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Exhibit Number	:	ORA-04D
Commissioner	:	C. Peterman
ALJ	:	J. Wong
Witness	:	D. Phan

OFFICE OF RATEPAYER ADVOCATES
CALIFORNIA PUBLIC UTILITIES COMMISSION

Report on the Results of Operations for Pacific Gas and Electric Company Test Year 2015 Gas Transmission and Storage Rate Case

Chapter 4
Transmission Pipe Integrity and Emergency Response Programs: Direct Assessment

San Francisco, California
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DIRECT ASSESSMENT

I. INTRODUCTION

This exhibit presents the analyses and recommendations of the Office of Ratepayer Advocates (ORA) regarding Pacific Gas and Electric Company's (PG&E) Direct Assessment (DA) proposals associated with its Test Year (TY) 2015 Gas Transmission and Storage (GT&S) rate case. Specifically, this exhibit addresses PG&E's forecasts of Direct Assessment operation and maintenance (O&M) expenses for 2015. There are no capital expenditures for Direct Assessment. O&M expenses for years 2016 and 2017 are addressed in Exhibit ORA-18.

PG&E states, "Direct Assessment is another method of conducting assessments of pipeline integrity. DA is used to evaluate the possibility of time dependent threats of external corrosion, internal corrosion, and stress corrosion cracking."[1] Direct assessment is identified in the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration's Gas Pipeline Integrity Management Rule as one of three acceptable methods for evaluating the integrity of a pipeline segment.[2] The other two methods are in-line inspection and hydrostatic pressure testing.

PG&E requests $46.521 million for TY 2015.[3] Of the $46.521 million PG&E requests for Direct Assessment, $28.336 million is for External Corrosion Direct Assessment (ECDA), $15.328 million for Internal Corrosion Direct Assessment, (ICDA) and $2.857 million for Stress Corrosion Cracking Direct Assessment (SCCDA).

[1] PG&E Prepared Testimony, Volume 1 (Barnes), p. 4A-24.

[2] http://primis.phmsa.dot.gov/comm/FactSheets/FSdirectAssessmentGas.htm

[3] PG&E's Response to ORA-DR-83, Q. 7, Att.1.

II. SUMMARY OF RECOMMENDATIONS

The following summarizes ORA's recommendations regarding Direct Assessment O&M expenses:

- ORA recommends $22.976 million for Direct Assessment expenses compared to PG&E's request of $46.521 million for 2015.
- ORA recommends $12.489 million for ECDA compared to PG&E's request of $28.336 million. ORA recommends $7.630 million for ICDA compared to PG&E's request of $15.328 million.
- ORA's recommendation is driven by not including the costs for the 920 miles of distribution pipe PG&E is planning on converting to transmission. PG&E has received funding via the 2014 General Rate Case to perform operations and maintenance on those pipelines, and this funding continues through 2016.
- ORA does not oppose PG&E's request of $2.857 million for SCCDA.
- ORA recommends an increased level of attrition in 2017 to include the newly converted transmission pipe within the GT&S rate case at that time.

Table 04D-1 compares ORA's and PG&E's TY2015 forecasts of Direct Examination expenses:

Table 04D-1
Direct Examination—MWC HP
Expenses for TY2015
(In Thousands of Dollars)

Description (a)	ORA Recommended (b)	PG&E Proposed (c)	Amount PG&E>ORA (d=c-b)	Percentage PG&E>ORA (e=d/b)
External Corrosion Direct Assessment	$12,489	$28,336	$15,847	127%
Internal Corrosion Direct Assessment	$7,630	$15,328	$7,698	101%
Stress Corrosion Cracking Direct Assessment	$2,857	$2,857	$0	0%
Total Direct Assessment	$22,976	$46,521	$23,545	102%

III. GENERAL OVERVIEW

DA is an evaluation process used to identify and assess corrosion when in-line inspection (ILI) is not feasible. PG&E states that when a pipeline cannot be made piggable, the industry best practice is to use DA to look for external corrosion, internal corrosion and stress corrosion cracking.[4] ECDA, ICDA, and SCCDA are part of PG&E's Transmission Integrity Management Program because the work focuses on High Consequence Area assessments as required by 49 Code of Federal Regulation (CFR) 192, Subpart O.[5]

For ECDA and ICDA, the gas Integrity Management rule specifies a four-step approach for evaluation corrosion threats using DA.[6] The four steps are: (1) Pre-assessment, (2) Indirect Examination for ECDA and CDA Region Identification for ICDA, (3) Direct Examination, and (4) Post Assessment. In general, the utility must first gather and integrate data to see if ECDA or ICDA is feasible, identify the areas of assessment, determine if the pipe needs to be excavated, perform an examination of the condition of the pipe and its environment, remediate problems identified and address root causes if defects are found. For ECDA, post assessment evaluation and monitoring requires PG&E to determine the segment's remaining life, re-assessment interval, and the effectiveness of using ECDA as an assessment method. For ICDA, the utility must evaluate the effectiveness of the ICDA process, monitor segments where internal corrosion was identified and determine the re-assessment intervals.[7]

SCCDA requires a plan that provides for the gathering and evaluation of all data related to stress corrosion cracking at all operator excavation sites and an

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[4] PG&E Prepared Testimony, Volume 1 (Barnes), p. 4A-26.

