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Commissioner	:	C. Peterman
ALJ	:	J. Wong
Witness	:	O. Enyinwa

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 4A
Transmission Pipe Integrity and Emergency Response In-Line Inspections

San Francisco, California
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TRANSMISSION PIPE INTEGRITY AND EMERGENCY RESPONSE PROGRAMS
(IN-LINE INSPECTION)

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) In-Line Inspection (ILI) 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 ILI expenses for 2015 and capital expenditures for 2013 through 2015.

ILI enables pipeline operators to learn about the condition of pipelines and to predict the integrity of those pipelines into the future to address time dependent as well as other threats to pipeline integrity. ILI expenses are for work activities used to assess the internal and external condition of transmission line pipe. ILI capital expenditures involve modifying or upgrading the existing pipeline to accommodate an ILI tool, otherwise known as making the line "piggable".

PG&E's activities and costs are grouped with similar types of work into a Major Work Category (MWC). The following are the MWCs for the Expense portion of the ILI program: Traditional ILI, Non-Traditional ILI, ILI Casings, Traditional ILI Direct Examination & Repair (DE&R) and Non-Traditional ILI DE&R. The MWCs for the Capital Expenditure portion are Traditional ILI Upgrades and Non-Traditional ILI Upgrades.

For the Test Year (TY) 2015 PG&E forecasts $31,521,213 ($32M) for ILI expenses and $74,259,306 ($74M) for ILI Capital Expenditures for 2015.[1]

[1] PG&E Prepared Testimony, Volume 1 (Barnes), p. 15.

II. SUMMARY OF RECOMMENDATIONS

ORA's recommendation along with PG&E's proposal on ILI expenses and capital expenditures are shown in Tables 4B-1 & 4B-2 below.

The following summarizes ORA's recommendations regarding ILI expenses:

- ORA does not oppose PG&E's ILI Casings, Traditional & Non-Traditional ILI, Traditional ILI DE&R and Non-Traditional ILI expense forecasts.

The following summarizes DRA's recommendations regarding ILI capital expenditures:

- ORA does not oppose PG&E's Traditional ILI and Non-Traditional ILI forecasts for Capital Expenditures.

Table 4B-1 compares ORA's and PG&E's TY2015 forecasts of ILI expenses:

Table 4B-1
ILI Expenses for TY2015
(In Thousands of Dollars)

Description (a)	*ORA Recommended (b)*	*PG&E Proposed[2] (c)*	*Amount PG&E>DRA (d=c-b)*	*Percentage PG&E>DRA (e=d/b)*
Traditional ILI	$14,521	$14,521	$0	0%
Non-Traditional ILI	$146	$146	$0	0%
ILI Casings	$3,545	$3,545	$0	0%
Traditional ILI DE&R	$13,310	$13,310	$0	0%
Non-Traditional ILI DE&R	$0	$0	$0	0%
Total ILI Expenses	$31,521	$31,521	$0	0%

[2] PG&E Prepared Testimony, Volume 1 (Barnes), p.15.

Table 4B-2 compares DRA's and PG&E's 2013-2015 forecasts of ILI capital expenditures:

Table 4B-2
ILI Capital Expenditures for 2013-2015[3]
(In Thousands of Dollars)

Description	*ORA Recommended*			*PG&E Proposed*[4]		
	2013	**2014**	**2015**	**2013**	**2014**	**2015**
Traditional ILI	$85,819	$31,418	$71,279	$85,819	$31,418	$71,279
Non-Traditional ILI	$0	$0	$2,980	$0	$0	$2,980
Total ILI Capital Expenditure	$85,819	$31,418	$74,259	$85,819	$31,418	$71,259

III. GENERAL OVERVIEW

For this proceeding, ILI is characterized as Traditional and Non-Traditional. Traditional ILI use tools that move through the pipeline driven by pressure differentials generated by gas flow. The use of a traditional ILI tool requires typically 1-5 miles per hour gas flow velocity and at least 350 pounds per square inch gauge (psig), respectively, within the pipeline to overcome friction and ensure a constant velocity. Non-traditional ILI tools are self-propelled through the interior of the pipeline, by means other than gas propulsion and are usually robotic. The use of these non-traditional ILI tools have expanded the reach of ILI and increased the ability of the industry to inspect pipelines where gas flow or system configuration would not support the use of a traditional ILI tool.

There are three phases involved in the ILI program; the first is the modification or upgrading of an existing pipeline to accommodate an ILI tool. The second phase is the cleaning and actual inspection run itself. This inspection run provides vital information regarding a pipeline's physical characteristics, and records

[3] Recorded actual expenditures from PG&E Response to ORA-DR-082, Q1.

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

data on the pipeline's defects. The last phase is Direct Examination and Repair (DE&R), which is driven by the results of the data analysis done in the second phase.

