmed by Plus Point to be a primary water stress corrosion cracking indication. A distorted ID support signal (DIS) indication is a bobbin call with an ID phase angle at a dented intersection that requires a follow-up Plus Point inspection. Outside diameter flaws sometimes have ID phase angles, which can also be enhanced by the influence of a dent. During the further review of the POPCD data, inconsistencies were noted in how indications were treated in Table 2 in DCL-03-078. In some cases, the previous DIS indications were treated as a detection, and in other cases they were treated as no detection. For the Revised LAR POPCD data Table 1, the appropriate column for the  $EOC_n$  DIS indications is dependent upon the bobbin and RPC calls at  $EOC_{n+1}$ . A few indications moved from column G to either column B or column C.
- In cases where an indication was called a DIS at  $EOC_n$ , and at  $EOC_{n+1}$  was called by bobbin and confirmed by Plus Point as ODSCC, the voltage at  $EOC_{n+1}$  was obtained by using the Plus Point-to-bobbin voltage correlation if the indication was confirmed as ODSCC at  $EOC_{n+1}$ . This was done because the bobbin voltage is not considered reliable at either  $EOC_n$  or  $EOC_{n+1}$  since it can be influenced by the dents or noise at these intersections. The voltage at  $EOC_n$  was then estimated by subtracting the average growth for that particular cycle of operation.
- Column D of Table 1 increased by 20 indications from that contained in Table 2 in DCL-03-078. Table 2 in DCL-03-078 only included indications that were detected with bobbin, confirmed with RPC, and plugged at  $EOC_n$ , to be consistent with the previously published POPCD results for the industry. Table 1 adds indications that

were detected with bobbin, not inspected with RPC, and plugged at EOC<sub>n</sub>. The title to Column D was revised to reflect this change.

- Column E of Table 1 also increased by 20 indications. This increase is due to the fact that this column now includes indications that were RPC NDD at EOC<sub>n</sub> and plugged at EOC<sub>n</sub>. Table 2 in DCL-03-078 only included indications that were detected with bobbin, but not detected with RPC at EOC<sub>n+1</sub>.

#### *New NRC POPCD*

To incorporate the NRC guidelines in questions 1, 2, and 3 above, that is, indications that are bobbin coil detected and RPC NDD at EOC<sub>n</sub> should be treated as undetected at EOC<sub>n</sub>, PG&E relocated pertinent data in Table 1 to create Table 2. Table 2 data is termed "New NRC POPCD," and reflects moving indications from column B and column C to a new column J since they are now being treated as undetected at EOC<sub>n</sub>.

In addition, Table 5 was created to provide the Table 2 data in a format requested by the NRC on June 3, 2003. Tables 5a, 5b, 5c, and 5d provided data to reflect the number of indications less than or equal to 1.0 volt at EOC<sub>n</sub>, the number of indications greater than 1.0 volt and less than or equal to 2.0 volt at EOC<sub>n</sub>, the number of indications greater than 2.0 volt at EOC<sub>n</sub>, and the total number of indications for all voltages respectively.

#### *Assessment of Revised LAR POPCD and New NRC POPCD*

The Revised LAR POPCD data in Table 1 becomes the baseline for which POPCD method should be assessed. As such, the affect of the Revised LAR POPCD data in Table 1 has been assessed by PG&E relative to the LAR POPCD data in DCL-03-078. In addition, the affect of the New NRC POPCD data in Table 2 has been assessed relative to the Revised LAR POPCD data in Table 1.

Table 3 provides the regression parameters for the Table 1 Revised LAR POPCD data, the Table 2 New NRC POPCD data, and the DCL-03-078 LAR POPCD data (repeated from Table 6 in DCL-03-078).

Figure 1 shows the loglogistic fit to the Table 1 Revised LAR POPCD data. The lower 90-percent confidence bound on the POPCD distribution and the fractional probability of detection (POD) data values are also shown for information. The fractional POD values are not used in the general linear model analyses since the POPCD analysis is weighted by the number of detected and undetected indications in each voltage bin. This figure replaces Figure 2 in DCL-03-078.

Figure 2 compares the loglogistic Revised LAR POPCD curve with the loglogistic LAR POPCD curve (from Figure 2 in DCL-03-078). Compared to the LAR POPCD data, the Revised LAR POPCD data decreases the POD above about 0.5 volt and increases the POD below about 0.5 volt.

Figure 3 compares the loglogistic Revised LAR POPCD curve with the loglogistic New NRC POPCD curve. Compared to the Revised LAR POPCD data, the New NRC POPCD data slightly increases the POD above about 1.0 volt and decreases the POD below about 1.0 volt.

Table 4 provides DCP Unit 2 Cycle 12 Monte Carlo probability of burst (POB) and steam line break (SLB) leak rate operational assessment results using voltage dependent growth and three POPCD curves (LAR POPCD, Revised LAR POPCD, and New NRC POPCD). The Monte Carlo results for the LAR POPCD curve are repeated from Case 5 of the DCP Unit 2 Refueling Outage 11 90-day report contained in Enclosure 4 of PG&E letter DCL-03-076, "Special Report 03-02 - Results of Steam Generator Inspections for Diablo Canyon Power Plant Unit 2 Eleventh Refueling Outage" dated June 23, 2003.

The limiting POB based on the Revised LAR POPCD curve is  $6.46E-03$  for SG 2-4, a 17 percent increase compared to the limiting POB ( $5.52E-03$ ) from Case 5 of the 90-day report, but still less than the  $1E-02$  reporting threshold. The POB increase of  $0.94E-03$  is less than 10 percent of the reporting threshold and is not considered to be a particularly meaningful increase in POB. The limiting leak rate based on the Revised LAR POPCD curve is 2.89 gallons per minute (gpm), an increase of 3 percent compared to the limiting leak rate (2.81 gpm) for Case 5 of the 90-day report.

The limiting POB based on the New NRC POPCD curve is  $6.01E-03$ , a 7 percent decrease compared to the limiting POB ( $6.46E-03$ ) for the Revised LAR POPCD curve. The limiting leak rate based on the New NRC POPCD curve is 2.93 gpm, essentially the same leak rate as the limiting leak rate (2.89 gpm) for the Revised LAR POPCD curve.

In conclusion, the effect of implementing the NRC guideline to treat indications that are bobbin coil detected and RPC NDD at  $EOC_n$ , as undetected at  $EOC_n$ , results in a slightly less conservative POB value for the limiting SG 2-4 for Unit 2 Cycle 12. For the other SGs, the results in Table 4 show that the POB differences between the two POPCD methods are small (less than  $1E-04$ ) and are not meaningful. The Table 4 results also show that leak rate differences between the two POPCD methods are small (less than or equal to 0.04 gpm) and are not meaningful. The increase in POB for SG 2-4 with the Revised LAR POPCD curve is due to the large number of high voltage indications in SG 2-4 for which the revised LAR POD is slightly lower than the NRC POD.