[5] PG&E's Response to ORA-DR-70, Q. 7.

[6] http://primis.phmsa.dot.gov/comm/FactSheets/FSdirectAssessmentGas.htm

[7] http://primis.phmsa.dot.gov/comm/FactSheets/FSdirectAssessmentGas.htm

assessment method that can evaluate segments for stress corrosion cracking, severity, and prevalence. Should conditions for SCC be present in a segment, the segment must be assessed and remediated.[8]

According to PG&E, 5,830 miles of its pipelines are classified as transmission, and 28% of these lines (or 1,069 miles) are located in High Consequence Areas, or HCAs.[9] PG&E proposes to re-classify 920 miles of distribution pipe as transmission pipelines beginning in 2015 and estimates 133 miles of the re-classified pipe will likely be located in HCAs.[10] Based on PG&E's estimates, a total of 1,202 miles of its transmission pipelines will be located in HCAs beginning in 2015. According to PG&E, this revision results in incremental increased costs of approximately $18.6 million in 2015 expenses.[11]

This re-classification will have an effect on PG&E's 2017 GRC, and PG&E has already received funding in its 2014 GRC. The Commission should require PG&E to separately identify the number of miles it re-classifies from distribution to transmission and demonstrate that these pipelines are removed from the distribution assets in its 2017 GRC application.

IV. DISCUSSION / ANALYSIS OF DIRECT ASSESSMENT

This section discusses PG&E's request of $46.521 million in expenses for 2015 to conduct assessments of pipeline integrity.[12] The scope of work PG&E has proposed is to assess transmission pipelines located within HCAs that are due for a

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[8] http://primis.phmsa.dot.gov/comm/FactSheets/FSdirectAssessmentGas.htm

[9] PG&E's Response to ORA-DR-14, Q.2; also, PG&E's Annual PHMSA Reports for Calendar Year 2012 for PG&E and for Standard Pacific Gas Line Inc. confirm the total number of HCA miles as 1069. (1040.3 for PG&E + 28.3 for Standard Pacific =1069).

[10] PG&E's Response to ORA-DR-83, Q. 6.

[11] Id, p. 4.

[12] PG&E's Response to ORA-DRA-83, Q.7, Attachment 1. In PG&E Prepared Testimony, Volume 1 (Barnes), Chapter 4A, p. 4A-28, the 2015 request is $44.412 million.

re-assessment under the Integrity Management rules and are not piggable.[13] A HCA is generally defined as an area within which the potential failure of a pipeline could have significant impact on people or property.[14] For 2015, PG&E proposes to conduct ECDA on 95.3 miles of transmission pipelines located in HCAs.[15] PG&E proposes to assess 20.3 miles of pipeline located in HCAs using ICDA and 60 miles of pipelines located in HCAs using SCCDA.[16]

PG&E's 2015 request for ECDA and ICDA expenses focuses on existing transmission pipelines located in HCAs, as well as new transmission pipelines from PG&E's reclassification proposal, estimated to be located in HCAs. PG&E refers to the distribution pipelines it is proposing for reclassification to transmission pipelines estimated to be located in HCAs as "new HCA."[17] PG&E does not propose to perform SCCDA on any new HCAs during this rate case cycle.

ORA recommends the Commission reject PG&E's request for funding to assess the proposed new HCAs pipelines in 2015 and 2016. The 920 miles of distribution pipelines PG&E is proposing to re-classify as transmission pipelines are already accounted for in its most recent General Rate Case (PG&E 2014 GRC, A.12-11-009). The costs to operate and maintain these distribution pipelines are currently embedded in rates for 2014 through 2016. The utility is essentially asking for ratepayers to pay twice to maintain the same lines for 2015 and 2016.

ORA does not oppose PG&E's proposed assessment levels for existing transmission lines for 2015. For 2016 and 2017, ORA recommends adopting PG&E's forecasts for existing lines, and in 2017 begin including additional miles to account for the proposed new HCA pipelines, as PG&E's 2014 GRC cycle ends in 2016. Exhibit ORA-18 discusses ORA's DA recommendations for 2016 and 2017.

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[13] PG&E Prepared Testimony, Volume 1 (Barnes), Chapter 4A, p. 4A-26.

[14] HCA definition from U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, http://primis.phmsa.dot.gov/comm/FactSheets/FSHCA.htm.

[15] PG&E Workpapers, Volume 1, (Barnes), Chapter 4A, p. WP 4A-18.

[16] PG&E Workpapers, Volume 1, (Barnes), Chapter 4A, p. WP 4A-18.

[17] PG&E's Response to ORA-DR-83, Q. 6.