Therefore, PG&E recommends that Unit 2 Cycle 12 Monte Carlo analysis be based on the Revised LAR POPCD data in Table 1 and Figure 1. This recommendation is consistent with the requirements of GL 95-05, which requires that RPC NDD indications be included in the operational assessment as detected indications. Inclusion of the RPC NDD indications in the POPCD data as undetected bobbin indications would effectively further increase the number of RPC NDD indications in the operational assessment due to the decrease in POD for these indications.

Table 1. DCPD Revised LAR POPCD Data <sup>(1, 6)</sup>

Column	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	EOC <sub>n</sub> and EOC <sub>n+1</sub> Bobbin Detected for POPCD Analysis <sup>(2)</sup>		EOC <sub>n</sub> Bobbin Ind., RPC Confirmed or Not Inspected at EOC <sub>n</sub> & Repaired at EOC <sub>n</sub>	EOC <sub>n</sub> Bobbin Detected Ind. Excluded from POPCD		New EOC <sub>n+1</sub> (Undetected or RPC NDD at EOC <sub>n</sub> ) Ind. for POPCD Analysis				EOC <sub>n</sub> Ind. Found Only <sup>(5b)</sup> by RPC Inspection and Plugged at EOC <sub>n</sub>	New EOC <sub>n+1</sub> Excluded from POPCD	POPCD Calculation <sup>(1)</sup>		
Voltage Bin <sup>(3)</sup>	EOC <sub>n</sub> Bobbin Ind. RPC Confirmed at EOC <sub>n+1</sub>	EOC <sub>n</sub> Bobbin Ind. Not RPC Inspected at EOC <sub>n+1</sub>		EOC <sub>n</sub> Bobbin Ind. RPC NDD at EOC <sub>n+1</sub> or at EOC <sub>n</sub> and Plugged at EOC <sub>n</sub>	EOC <sub>n</sub> Bobbin Ind. INR <sup>(4)</sup> at EOC <sub>n+1</sub> & Not RPC Inspected at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Bobbin Ind. RPC Confirmed at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Bobbin Ind. Not RPC Inspected at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Ind. Found Only <sup>(5)</sup> by RPC Inspection	This Column Intentionally Left Empty			New EOC <sub>n+1</sub> Bobbin Ind. RPC NDD at EOC <sub>n+1</sub>	EOC <sub>n</sub> Bobbin Detected Ind.	New EOC <sub>n+1</sub> ODSCC Ind.
0.1	3	1	0	0	0	23	51	0	0	0	6	4	74	0.051
0.2	33	42	2	5	4	100	389	0	0	1	18	77	490	0.136
0.3	60	191	5	25	9	132	516	29	0	0	27	256	677	0.274
0.4	75	285	17	11	14	104	384	88	0	1	20	377	577	0.395
0.5	68	263	8	15	14	65	199	27	0	3	6	339	294	0.536
0.6	78	197	8	14	4	38	113	11	0	10	7	283	172	0.622
0.7	74	146	4	10	5	27	59	1	0	3	8	224	90	0.713
0.8	52	89	7	5	1	19	37	1	0	0	3	148	57	0.722
0.9	57	68	2	2	2	16	14	0	0	0	1	127	30	0.809
1.0	36	38	1	1	1	4	5	0	0	0	1	75	9	0.893
1.1	35	16	6	0	0	6	6	0	0	0	2	57	12	0.826
1.2	18	22	2	3	0	3	3	0	0	0	2	42	6	0.875
1.3	22	18	0	1	0	2	4	0	0	0	0	40	6	0.870
1.4	27	9	2	1	0	2	1	0	0	0	0	38	3	0.927
1.5	13	7	1	0	0	1	0	0	0	0	0	21	1	0.955
1.6	7	4	1	0	0	0	0	0	0	0	0	12	0	1.000
1.7	10	1	0	0	0	0	0	0	0	0	0	11	0	1.000
1.8	8	1	0	0	0	0	0	0	0	0	0	9	0	1.000
1.9	7	0	0	0	0	0	0	0	0	0	0	7	0	1.000
2.0	10	1	0	0	0	0	0	0	0	0	0	11	0	1.000

Table 1. DCPD Revised LAR POPCD Data <sup>(1, 6)</sup>

Column	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	EOC <sub>n</sub> and EOC <sub>n+1</sub> Bobbin Detected for POPCD Analysis <sup>(2)</sup>		EOC <sub>n</sub> Bobbin Ind., RPC Confirmed or Not Inspected at EOC <sub>n</sub> & Repaired at EOC <sub>n</sub>	EOC <sub>n</sub> Bobbin Detected Ind. Excluded from POPCD		New EOC <sub>n+1</sub> (Undetected or RPC NDD at EOC <sub>n</sub> ) Ind. for POPCD Analysis				EOC <sub>n</sub> Ind. Found Only <sup>(5b)</sup> by RPC Inspection and Plugged at EOC <sub>n</sub>	New EOC <sub>n+1</sub> Excluded from POPCD	POPCD Calculation <sup>(1)</sup>		
Voltage Bin <sup>(3)</sup>	EOC <sub>n</sub> Bobbin Ind. RPC Confirmed at EOC <sub>n+1</sub>	EOC <sub>n</sub> Bobbin Ind. Not RPC Inspected at EOC <sub>n+1</sub>		EOC <sub>n</sub> Bobbin Ind. RPC NDD at EOC <sub>n+1</sub> or at EOC <sub>n</sub> and Plugged at EOC <sub>n</sub>	EOC <sub>n</sub> Bobbin Ind. INR <sup>(4)</sup> at EOC <sub>n+1</sub> & Not RPC Inspected at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Bobbin Ind. RPC Confirmed at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Bobbin Ind. Not RPC Inspected at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Ind. Found Only <sup>(5)</sup> by RPC Inspection	This Column Intentionally Left Empty			New EOC <sub>n+1</sub> Bobbin Ind. RPC NDD at EOC <sub>n+1</sub>	EOC <sub>n</sub> Bobbin Detected Ind.	New EOC <sub>n+1</sub> OBSCC Ind.
2.1	0	0	0	0	0	0	0	0	0	0	0	0	0	
2.2	0	0	5	0	0	0	0	0	0	0	0	5	0	1.000
2.3	0	0	3	0	0	0	0	0	0	0	0	3	0	1.000
2.4	0	0	2	0	0	0	0	0	0	0	0	2	0	1.000
2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	
2.6	0	0	2	0	0	0	0	0	0	0	0	2	0	1.000
2.7	0	0	0	0	0	0	0	0	0	0	0	0	0	
2.8	0	0	3	0	0	0	0	0	0	0	0	3	0	1.000
2.9	0	0	3	0	0	0	0	0	0	0	0	3	0	1.000
3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3.1	0	0	1	0	0	0	0	0	0	0	0	1	0	1.000
3.2	0	0	1	0	0	0	0	0	0	0	0	1	0	1.000
3.3	0	0	0	0	0	0	0	0	0	0	0	0	0	
3.4	0	0	2	0	0	0	0	0	0	0	0	2	0	1.000
3.5	0	0	1	0	0	0	0	0	0	0	0	1	0	1.000
3.6	0	0	0	0	0	0	0	0	0	0	0	0	0	
3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	
3.8	0	0	0	0	0	0	0	0	0	0	0	0	0	
3.9	0	0	2	0	0	0	0	0	0	0	0	2	0	1.000
4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table 1. DCPD Revised LAR POPCD Data <sup>(1, 6)</sup>

Column	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	EOC <sub>n</sub> and EOC <sub>n+1</sub> Bobbin Detected for POPCD Analysis <sup>(2)</sup>		EOC <sub>n</sub> Bobbin Ind., RPC Confirmed or Not Inspected at EOC <sub>n</sub> & Repaired at EOC <sub>n</sub>	EOC <sub>n</sub> Bobbin Detected Ind. Excluded from POPCD		New EOC <sub>n+1</sub> (Undetected or RPC NDD at EOC <sub>n</sub> ) Ind. for POPCD Analysis				EOC <sub>n</sub> Ind. Found Only <sup>(5b)</sup> by RPC Inspection and Plugged at EOC <sub>n</sub>	New EOC <sub>n+1</sub> Excluded from POPCD	POPCD Calculation <sup>(1)</sup>		
Voltage Bin <sup>(5)</sup>	EOC <sub>n</sub> Bobbin Ind. RPC Confirmed at EOC <sub>n+1</sub>	EOC <sub>n</sub> Bobbin Ind. Not RPC Inspected at EOC <sub>n+1</sub>		EOC <sub>n</sub> Bobbin Ind. RPC NDD at EOC <sub>n+1</sub> or at EOC <sub>n</sub> and Plugged at EOC <sub>n</sub>	EOC <sub>n</sub> Bobbin Ind. INR <sup>(4)</sup> at EOC <sub>n+1</sub> & Not RPC Inspected at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Bobbin Ind. RPC Confirmed at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Bobbin Ind. Not RPC Inspected at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Ind. Found Only <sup>(5)</sup> by RPC Inspection	This Column Intentionally Left Empty			New EOC <sub>n+1</sub> Bobbin Ind. RPC NDD at EOC <sub>n+1</sub>	EOC <sub>n</sub> Bobbin Detected Ind.	New EOC <sub>n+1</sub> ODSCC Ind.
4.1	0	0	1	0	0	0	0	0	0	0	0	1	0	1.000
4.2	0	0	1	0	0	0	0	0	0	0	0	1	0	1.000
4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	
4.4	0	0	2	0	0	0	0	0	0	0	0	2	0	1.000
4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	
4.6	0	0	0	0	0	0	0	0	0	0	0	0	0	
4.7	0	0	0	0	0	0	0	0	0	0	0	0	0	
4.8	0	0	0	0	0	0	0	0	0	0	0	0	0	
4.9	0	0	0	0	0	0	0	0	0	0	0	0	0	
5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5.1	0	0	1	0	0	0	0	0	0	0	0	1	0	1.000
5.2	0	0	0	0	0	0	0	0	0	0	0	0	0	
5.3	0	0	1	0	0	0	0	0	0	0	0	1	0	1.000
5.4	0	0	0	0	0	0	0	0	0	0	0	0	0	
5.5	0	0	1	0	0	0	0	0	0	0	0	1	0	1.000
5.6	0	0	0	0	0	0	0	0	0	0	0	0	0	
5.7	0	0	0	0	0	0	0	0	0	0	0	0	0	
5.8	0	0	0	0	0	0	0	0	0	0	0	0	0	
5.9	0	0	0	0	0	0	0	0	0	0	0	0	0	
6.0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table 1. DCPP Revised LAR POPCD Data <sup>(1, 6)</sup>

Column	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	EOC <sub>n</sub> and EOC <sub>n+1</sub> Bobbin Detected for POPCD Analysis <sup>(2)</sup>		EOC <sub>n</sub> Bobbin Ind., RPC Confirmed or Not Inspected at EOC <sub>n</sub> & Repaired at EOC <sub>n</sub>	EOC <sub>n</sub> Bobbin Detected Ind. Excluded from POPCD		New EOC <sub>n+1</sub> (Undetected or RPC NDD at EOC <sub>n</sub> ) Ind. for POPCD Analysis				EOC <sub>n</sub> Ind. Found Only <sup>(5b)</sup> by RPC Inspection and Plugged at EOC <sub>n</sub>	New EOC <sub>n+1</sub> Excluded from POPCD	POPCD Calculation <sup>(1)</sup>		
Voltage Bin <sup>(3)</sup>	EOC <sub>n</sub> Bobbin Ind. RPC Confirmed at EOC <sub>n+1</sub>	EOC <sub>n</sub> Bobbin Ind. Not RPC Inspected at EOC <sub>n+1</sub>		EOC <sub>n</sub> Bobbin Ind. RPC NDD at EOC <sub>n+1</sub> or at EOC <sub>n</sub> and Plugged at EOC <sub>n</sub>	EOC <sub>n</sub> Bobbin Ind. INR <sup>(4)</sup> at EOC <sub>n+1</sub> & Not RPC Inspected at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Bobbin Ind. RPC Confirmed at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Bobbin Ind. Not RPC Inspected at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Ind. Found Only <sup>(5)</sup> by RPC Inspection	This Column Intentionally Left Empty			New EOC <sub>n+1</sub> Bobbin Ind. RPC NDD at EOC <sub>n+1</sub>	EOC <sub>n</sub> Bobbin Detected Ind.	New EOC <sub>n+1</sub> ODSCC Ind.
Total	693	1399	98	93	54	542	1781	157	0	18	101	2190	2498	

Notes:

- POPCD for each voltage bin calculated as (EOC<sub>n</sub> Bobbin Detected for POPCD Analysis)/(EOC<sub>n</sub> Bobbin Detected for POPCD Analysis + New EOC<sub>n+1</sub> Ind. for POPCD Analysis). By column, POPCD = (B+C+D)/[(B+C+D)+(G+H+I+J+K)].
- EOC<sub>n</sub> detection based on inspection records for EOC<sub>n</sub>. Voltages obtained from EOC<sub>n</sub> inspection records.
- Plant specific POPCD to be based upon voltage bins of 0.10 volt. Industry POPCD database may use 0.20 volt bins due to difficulty of adjusting existing database to smaller bins.
- INR = bobbin indication found at EOC<sub>n</sub> but not reported at EOC<sub>n+1</sub> including resolution analyst review to assign indication as INR. Bobbin indications found to be RPC NDD or INR are considered to be false calls and not included in the POPCD analysis.
- (a) Includes new indications at EOC<sub>n+1</sub>, not reported in the bobbin inspection, and found by RPC inspection of dents, mixed residuals or other reasons for the RPC inspection. These indications are included as new indications at each EOC<sub>n+1</sub> found only by RPC inspection even if included as a new indication in previous POPCD evaluations. (b) If the RPC inspection identifies more than one ODSCC indication at the same TSP intersection, the bobbin voltage assigned to the TSP is estimated as the square root of the sum of squares for the bobbin voltages inferred from the RPC indications.
- The sum of all EOC<sub>n</sub> bobbin indications = sum of columns B through F. The sum of all EOC<sub>n+1</sub> bobbin indications = sum of columns B+C+E+G+H+J+L.
- Indications found to be RPC NDD at EOC<sub>n</sub> are classified for POPCD as not detected at EOC<sub>n</sub>. If detected by bobbin at EOC<sub>n+1</sub> with confirmation by RPC or no RPC inspection and if detected only by RPC, they are considered as new EOC<sub>n+1</sub> indications for the POPCD analysis.

Table 2. DCP New NRC POPCD Data <sup>(1, 6)</sup>

Column	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	EOC <sub>n</sub> and EOC <sub>n+1</sub> Bobbin Detected for POPCD Analysis <sup>(2)</sup>		EOC <sub>n</sub> Bobbin Ind., RPC Confirmed or Not Inspected at EOC <sub>n</sub> & Repaired at EOC <sub>n</sub>	EOC <sub>n</sub> Bobbin Detected Ind. Excluded from POPCD		New EOC <sub>n+1</sub> (Undetected or RPC NDD at EOC <sub>n</sub> ) Ind. for POPCD Analysis				EOC <sub>n</sub> Ind. Found Only <sup>(5)</sup> by RPC Inspection and Plugged at EOC <sub>n</sub>	New EOC <sub>n+1</sub> Bobbin Ind. RPC NDD at EOC <sub>n+1</sub>	POPCD Calculation <sup>(1)</sup>		
Voltage Bin <sup>(3)</sup>	EOC <sub>n</sub> Bobbin Ind. RPC Confirmed at EOC <sub>n+1</sub> (Excludes EOC <sub>n</sub> RPC NDD in Col. J)	EOC <sub>n</sub> Bobbin Ind. Not RPC Inspected at EOC <sub>n+1</sub> (Excludes EOC <sub>n</sub> RPC NDD in Col. J)		EOC <sub>n</sub> Bobbin Ind. RPC NDD at EOC <sub>n+1</sub> or at EOC <sub>n</sub> and Plugged at EOC <sub>n</sub>	EOC <sub>n</sub> Bobbin Ind. INR <sup>(4)</sup> at EOC <sub>n+1</sub> & Not RPC Inspected at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Bobbin Ind. RPC Confirmed at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Bobbin Ind. Not RPC Inspected at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Ind. Found Only <sup>(5)</sup> by RPC Inspection	EOC <sub>n+1</sub> Bobbin Ind., RPC Conf. or Not Insp. or Found Only by RPC that was EOC <sub>n</sub> Bobbin detected but RPC NDD <sup>(7)</sup>			New EOC <sub>n+1</sub> Bobbin Ind. RPC NDD at EOC <sub>n+1</sub>	EOC <sub>n</sub> Bobbin Detected Ind.	New EOC <sub>n+1</sub> ODS <sub>CC</sub> Ind.
0.1	3	1	0	0	0	23	51	0	0	0	6	4	74	0.051
0.2	13	37	2	5	4	100	389	0	25	1	18	52	515	0.092
0.3	49	177	5	25	9	132	516	29	25	0	27	231	702	0.248
0.4	69	265	17	11	14	104	384	88	26	1	20	351	603	0.368
0.5	68	253	8	15	14	65	199	27	10	3	6	329	304	0.520
0.6	77	191	8	14	4	38	113	11	7	10	7	276	179	0.607
0.7	73	140	4	10	5	27	59	1	7	3	8	217	97	0.691
0.8	51	85	7	5	1	19	37	1	5	0	3	143	62	0.698
0.9	57	64	2	2	2	16	14	0	4	0	1	123	34	0.783
1.0	36	38	1	1	1	4	5	0	0	0	1	75	9	0.893
1.1	35	16	6	0	0	6	6	0	0	0	2	57	12	0.826
1.2	17	21	2	3	0	3	3	0	2	0	2	40	8	0.833
1.3	22	18	0	1	0	2	4	0	0	0	0	40	6	0.870
1.4	27	9	2	1	0	2	1	0	0	0	0	38	3	0.927
1.5	13	7	1	0	0	1	0	0	0	0	0	21	1	0.955
1.6	7	4	1	0	0	0	0	0	0	0	0	12	0	1.000
1.7	10	1	0	0	0	0	0	0	0	0	0	11	0	1.000
1.8	8	1	0	0	0	0	0	0	0	0	0	9	0	1.000
1.9	7	0	0	0	0	0	0	0	0	0	0	7	0	1.000
2.0	10	1	0	0	0	0	0	0	0	0	0	11	0	1.000