Table 04D-2A summarizes PG&E's request and ORA's recommendation for MWC HP, Direct Assessment expenses and the miles of transmission pipelines to be assessed in 2015. Table 04D-2B presents ORA's recommendation and PG&E's DA proposal for 2015-2017.

Table 04D-2A
Direct Assessment Expenses for TY2015
(In Thousands of Nominal Dollars)

	2015		
Description (a)	**ORA Recommended (b)**	**PG&E Proposed (c)**	**PG&E>ORA**
External Corrosion Direct Assessment (ECDA)	**$12,489**	**$28,336**	**$15,847**
Existing HCA(Miles)	51	51	0
Existing HCA Cost	$12,489	$17,907	$5,418
New HCA (Miles)	0	44.3	44.3
New HCA Cost	$0	$10,430	$10,430
Total ECDA Miles	51	95.3	44.3
Internal Corrosion Direct Assessment (ICDA)	**$7,630**	**$15,328**	**$7,698**
Existing HCA(Miles)	10.1	10.1	0
Existing HCA Cost	$7,630	$8,331	$701
New HCA (Miles)	0	10.2	10.2
New HCA Cost	$0	$6,998	$6,998
Total Miles	10.1	20.3	10.2
Stress Corrosion Cracking Direct Assessment (SCCDA)	**$2,857**	**$2,857**	**$0**
Existing HCA (Miles)	60	60	0
TOTAL MILES for DA	**121.1**	**175.6**	**54.5**
TOTAL COST FOR DA	**$22,976**	**$46,521**	**$23,545**

Table 04D-2B
ORA's Recommendation and PG&E's Proposal
Direct Assessment Expenses for 2016 & 2017
(In Thousands of Dollars)

	2016		2017	
Description (a)	**ORA Recommended (b)**	**PG&E Proposed (c)**	**ORA Recommended (b)**	**PG&E Proposed (c)**
External Corrosion Direct Assessment (ECDA)	**$15,534**	**$30,274**	**$22,906**	**$39,621**
Existing HCA(Miles)	65	65	106	106
Existing HCA Cost	$15,534	$21,153	$26,100	
New HCA (Miles)	0	44.3	0	44.3
New HCA Cost	$0	$9,121	$0	$10,934
Total Miles	65	109.3	106	150.3
Internal Corrosion Direct Assessment (ICDA)	**$11,598**	**$18,762**	**$14,672**	**$22,008**
Existing HCA(Miles)	4.9	4.9	12.7	12.7
Existing HCA Cost	$11,598	$11,598	$14,672	$14,672
New HCA (Miles)	0	10.2	0	10.2
New HCA Cost	$0	$7,164	$0	$7,336
Total Miles	4.9	15.1	12.7	22.9
Stress Corrosion Cracking Direct Assessment (SCCDA)	**$2,857**	**$2,857**	**$2,857**	**$2,857**
Existing HCA (Miles)	60	60	60	60
Total Miles for DA	129.9	184.4	178.7	233.2
Total Cost for DA	**$29,989**	**$51,890**	**$40,435**	**$64,486**

PG&E provided information regarding past inspections of its pipelines located HCAs from 2009-2013 and this information is presented in the table below.[18] In 2013, PG&E assessed 10.4% of its system using ECDA and 7.7% of its system using ICDA. [19] PG&E did not assess any pipelines using SCCDA in 2013.

[19] PG&E started using ICDA to assess its transmission pipelines located in HCAs in 2011.

The table below also shows the approximate percentages that PG&E is proposing to assess per method using the PG&E proposed new HCA mileage of 1,202 HCA miles.[20]

Table 04D-3

PG&E's Approximate % of HCA Miles Inspected by Year								
	PG&E Recorded					PG&E Proposed		
Year	**2009**	**2010**	**2011**	**2012**	**2013**	**2015**	**2016**	**2017**
External Corrosion Direct Assessment (ECDA)	7.7%	16.3%	11.8%	13.7%	10.4 %	7.9%	9.1%	12.5%
Internal Corrosion Direct Assessment (ICDA)	0%	0%	0.1%	9.8%	7.7%	1.7%	1.3%	1.9%
Stress Corrosion Cracking Direct Assessment (SCCDA)	0%	0%	0.4%	0.4%	0%	5.0%	6.3%	6.3%

Source: 2009-2013 recorded data from PG&E's Response to ORA-DR-75, Q.3 (a). 2015-2017 data from PG&E's workpapers for Chapter 4A, p. 4A-18, p. 4A-20, p. 4A-22, which also identifies PG&E's proposed New HCAs.

As can be seen from Table 04D-3 above, PG&E proposes to increase the percentage assessed each year using both ECDA and ICDA. The 2015-2017 forecasts for ECDA show an increase in the percentage of transmission miles to be assessed from 7.9% to 12.5%, or approximately all HCA pipe once every 7 years. PG&E's forecast for ICDA shows a small increase in the percentage of HCA pipelines to be assessed from 1.7% to 1.9%, or all HCA pipe once every 50 years. SCCDA inspections are forecast by PG&E to increase from 5.0% in 2015 to 6.3% in 2017, or approximately all HCA pipe once every 15 years.[21] PG&E's recorded data supports these rates of inspection as plausible.