Table 2. DCP New NRC POPCD Data <sup>(1, 6)</sup>

Column	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	EOC <sub>n</sub> and EOC <sub>n+1</sub> Bobbin Detected for POPCD Analysis <sup>(2)</sup>		EOC <sub>n</sub> Bobbin Ind., RPC Confirmed or Not Inspected at EOC <sub>n</sub> & Repaired at EOC <sub>n</sub>	EOC <sub>n</sub> Bobbin Detected Ind. Excluded from POPCD		New EOC <sub>n+1</sub> (Undetected or RPC NDD at EOC <sub>n</sub> ) Ind. for POPCD Analysis				EOC <sub>n</sub> Ind. Found Only <sup>(5b)</sup> by RPC Inspection and Plugged at EOC <sub>n</sub>	New EOC <sub>n+1</sub> Excluded from POPCD	POPCD Calculation <sup>(1)</sup>		
Voltage Bin <sup>(5)</sup>	EOC <sub>n</sub> Bobbin Ind. RPC Confirmed at EOC <sub>n+1</sub> (Excludes EOC <sub>n</sub> RPC NDD in Col. J)	EOC <sub>n</sub> Bobbin Ind. Not RPC Inspected at EOC <sub>n+1</sub> (Excludes EOC <sub>n</sub> RPC NDD in Col. J)		EOC <sub>n</sub> Bobbin Ind. RPC NDD at EOC <sub>n+1</sub> or at EOC <sub>n</sub> and Plugged at EOC <sub>n</sub>	EOC <sub>n</sub> Bobbin Ind. INR <sup>(4)</sup> at EOC <sub>n+1</sub> & Not RPC Inspected at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Bobbin Ind. RPC Confirmed at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Bobbin Ind. Not RPC Inspected at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Ind. Found Only <sup>(5)</sup> by RPC Inspection	EOC <sub>n+1</sub> Bobbin Ind., RPC Conf. or Not Insp. or Found Only by RPC that was EOC <sub>n</sub> Bobbin detected but RPC NDD <sup>(7)</sup>		New EOC <sub>n+1</sub> Bobbin Ind. RPC NDD at EOC <sub>n+1</sub>	EOC <sub>n</sub> Bobbin Detected Ind.	New EOC <sub>n+1</sub> ODSCC Ind.	POPCD for Voltage Bin
2.1	0	0	0	0	0	0	0	0	0	0	0	0	0	
2.2	0	0	5	0	0	0	0	0	0	0	0	5	0	1.000
2.3	0	0	3	0	0	0	0	0	0	0	0	3	0	1.000
2.4	0	0	2	0	0	0	0	0	0	0	0	2	0	1.000
2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	
2.6	0	0	2	0	0	0	0	0	0	0	0	2	0	1.000
2.7	0	0	0	0	0	0	0	0	0	0	0	0	0	
2.8	0	0	3	0	0	0	0	0	0	0	0	3	0	1.000
2.9	0	0	3	0	0	0	0	0	0	0	0	3	0	1.000
3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3.1	0	0	1	0	0	0	0	0	0	0	0	1	0	1.000
3.2	0	0	1	0	0	0	0	0	0	0	0	1	0	1.000
3.3	0	0	0	0	0	0	0	0	0	0	0	0	0	
3.4	0	0	2	0	0	0	0	0	0	0	0	2	0	1.000
3.5	0	0	1	0	0	0	0	0	0	0	0	1	0	1.000
3.6	0	0	0	0	0	0	0	0	0	0	0	0	0	
3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	
3.8	0	0	0	0	0	0	0	0	0	0	0	0	0	
3.9	0	0	2	0	0	0	0	0	0	0	0	2	0	1.000
4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table 2. DCP New NRC POPCD Data <sup>(1, 6)</sup>

Column	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	EOC <sub>n</sub> and EOC <sub>n+1</sub> Bobbin Detected for POPCD Analysis <sup>(2)</sup>		EOC <sub>n</sub> Bobbin Ind., RPC Confirmed or Not Inspected at EOC <sub>n</sub> & Repaired at EOC <sub>n</sub>	EOC <sub>n</sub> Bobbin Detected Ind. Excluded from POPCD		New EOC <sub>n+1</sub> (Undetected or RPC NDD at EOC <sub>n</sub> ) Ind. for POPCD Analysis				EOC <sub>n</sub> Ind. Found Only <sup>(5b)</sup> by RPC Inspection and Plugged at EOC <sub>n</sub>	New EOC <sub>n+1</sub> Bobbin Ind. RPC NDD at EOC <sub>n+1</sub>	POPCD Calculation <sup>(1)</sup>		
Voltage Bin <sup>(5)</sup>	EOC <sub>n</sub> Bobbin Ind. RPC Confirmed at EOC <sub>n+1</sub> (Excludes EOC <sub>n</sub> RPC NDD in Col. J)	EOC <sub>n</sub> Bobbin Ind. Not RPC Inspected at EOC <sub>n+1</sub> (Excludes EOC <sub>n</sub> RPC NDD in Col. J)		EOC <sub>n</sub> Bobbin Ind. RPC NDD at EOC <sub>n+1</sub> or at EOC <sub>n</sub> and Plugged at EOC <sub>n</sub>	EOC <sub>n</sub> Bobbin Ind. INR <sup>(4)</sup> & Not RPC Inspected at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Bobbin Ind. RPC Confirmed at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Bobbin Ind. Not RPC Inspected at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Ind. Found Only <sup>(5)</sup> by RPC Inspection	EOC <sub>n+1</sub> Bobbin Ind., RPC Conf. or Not Insp. or Found Only by RPC that was EOC <sub>n</sub> Bobbin detected but RPC NDD <sup>(7)</sup>			New EOC <sub>n+1</sub> Bobbin Ind. RPC NDD at EOC <sub>n+1</sub>	EOC <sub>n</sub> Bobbin Detected Ind.	New EOC <sub>n+1</sub> ODSCC Ind.
4.1	0	0	1	0	0	0	0	0	0	0	0	1	0	1.000
4.2	0	0	1	0	0	0	0	0	0	0	0	1	0	1.000
4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	
4.4	0	0	2	0	0	0	0	0	0	0	0	2	0	1.000
4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	
4.6	0	0	0	0	0	0	0	0	0	0	0	0	0	
4.7	0	0	0	0	0	0	0	0	0	0	0	0	0	
4.8	0	0	0	0	0	0	0	0	0	0	0	0	0	
4.9	0	0	0	0	0	0	0	0	0	0	0	0	0	
5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5.1	0	0	1	0	0	0	0	0	0	0	0	1	0	1.000
5.2	0	0	0	0	0	0	0	0	0	0	0	0	0	
5.3	0	0	1	0	0	0	0	0	0	0	0	1	0	1.000
5.4	0	0	0	0	0	0	0	0	0	0	0	0	0	
5.5	0	0	1	0	0	0	0	0	0	0	0	1	0	1.000
5.6	0	0	0	0	0	0	0	0	0	0	0	0	0	
5.7	0	0	0	0	0	0	0	0	0	0	0	0	0	
5.8	0	0	0	0	0	0	0	0	0	0	0	0	0	
5.9	0	0	0	0	0	0	0	0	0	0	0	0	0	
6.0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table 2. DCPP New NRC POPCD Data <sup>(1, 6)</sup>