The percentage of transmission pipelines located in HCAs to be assessed using DA tools should be decreasing and not increasing as PG&E proposes. In this

[20] 1202 miles = 1069 miles of existing transmission pipelines in HCAs + 133 miles of PG&E proposed transmission pipelines to be located in estimated new HCAs.

[21] PG&E does not identify the specific number of miles to assess using SCCDA in 2016 or 2017. PG&E states, "SCCDA will be performed for approximately 60 miles in 2015 (212 miles throughout the rate case period) of HCA pipeline which is due for pipeline integrity management. See PG&E Workpapers, Volume 1 (Barnes), Chapter 4A, p. WP 4A-21.

rate case, PG&E is requesting funding to upgrade 471 miles of transmission pipelines to accommodate traditional In-Line-Inspection (ILI) tools and 45 miles to accommodate non-traditional ILI tools.[22] ORA accepts most of PG&E's request for capital expenditures and expenses regarding its ILI proposals and discusses this in ORA Exhibit 04B. PG&E's proposal is an increase of 33% in the number of miles of pipelines already piggable in PG&E's system. Since a significant portion of the system will be upgraded to accommodate ILI so that more ILIs can be performed, the number of DAs (both ECDAs and ICDAs) should be decreasing. PG&E requests funding to perform DA related to ILI findings as part of its ILI program. Instead, PG&E is requesting an increase in funding for both ILI upgrades and inspections as discussed in ORA Exhibit 04B, and the DA activities discussed herein. While ORA accepts PG&E's forecasts for current HCA inspections via DA in this rate case, ORA expects to see declines in PG&E's forecast of miles per year as more and more of its system becomes piggable.

A. Direct Assessment Expenses

PG&E requests $46.521 million in expenses to evaluate its transmission pipelines located in HCAs in 2015.[23] According to PG&E, ECDA is used to identify and assess locations likely to have external corrosion, ICDA is used to identify and assess locations likely to have internal corrosion, and SCCDA is used to assess the presence of a corrosive environment and sufficient stress in the pipe material that could lead to stress corrosion cracks.[24] PG&E proposes to use all three methods in 2015 to assess its pipelines located in HCAs. For ECDA, PG&E requests $28.336 million to assess 95.3 miles of pipelines. PG&E requests $15.328 million to assess

[22] PG&E Prepared Testimony, Volume 1 (Barnes), Chapter 4A, p. 4A-12.

[23] PG&E Prepared Testimony, Volume 1 (Barnes), Chapter 4A, p. 4A-28.

[24] PG&E Prepared Testimony, Volume 1 (Barnes), Chapter 4A, p. 4A-24.

46 miles of pipelines using ICDA. For SCCDA, PG&E requests $2.857 million to assess 60 miles of pipelines in 2015.[25]

ORA recommends a total of $22.976 million in expenses for DA in 2015. ORA's recommendation is $12.489 million for ECDA, $7.630 million for ICDA, and $2.857 million for SCCDA.

B. ORA's Recommendation Regarding Direct Assessment Expenses for Existing Transmission Lines

1. External Corrosion Direct Assessment (ECDA)

PG&E proposes to assess 95.3 miles of pipelines located in HCAs and requests $28.336 million for ECDA for 2015.[26] Of this total, PG&E forecasts re-assessment of 51 miles and new assessments of 44.3 miles.[27]

Table 04D-5
PG&E's 2009-2013 Recorded Data and
2015 Forecast for External Corrosion Direct Assessment
(Number of Miles and Expenses in Thousands of Dollars)

Description	2009	2010	2011	2012	2013	2015
Cost	$10,092	$11,147	$12,165	$36,339	$26,305	$26,227
Number of Miles Assessed	170	173	127	146	112	95.3

Source: 2009-2013 data from PG&E's response to data request ORA-074-Q.1(a). 2015 forecast comes from PG&E's workpapers, p. 4A-17.

PG&E's 2015 forecast is based on a total of 25 projects, 170 digs, and 95.3 miles of transmission pipelines that PG&E calculated using actual costs of 2013 projects through the end of July 2013, and estimates for the remaining work to be done through the end of 2013.[28] PG&E states that it uses a combined approach of

[25] PG&E Prepared Testimony, Volume 1 (Barnes), Chapter 4A, p. 4A-28.

[26] PG&E's Prepared Testimony, Volume 1(Barnes), Chapter 4A, p. 4A-28, and PG&E's Workpapers, Chapter 4A, p. 4A-18.

[27] PG&E Workpapers, Chapter 4A, p. 4A-18.

[28] PG&E Response to ORA-DR-83, Q. 1(b).

dig unit cost and survey unit cost to forecast the total cost of work required.[29] The PG&E forecast is essentially based on applying a dig unit cost to 170 digs, which is an estimate of 6.8 digs per project multiplied by 25 projects, and applying a survey unit cost to 95.3 ECDA miles proposed.[30] There are also smaller expenses associated with pre-assessment and post-assessment work for each project proposed, which ORA does not take issue with.

ORA does not oppose PG&E's unit cost for digs. ORA does not oppose PG&E's survey unit cost. ORA disagrees with the number of miles and projects, and the ratio of digs to project that PG&E proposes for 2015. The table below provides a comparison of PG&E's and ORA's proposals for 2015.

Table 04D-6

External Corrosion Direct Assessment Forecast for 2015--MWC HP		
	PG&E	**ORA**
ECDA Miles	**95.3**	**51**
Survey Cost per Mile	$46,728	$46,728
Total Survey Cost	$4,453,183	$2,383,131
Number of Projects	25	15
Number of Digs	170	68
Dig Unit Cost	$115,625	$115,625
Total DIG costs	$19,656,315	$7,804,713
Pre-Assessment	$2,000,000	$1,200,000
Post-Assessment	$750,000	$450,000
ECDA Expenses (2013 $)	**$26,859,498**	**$11,837,844**
Escalation at 1.055	1.055	1.055
Total Forecast (Nominal $)	**$26,859,498**	**$12,488,925**
PG&E>ORA		$14,370,573

ORA's proposal of 51 miles is the number of miles of current transmission pipelines PG&E requests to re-assess in 2015, without any new HCA mileage.

[29] PG&E Response to ORA-DR-70, Q. 3.

[30] PG&E's Workpapers, Volume 1(Barnes), Chapter 4A, p. 18.

ORA's recommendation of 51 miles is reasonable and should be adopted for ECDA for 2015.

ORA recommends 15 projects for 2015 with no new HCA projects. This is based on PG&E's proposed assessment projects for existing transmission pipelines for 2015, which is 15 projects.

ORA disputes the number of digs PG&E proposes because it is excessive and inadequately supported. ORA proposes a total of 68 digs instead of 170 digs. ORA's recommendation of 68 digs is based on the 2013 ECDA projects PG&E claims it relied on to develop its 2015 proposal.[31] PG&E provided a listing of actual January –July 2013 projects and estimates for the remaining work to be done through the end of 2013.[32] The listing shows a total of 124.64 miles, 107 digs, and 24 projects, yielding a ratio of 4.5 digs to project (107 digs to 24 projects). In contrast, the ratio PG&E uses to develop its forecast for 2015 is 6.8, 170 digs to 25 projects. PG&E's dig-to-project ratio in 2015 is therefore not supported by its past experience.

ORA's proposal should not impact the integrity of PG&E's pipelines as PG&E proposes to increase the use of In-Line Inspections (ILI) in place of ECDA. According to PG&E's testimony, ILI is the preferred assessment method.[33] During this rate case cycle, PG&E requests $298.442 million to upgrade 471 miles to accommodate traditional ILI tools and 45 miles to accommodate non-traditional ILI tools.[34] PG&E's proposal would make piggable 252 miles of pipelines located in HCAs during the 2015-2017 rate case cycle. This means that there should be fewer miles of pipelines assessed using any DA method, especially ECDA as more pipelines are upgraded to accommodate ILI. As can be seen from the table below,

[31] PG&E's Response to ORA-DRA-83, Q.1.

[32] Id.

[33] PG&E Prepared Testimony, Volume 1(Barnes), Chapter 4A, pp. 4A-9 to 4A-10.

[34] PG&E Prepared Testimony, Volume 1(Barnes), Chapter 4A, p. 4A-16.

there is a significant increase in the number of ILI upgrades on PG&E's system since 2009. PG&E is proposing to continue with more ILI upgrades in the coming years. PG&E has upgraded 588 miles of pipe to allow ILI between 2009 and 2013, and has requested funding for 516 additional miles between 2015 and 2017. Therefore, by 2017, PG&E will have over 2,000 miles fewer of pipe that needs assessment by DA.

Table 04D-7
PG&E's In-Line Inspection Upgrades From 2009 to 2013
And Proposed Upgrades and System Piggability from 2014-2017

Year of ILI Upgrades	Approx. Miles of ILI Upgrade	**Percentage of System Piggability**
2009	39	
2010	131	
2011	158	
2012	103	
2013	157	
Total By December 2014	1,545	**26.5%**
2015-2017	516	**35.4%**

Source: 2009-2013 from PG&E's response to ORA data request ORA-70, Q.12. 2014-2017 from PG&E's Prepared Testimony, p. 4A-12.

For all the reasons above, ORA recommends adopting $12.489 million instead of the $26.227 million PG&E proposes for ECDA in 2015. ORA's recommendation is $14.371 million lower than PG&E's forecast.