Column	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	EOC <sub>n</sub> and EOC <sub>n+1</sub> Bobbin Detected for POPCD Analysis <sup>(2)</sup>		EOC <sub>n</sub> Bobbin Ind., RPC Confirmed or Not Inspected at EOC <sub>n</sub> & Repaired at EOC <sub>n</sub>	EOC <sub>n</sub> Bobbin Detected Ind. Excluded from POPCD		New EOC <sub>n+1</sub> (Undetected or RPC NDD at EOC <sub>n</sub> ) Ind. for POPCD Analysis				EOC <sub>n</sub> Ind. Found Only <sup>(5b)</sup> by RPC Inspection and Plugged at EOC <sub>n</sub>	New EOC <sub>n+1</sub> Excluded from POPCD	POPCD Calculation <sup>(1)</sup>		
Voltage Bin <sup>(5)</sup>	EOC <sub>n</sub> Bobbin Ind. RPC Confirmed at EOC <sub>n+1</sub> (Excludes EOC <sub>n</sub> RPC NDD in Col. J)	EOC <sub>n</sub> Bobbin Ind. Not RPC Inspected at EOC <sub>n+1</sub> (Excludes EOC <sub>n</sub> RPC NDD in Col. J)		EOC <sub>n</sub> Bobbin Ind. RPC NDD at EOC <sub>n+1</sub> or at EOC <sub>n</sub> and Plugged at EOC <sub>n</sub>	EOC <sub>n</sub> Bobbin Ind. INR <sup>(4)</sup> at EOC <sub>n+1</sub> & Not RPC Inspected at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Bobbin Ind. RPC Confirmed at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Bobbin Ind. Not RPC Inspected at EOC <sub>n+1</sub>	New EOC <sub>n+1</sub> Ind. Found Only <sup>(5)</sup> by RPC Inspection	EOC <sub>n+1</sub> Bobbin Ind., RPC Conf. or Not Insp. or Found Only by RPC that was EOC <sub>n</sub> Bobbin detected but RPC NDD <sup>(7)</sup>		New EOC <sub>n+1</sub> Bobbin Ind. RPC NDD at EOC <sub>n+1</sub>	EOC <sub>n</sub> Bobbin Detected Ind.	New EOC <sub>n+1</sub> ODSCC Ind.	POPCD for Voltage Bin
Total	652	1329	98	93	54	542	1781	157	111	18	101	2079	2609	

Notes:

1. POPCD for each voltage bin calculated as (EOC<sub>n</sub> Bobbin Detected for POPCD Analysis)/(EOC<sub>n</sub> Bobbin Detected for POPCD Analysis + New EOC<sub>n+1</sub> Ind. for POPCD Analysis). By column, POPCD = (B+C+D)/[(B+C+D)+(G+H+I+J+K)].
2. EOC<sub>n</sub> detection based on inspection records for EOC<sub>n</sub>. Voltages obtained from EOC<sub>n</sub> inspection records.
3. Plant specific POPCD to be based upon voltage bins of 0.10 volt. Industry POPCD database may use 0.20 volt bins due to difficulty of adjusting existing database to smaller bins.
4. INR = bobbin indication found at EOC<sub>n</sub> but not reported at EOC<sub>n+1</sub> including resolution analyst review to assign indication as INR. Bobbin indications found to be RPC NDD or INR are considered to be false calls and not included in the POPCD analysis.
5. (a) Includes new indications at EOC<sub>n+1</sub>, not reported in the bobbin inspection, and found by RPC inspection of dents, mixed residuals or other reasons for the RPC inspection. These indications are included as new indications at each EOC<sub>n+1</sub> found only by RPC inspection even if included as a new indication in previous POPCD evaluations. (b) If the RPC inspection identifies more than one ODSCC indication at the same TSP intersection, the bobbin voltage assigned to the TSP is estimated as the square root of the sum of squares for the bobbin voltages inferred from the RPC indications.
6. The sum of all EOC<sub>n</sub> bobbin indications = sum of columns B through F. The sum of all EOC<sub>n+1</sub> bobbin indications = sum of columns B+C+E+G+H+J+L.
7. Indications found to be RPC NDD at EOC<sub>n</sub> are classified for POPCD as not detected at EOC<sub>n</sub>. If detected by bobbin at EOC<sub>n+1</sub> with confirmation by RPC or no RPC inspection and if detected only by RPC, they are considered as new EOC<sub>n+1</sub> indications for the POPCD analysis.

**Table 3**  
**DCPP POPCD Loglogistic Parameters**

Parameter	Revised LAR POPCD LogLogistic	New NRC POPCD LogLogistic	LAR POPCD LogLogistic (from Table 6 of DCL-03-078)
Number of Data Points	4688	4688	4646
a.0 (intercept)	1.658	1.644	1.7673
a.1 (slope)	4.385	4.659	4.7049
V11	0.00511	0.00522	0.00546
V12	0.00997	0.01043	0.01078
V22	0.02473	0.02654	0.02687
Deviance	5351	5221	5188.56
MSE	0.195	0.1890	0.1895
Binary	TRUE	TRUE	TRUE
Chi Sqr	912	885.5	879.82
DoF	4686	4686	4644
p-Value	< 2.9E-07	< 2.9E-07	< 2.9E-07

**Table 4**  
**Diablo Canyon Unit 2 End of Cycle 12**  
**Monte Carlo Results With Voltage Dependent Growth**

Steam Generator	95 Percent Upper Confidence Limit Probability of Burst (1 or More Failures)			Steam Line Break Leak Rate (gpm)		
	Revised LAR POPCD	New NRC POPCD	LAR POPCD	Revised LAR POPCD	New NRC POPCD	LAR POPCD
SG 2-1	9.02E-04	9.69E-04	9.60E-04	0.72	0.75	0.72
SG 2-2	9.13E-04	9.90E-04	7.54E-04	0.61	0.62	0.60
SG 2-3	7.48E-04	7.00E-04	6.69E-04	0.49	0.50	0.48
SG 2-4	6.46E-03	6.01E-03	5.52E-03	2.89	2.93	2.81

Table 5a. POPCD Matrix for Indications  $\leq 1.00v$  at  $EOC_n$  (NRC Requested Format)

POPCD Matrix for Indications $\leq 1.00v$ at $EOC_n$															
$EOC_n$				BDD at $EOC_{n+1}$						BND at $EOC_{n+1}$					
				BDD w/o RPC		BDD w/RDD		BDD w/RND		BND w/o RPC		BND w/RDD		BND w/RND	
				Plugged	Not Plugged	Plugged	Not Plugged	Plugged	Not Plugged	Plugged	Not Plugged	Plugged	Not Plugged	Plugged	Not Plugged
BDD at $EOC_n$	BDD w/o RPC	Plugged	11												
		Not Plugged		40	968	132	158	0	33	0	24	0	0	0	0
	BDD w/ RDD	Plugged	43												
		Not Plugged		1	242	17	185	0	1	0	0	0	4	0	1
	BDD w/ RND	Plugged	2												
		Not Plugged		3	66	7	33	0	48	0	30	0	0	0	3
BND at $EOC_n$	BND w/o RPC	Plugged													
		Not Plugged		43	1721	89	420	4	88	No Count	No Count	24	91	No Count	No Count
	BND w/ RDD	Plugged	18												
		Not Plugged		0	2	0	11	0	0	No Count	No Count	3	21	No Count	No Count
	BND w/ RND	Plugged													
		Not Plugged		0	1	3	5	0	5	No Count	No Count	11	7	No Count	No Count