2. Internal Corrosion Direct Assessment (ICDA)

PG&E requests $15.328 million to assess 46 miles of pipelines located in HCAs using ICDA in 2015.[35] PG&E's methodology for developing its forecast is based on assessments of low spots and gas receipts. Per PG&E's RMP-10, one of the locations assessed with ICDA per pipeline segment must be a low point. PG&E states low points can be sags, drips, valves, manifolds, dead-legs, and traps. PG&E does not know the number of low spots or gas receipts that it has examined as part

[35] PG&E Workpapers, Chapter 4A, p. Wp. 4A-20.

of ICDA assessments from 2009-2013.[36] PG&E provided the approximate number of low spots and gas receipts the utility believed it has examined as part of the ICDA process for this period. Based on these approximations, PG&E estimates 6 inspection sites per ICDA project.[37]

Table 04D-8 below provides a summary of PG&E's expenses and the number of miles assessed using ICDA from 2009-2013 and PG&E's forecast for 2015. PG&E states in 2009 and 2010, there were no ICDA projects because no HCA assessments with internal corrosion threats were due.[38]

Table 04D-8
PG&E's 2009-2013 Recorded Data and 2015 Forecast for ICDA
(in Thousands of 2012 Dollars)

Description	Recorded					Forecast
	2009	2010	2011	2012	2013	2015
MWC HP—ICDA Costs	$46	$125	$377	$6,202	$10,776	$15,328
Number of Miles Assessed by Year	0	0	2	105	82	20.3

Source: 2009-2013 expense data from PG&E's response to ORA data request ORA-DR-70, Q. 9 (c), Att.1. 2009-2013 miles assessed using ICDA from PG&E's response to ORA data request ORA-DR-70, Q. 8.

PG&E's 2015 proposal consists of reassessing 10.1 miles of current transmission pipelines, and assessing 10.2 miles of new HCA pipelines.[39] PG&E's proposal is for 6 projects and 46 inspection sites. Based on this proposal, the ratio of inspection sites to ICDA projects is 7.67.

ORA does not oppose the assessment level PG&E proposes for the existing transmission lines. The Commission should adopt funding to assess only the 10.1

[36] PG&E Response to ORA-DR-70, Q. 9(d).

[37] PG&E Response to ORA-DR-70, Q. 9(e).

[38] PG&E Response to ORA-DR-70, Q. 9 (d).

[39] PG&E Workpapers, Volume 1(Barnes), Chapter 4A, p. Wp. 4A-20.

miles of existing lines using ICDA. As discussed above, the costs to maintain the PG&E proposed re-classified lines, or new HCAs, are embedded in rates through 2016 via the 2014 GRC.

ORA accepts the 3 projects PG&E proposes, the ratio of inspection site-to-project, and PG&E's estimate of $315,856 per inspection site.[40]

ORA's calculations yield a total of 23 inspection sites for $7.630 million for 2015. This is $7.699 million lower than PG&E's request of $15.328 million for ICDA. A comparison of PG&E's and ORA's proposals for ICDA is presented below.

Table 04D-9

Internal Corrosion Direct Assessment Forecast for 2015--MWC HP		
	PG&E	**ORA**
ICDA Miles	20.3	10.1
Number of Projects	6	3
Number of Inspection Sites	46	23
Ratio of Inspection Site to Project	7.67	7.67
Cost per Inspection Site	$315,856	$315,856
Escalation Factor	1.055	1.055
TOTAL ICDA FORECAST	**$15,328,492**	**$7,629,807**
PG&E>ORA		$7,698,685

3. Stress Corrosion Cracking Direct Assessment (SCCDA)

PG&E requests $2.857 million to assess 60 miles of pipelines located in HCAs using SCCDA in 2015.[41] The table below provides a summary of the number of miles assessed using SCCDA and the expenses incurred from 2009-2013.

[40] PG&E Workpapers, p. 4A-20.

[41] PG&E Workpapers, p. 4A-22.

Table 04D-10

PG&E's 2009-2013 Recorded and 2015 Forecast for Stress Corrosion Cracking Direct Assessment (In Thousands of Dollars)							
	Recorded					PG&E Proposed	ORA Recommended
Year	2009	2010	2011	2012	2013	2015	2015
Miles	0	0	4	0	0	60	60
Costs	$0	$0	$406	$0	$5	$2,857	$2,857

Source: Recorded expenses from PG&E's response to ORA-79, Q.3. PG&E's 2015 forecast from PG&E's workpapers, Volume 1, Chapter 4A, p. 4A-22.

ORA does not oppose PG&E's request of $2.857 million for SCCDA for 2015.

C. ORA's Recommendation Regarding the Re-Classification of Distribution to Transmission Pipelines—New HCAs

1. PG&E's Proposed New HCA Mileage

PG&E states that the utility plans to re-classify 920 miles of distribution as transmission pipelines and estimates that 133 miles of these re-classified pipelines will be located in HCAs.[42] The 133 miles of re-classified pipelines located in HCAs are referred to as "new HCA." PG&E proposes to assess a total of 165 miles of new HCA total, using ECDA and ICDA during the GT&S rate case cycle beginning in 2015.[43] PG&E is not proposing to assess any new HCA pipelines using SCCDA.[44]

The table below provides a summary of PG&E's proposal to re-assess current transmission pipes and assess new HCA pipes using ECDA and ICDA as presented in the company's testimony and workpapers.

[42] PG&E Response to ORA-DR-83, Q. 6.

[43] PG&E's Workpapers, Volume 1(Barnes), Chapter 4A, pp. Wp. 4A-18 and Wp. 4A-20.

[44] Id.

Table 04D-11

PG&E's Proposal to Assess Current Transmission and New HCA Pipelines

	2015		2016		2017		Total 2015-2017
	ECDA	ICDA	ECDA	ICDA	ECDA	ICDA	
Current HCA	51	10.1	65	4.9	106	12.7	249.7
New HCA	44.3	10.2	44.3	10.2	44.3	10.2	**163.5**
Total Miles Per Year	95.3	20.3	109.3	15.1	150.3	22.9	413.2

PG&E's proposal to assess 163.5 miles of new HCA pipelines is unsupported, especially since it exceeds the number of miles that PG&E estimates will be re-classified and will be located in HCAs.

As PG&E states, "[t]he total population of new transmission mileage will not be known until that analysis is completed in late 2014. Those miles are then analyzed for new HCAs, which begin in 2015, with the final analysis completed in late 2015."[45] In PG&E's testimony and workpapers, the utility forecasts a total of 44.3 miles of new HCA miles to be assessed using ECDA and 21 miles of new HCA miles to be assessed using ICDA for 2015.[46] Based on PG&E's schedule for the Transmission pipeline definition change/re-classification, it is very unlikely that PG&E will be able to assess any transmission pipelines located in new HCAs in 2015 and therefore unreasonable to give PG&E its requested funding to conduct work on uncompleted studies.

Even if PG&E is on schedule to complete the final analysis of the re-classified pipes and identify pipelines located in new HCAs by late 2015, the utility still has to go through its Risk Management Procedures to select pipelines for assessment. PG&E summarizes the process it uses to select pipelines for assessment using the following steps from its risk procedures RMP-06:

[45] PG&E Response to ORA-DR-74, Q. 9.

[46] PG&E Workpapers, Volume 1 (Barnes), Chapter 4A, p. 4A-18.

1. HCA Identification (Section 6.0),
2. Threat Identification (Section 7.0),
3. Risk Assessment (Section 8.0), and
4. Baseline Assessment Plan and Integrity Assessments (Section 9.0).[47]

It is more realistic to forecast pipeline assessments beginning in 2017 instead of 2015. Based on ORA's analysis of PG&E's studies and Risk Management Procedures, it would appear that PG&E will not know the scope and scale of new HCA until 2016. It is premature to estimate the scope of new HCA for 2015 and 2016 because PG&E's re-classification project is still in draft form and not expected to be completed until late 2015. As discussed, there are several risk procedures that must be completed before assessments can begin. According to the pipeline integrity management rules, PG&E has up to one year to incorporate newly identified transmission pipelines located in HCAs into its integrity management program, and up to 10 years to perform a baseline assessment of these pipelines. PG&E's reclassified transmission pipelines are newly identified for purposes of application of the transmission rules. According to The U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration's Integrity Management rule, the following applies to newly identified HCAs:

> FAQ-20. When must newly-identified HCAs be included in the program? [08/17/2004]
>
> Over time, new HCAs may be identified, such as when population distributions change or new sites that are occupied by 20 or more persons are identified. Operators must consider such changes to determine whether new HCAs have been created. A newly-identified HCA must be incorporated into the integrity management program (including the baseline assessment plan) within one year of its identification. A baseline assessment for pipeline segments in newly identified HCAs must be performed within ten years of its identification.[48]

PG&E has not demonstrated why the utility must begin assessing all the newly identified transmission pipelines immediately. Notwithstanding the reasons

[47] PG&E Response to ORA-DR-74, Q. 3.

[48] http://primis.phmsa.dot.gov/gasimp/faqs.htm#top54

discussed above, PG&E is currently receiving funding to operate and maintain its distribution pipelines, which includes corrosion inspections and mitigations of the distribution lines that it plans to re-classify. The costs to continue operating and maintaining these distribution lines are already embedded in rates through 2016. With PG&E's DA proposal for new HCAs in 2015 and 2016, the utility is requesting to recover in transmission rates for work on the same lines for which they are already recovering costs in distribution rates.

For the reasons identified, ORA recommends the Commission reject the new HCA mileage PG&E proposes to assess using ECDA and ICDA in 2015 and 2016.

Instead, ORA recommends PG&E assess a total of 19 miles of new HCA pipelines each year, based on a 7-year interval, beginning in 2017.

ORA's recommendation is based on accepting PG&E's estimate of 133 new HCAs from the upcoming re-classification of 920 miles of distribution pipelines to transmission pipelines and allocating the assessment of these pipelines over 7 years. The assessment interval and allocation of the new HCA miles by assessment method is discussed below.