Table 5b. POPCD Matrix for Indications >1.00v and <=2.00v at EOC<sub>n</sub> (NRC Requested Format)

POPCD Matrix for Indications >1.00v and <=2.00v at EOC <sub>n</sub>															
EOC <sub>n</sub>				BDD at EOC <sub>n+1</sub>						BND at EOC <sub>n+1</sub>					
				BDD w/o RPC		BDD w/RDD		BDD w/RND		BND w/o RPC		BND w/RDD		BND w/RND	
				Plugged	Not Plugged	Plugged	Not Plugged	Plugged	Not Plugged	Plugged	Not Plugged	Plugged	Not Plugged	Plugged	Not Plugged
<b>BDD at EOC<sub>n</sub></b>	BDD w/o RPC	Plugged	9												
		Not Plugged		0	52	130	4	0	2	0	0	0	0	0	0
	BDD w/ RDD	Plugged	3												
		Not Plugged		1	25	15	7	0	0	0	0	0	0	0	0
	BDD w/ RND	Plugged	1												
		Not Plugged		0	1	0	1	0	2	0	0	0	0	0	0
<b>BND at EOC<sub>n</sub></b>	BND w/o RPC	Plugged													
		Not Plugged		0	14	3	11	1	3	No Count	No Count	0	0	No Count	No Count
	BND w/ RDD	Plugged	0												
		Not Plugged		0	0	0	0	0	0	No Count	No Count	0	0	No Count	No Count
	BND w/ RND	Plugged													
		Not Plugged		0	0	0	0	0	0	No Count	No Count	0	0	No Count	No Count

Table 5c. POPCD Matrix for Indications >2.00v at EOC<sub>n</sub> (NRC Requested Format)

POPCD Matrix for Indications >2.00v at EOC <sub>n</sub>															
EOC <sub>n</sub>				BDD at EOC <sub>n+1</sub>						BND at EOC <sub>n+1</sub>					
				BDD w/o RPC		BDD w/RDD		BDD w/RND		BND w/o RPC		BND w/RDD		BND w/RND	
				Plugged	Not Plugged	Plugged	Not Plugged	Plugged	Not Plugged	Plugged	Not Plugged	Plugged	Not Plugged	Plugged	Not Plugged
BDD at EOC <sub>n</sub>	BDD w/o RPC	Plugged	0												
		Not Plugged		0	0	0	0	0	0	0	0	0	0	0	
	BDD w/ RDD	Plugged	32												
		Not Plugged		0	0	0	0	0	0	0	0	0	0	0	
	BDD w/ RND	Plugged	0												
		Not Plugged		0	0	0	0	0	0	0	0	0	0	0	
BND at EOC <sub>n</sub>	BND w/o RPC	Plugged													
		Not Plugged		0	0	0	0	0	0	No Count	No Count	0	0	No Count	No Count
	BND w/ RDD	Plugged	0												
		Not Plugged		0	0	0	0	0	0	0	No Count	No Count	0	0	No Count
	BND w/ RND	Plugged													
		Not Plugged		0	0	0	0	0	0	0	No Count	No Count	0	0	No Count

Table 5d. POPCD Matrix for All Indications (NRC Requested Format)

POPCD Matrix for All Indications															
EOC <sub>n</sub>				BDD at EOC <sub>n+1</sub>						BND at EOC <sub>n+1</sub>					
				BDD w/o RPC		BDD w/RDD		BDD w/RND		BND w/o RPC		BND w/RDD		BND w/RND	
				Plugged	Not Plugged	Plugged	Not Plugged	Plugged	Not Plugged	Plugged	Not Plugged	Plugged	Not Plugged	Plugged	Not Plugged
BDD at EOC <sub>n</sub>	BDD w/o RPC	Plugged	20												
		Not Plugged		40	1020	262	162	0	35	0	24	0	0	0	0
	BDD w/ RDD	Plugged	78												
		Not Plugged		2	267	32	192	0	1	0	0	0	4	0	1
	BDD w/ RND	Plugged	3												
		Not Plugged		3	67	7	34	0	50	0	30	0	0	0	3
BND at EOC <sub>n</sub>	BND w/o RPC	Plugged													
		Not Plugged		43	1735	92	431	5	91	No Count	No Count	24	91	No Count	No Count
	BND w/ RDD	Plugged	18												
		Not Plugged		0	2	0	11	0	0	No Count	No Count	3	21	No Count	No Count
	BND w/ RND	Plugged													
		Not Plugged		0	1	3	5	0	5	No Count	No Count	11	7	No Count	No Count

BDD = Bobbin detected indication  
 BND = Bobbin no detectable degradation intersection  
 RDD = RPC detected indication  
 RND = RPC no detectable degradation intersection  
 No Count = Intersections having no bobbin or RPC indication at either EOC<sub>n</sub> or EOC<sub>n+1</sub>.

Figure 1

DCPP Revised LAR POPCD Distribution - Nominal & Lower 90% Confidence Level  
GLM Loglogistic Fit Weighted by Number of Indications Per Voltage Bin - Revised LAR POPCD Data (8/1/03)