2. Direct Assessment Intervals

In PG&E's testimony and workpapers, the utility is proposing to assess 163.5 miles of new HCA pipelines during this rate case cycle. For each year from 2015-2017, PG&E proposes to assess 44.3 miles of new HCA using ECDA. For ICDA, PG&E proposes to assess 30.6 miles of new HCA, or 10.2 miles each year, during the rate case cycle. All together PG&E is proposing to assess 54.5 miles of new HCA each year from 2015-2017.

PG&E's proposal to assess new HCA pipelines in this rate case is excessive. PG&E is not able to provide adequate support for the assessment level it is requesting. PG&E states, "[i]t is estimated that approximately 133 of the 920 miles that will meet the new transmission definition will require Direct Assessment…"[49]

[49] PG&E Response to ORA-DR-83, Q. 6.

PG&E proposes to assess all 133 miles of new HCA pipelines during the 2015 rate case period.[50] Assuming that PG&E will classify 133 miles as new HCA mileage, and given that PG&E is on a 7-year assessment interval, PG&E should only be assessing on average 19 miles of new HCA miles each year, regardless of method used. However, PG&E's proposal is to assess 54.5 miles each year for a total of 163.5 miles of new HCA pipelines from 2015 to 2017. PG&E's proposal to assess 54.5 miles of total new HCAs each year during the rate case period is mathematically equivalent to being on a 2.5-year assessment interval. PG&E has not provided any support for the accelerated proposal.

PG&E's re-assessment interval is generally 7 years.[51] PG&E states that the utility "…adds a maximum 5 year interval for pipelines operating at or above 50% Specified Minimum Yield Strength (SMYS) based on the guidance by NACE international SP0502-2008."[52] PG&E also states that maximum reassessment intervals are not allowed to exceed the requirement of 49 Code of Federal Regulations (CFR) § 192.939 and that shorter assessment intervals are spelled out in PG&E's risk management procedure, RMP-17.[53]

PG&E has approximately 2,166 miles of pipelines operating above 50% SMYS.[54] However, all of these pipelines, with the exception of 63.6 miles, are located in Class 1 or Class 2 locations. The 63.6 miles of pipelines are located in Class 3. No pipelines are located in Class 4. Pipelines are rated Class 1 to Class 4, based on increasing level of population. Class 1 being the lowest population and Class 4 is an urban area.

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[50] *Id.*

[51] PG&E Response to ORA-DR-74, Q. 8(b).

[52] Id.

[53] PG&E Response to ORA-DR-74, Q. 8(b).

[54] PG&E's Annual Report to PHMSA for Calendar Year 2011.

49 CFR § 192.939 requires the following:

(a) Pipelines operating at or above 30% SMYS ...The maximum reassessment interval by an allowable reassessment method is seven years. If an operator establishes a reassessment interval that is greater than seven years, the operator must, within the seven-year period, conduct a confirmatory direct assessment on the covered segment, and then conduct the follow-up reassessment at the interval the operator has established….

(b)*Pipelines Operating Below 30% SMYS ...*The maximum reassessment interval by an allowable reassessment method is seven years.[55]

However, 49 CFR § 192.939 also sets forth the maximum reassessment interval as follows:

MAXIMUM REASSESSMENT INTERVAL

Assessment method	Pipeline operating at or above 50% SMYS	Pipeline operating at or above 30% SMYS, up to 50% SMYS	Pipeline operating below 30% SMYS
Internal Inspection Tool, Pressure Test or Direct Assessment	10 years(*)	15 years(*)	20 years.(**)
Confirmatory Direct Assessment	7 years	7 years	7 years
Low Stress Reassessment	Not applicable	Not applicable	7 years + ongoing actions specified in §192.941

(*)A Confirmatory direct assessment as described in §192.931 must be conducted by year 7 in a 10-year interval and years 7 and 14 of a 15-year interval.
(**)A low stress reassessment or Confirmatory direct assessment must be conducted by years 7and 14 of the interval.

PG&E's Risk Management Procedure RMP-17 discusses confirmation of reassessment interval and method in compliance with 49 CFR Part 192.939 and

[55] Electronic Code of Federal Regulation, Title 49, Part 192, Subpart O—Gas Transmission Pipeline Integrity Management, Section 192.939.

ASME B31.8S-2004. It also discusses the steps to follow if the reassessment interval needs to be revised based on a review of PG&E's preventive and mitigation measures, among other things. RMP-17 does not specify the number of years required to establish a revised re-assessment interval.

Based on a review of all the materials PG&E cited, including 49 CFR Part 192.939, a 7-year reassessment cycle for PG&E's transmission pipelines located in HCAs is appropriate. PG&E also states, "[t]he typical reassessment interval for segments assessed using ECDA is 7 years."[56] Although there might be instances where PG&E needs to survey more often, a 7-year cycle is appropriate for purposes of forecasting overall DA expenses. As the table above shows, a reassessment interval can be up to 15 years or even 20 years, provided that the utility performs a Confirmatory Direct Assessment by year 7. Therefore, PG&E's re-assessment interval setting a pace of assessments every 2.5 years is extremely conservative. PG&E's re-assessment interval seems overly conservative.

[56] PG&E's Response to ORA-DR-70, Q. 5.