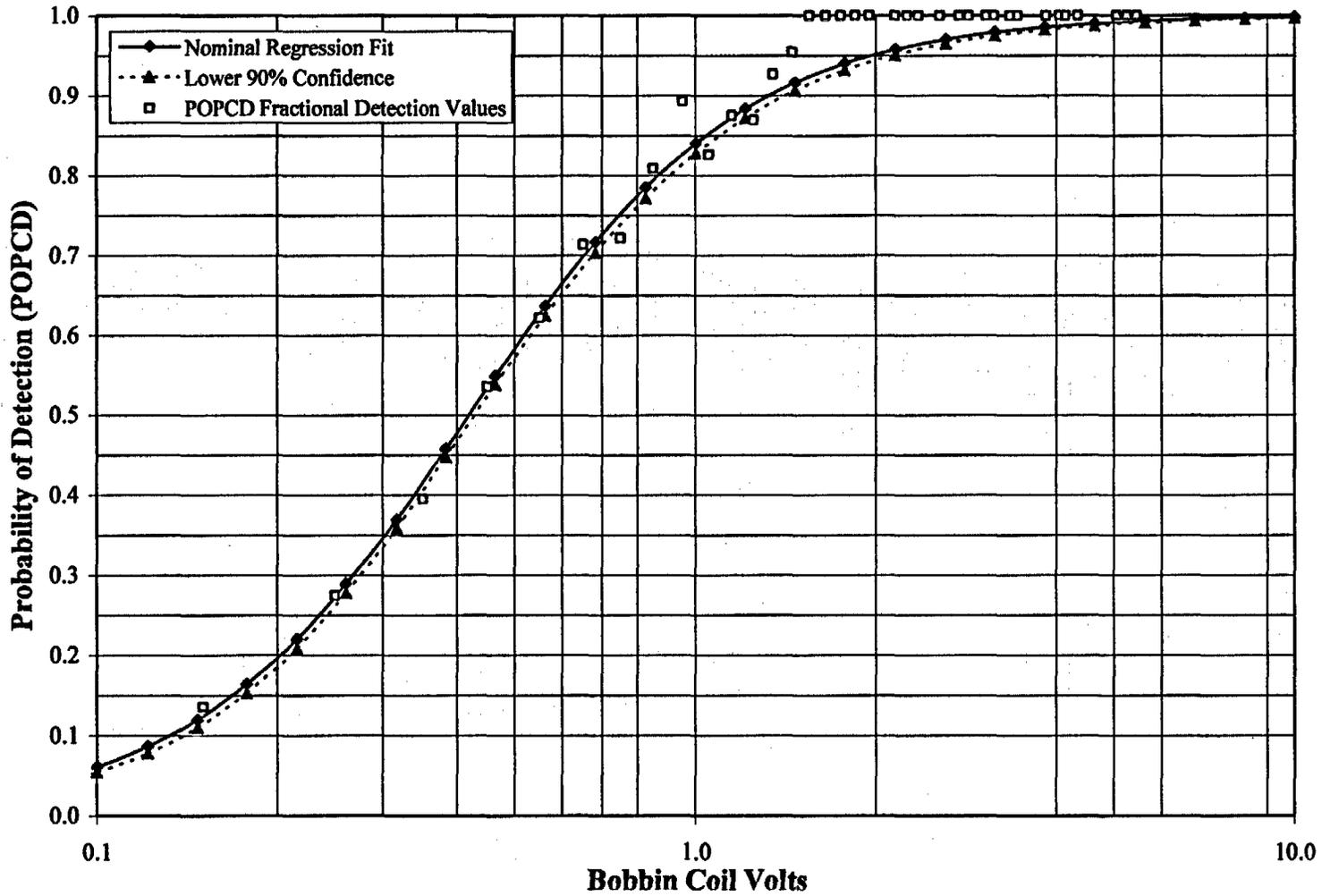


Figure 2

Comparison of DCPD Revised LAR and LAR POPCD Distributions

GLM Loglogistic Fit Weighted by No. of Indications Per Voltage Bin - Revised LAR POPCD Data (8/1/03)

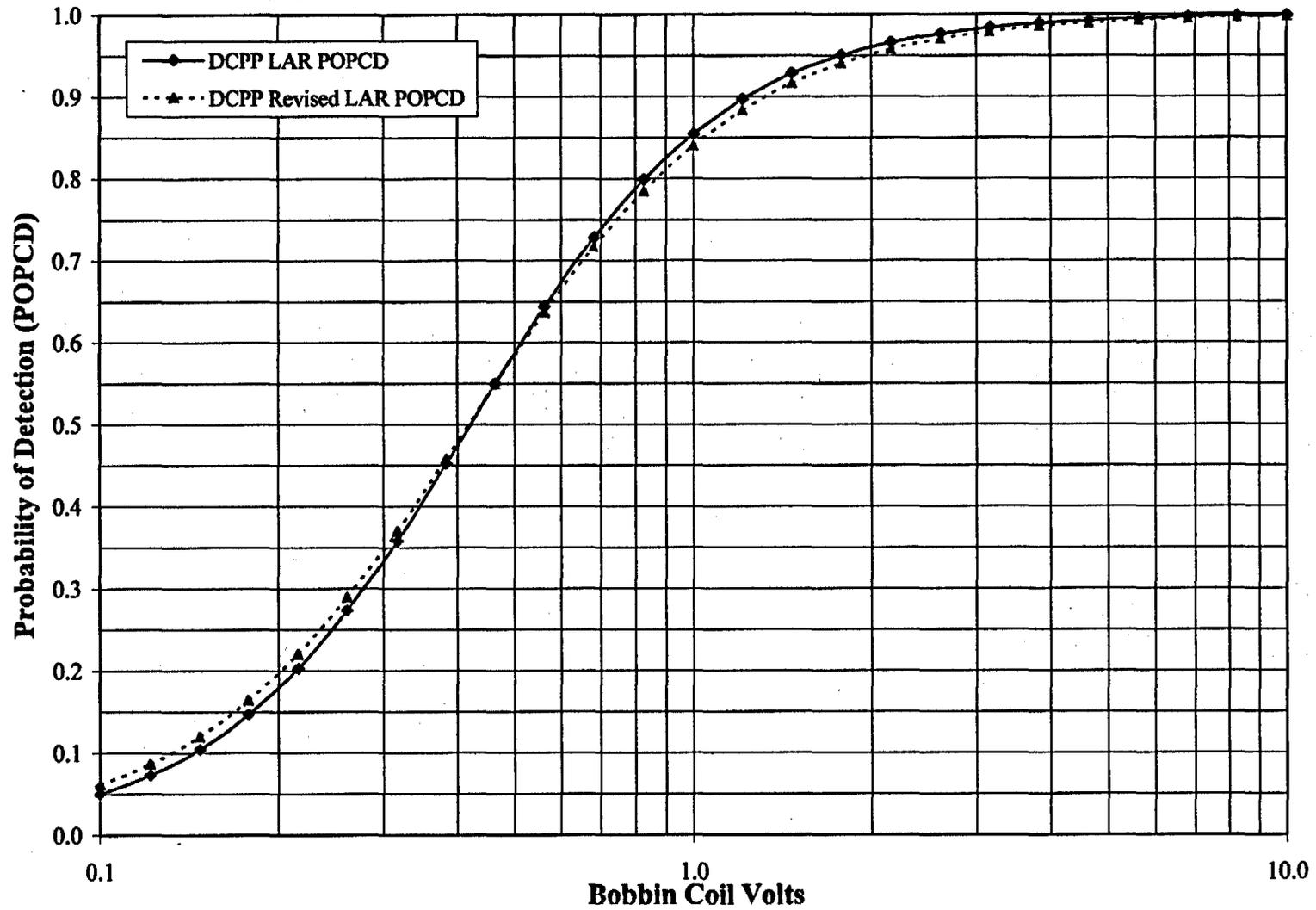


Figure 3

Comparison of DCPD Revised LAR and New NRC POPCD Distributions

GLM Logistic Fit Weighted by No. of Indications Per Voltage Bin - Revised LAR POPCD Data (8/1/03)