PG&E is proposing a one-time expense of $3,544,800[5] within the proposed expense of $31,521,213 in order to use Non-Traditional in-Line Inspections to assess Cased Crossings. Cased Crossings are metal tubes used to house the pipeline and they were typically installed in areas where the pipeline was installed under roads, railroad lines, and canals. The metal casing provides extra protection for the pipeline and reduces the chances of having the road or railroad lines disturbed if the carrier pipe has to be replaced or repaired. Cased pipeline crossings pose particular challenges, not only because both the casing and the carrier pipes within the casings are vulnerable to corrosion, but because assessments are hampered by the difficulty and high cost of accessing these pipelines compared to those that are not cased. The use of Non-Traditional ILI can facilitate overcoming some of these challenges.

IV. DISCUSSION / ANALYSIS OF ILI EXPENSES

PG&E provides gas service to most communities in Northern California. PG&E is required by the United States Department of Transportation's Office of Pipeline Safety, as set forth in Subpart O of Part 192 of Title 49 of the Code of Federal Regulations (Subpart O), to implement a Pipeline Integrity Management Program. PG&E pipeline system activities are also driven by, California Public Utilities Code § 958, American Society of Mechanical Engineers (ASME) B31.8S, and the Commission's General Order 112-E.

ILI is required to address issues concerning regulatory compliance, safety, reliability, system capacity and efficiency. Most of the proposed work under capital expenditures is to upgrade PG&E's gas transmission pipelines to allow PG&E to inspect them with an ILI tool often referred to as a "smart pig." Due to operating

[5] PG&E Workpapers, Chapter 4A, p. WP 4A-1.

conditions, design, and other factors, not all of PG&E's pipelines can be inspected using an ILI tool or retrofitted to allow ILI. The ILI expense portion will be primarily to perform the traditional and non-traditional ILI runs.

ORA conducted an analysis of the ILI programs included in both the Expense and Capital Expenditure forecasts. The initial analysis included a review of the historical, adjusted-recorded expense amounts in each MWC for the last five years, (2009-2013), as supplied by PG&E. ORA then performed an in-depth examination of the following information as it relates to ILI:

- PG&E's Risk Management Procedure (RMP),
- the ILI runs and upgrade work scope done in the past and forecasted,
- summaries of inspection logs and records for the pipelines proposed for ILI in the work papers,
- the mileage of pipeline installed/replaced between 2009 and 2013
- PG&E's Decision Trees,[6]
- the unit cost of all of the components of ILI, including: materials procurement, environmental/land survey, obstacles removal, construction; Inspection & Testing,
- a breakdown of the cost/mile costs for ILI upgrades and runs, and HCA miles in which Traditional and Non-Traditional ILI runs and upgrades will be performed.

ORA does not oppose PG&E's request for 2015 O&M Expenses and Capital Expenditures for ILI of $31,521,213 and $74,259,306 respectively.

The ILI expenses will fund traditional and non-traditional ILI runs, including non-traditional ILI to assess cased crossings and DE&R for both non-traditional and traditional ILI runs. PG&E plans to conduct traditional ILI for first time and re-inspections on a total of 54 projects covering 885 miles during this rate case period of 2015 to 2017. For the parts of the system that will be made piggable to accommodate non-traditional ILI tools, PG&E plans to conduct first time inspections

[6] PG&E Prepared Testimony, Volume 1 (Barnes), p. 21-23.

on 12 different projects covering 25miles in 2016-2017. Below is a table showing the total miles of Traditional ILI runs done from 2009 to 2013. Very few miles of Non-Traditional runs were done due to system constraints.

Table 4B-3

Total Traditional In-Line Inspection Miles From 2009 to 2013[7]

Year	Total Traditional ILI Miles
2009	13
2010	38
2011	147
2012	175.6
2013	257.34

These expenses are normal activities in the running of a gas storage and transmission facility. The Capital Expenditures are geared towards upgrades to 471 miles of pipeline to accommodate traditional ILI tools and 45 miles to accommodate non-traditional ILI tools.[8] ORA considers the modification of PG&E's pipelines to accommodate ILI to be an important investment in the future of PG&E's system. Once this work is performed, PG&E will be in a position to know more about its pipeline, and to more accurately assess its condition for maintenance, repair, and replacement. This information, used properly, should allow PG&E to better and more safety manage their assets, have fewer constraints on the system, and improve system reliability.

[7] PHMSA 7100 Reports and PG&E response to ORA email dated July 28, 2014 .

[8] PG&E Prepared Testimony, Volume 1 (Barnes), p.12

The following tables summarize PG&E's request and ORA's recommendation for the MWCs within ILI Expenses and Capital Expenditures.

Table 4B-4
ILI Expenses for TY2015[9]
(In Thousands of Dollars)

Description (a)	*ORA Recommended (b)*	*PG&E Proposed (c)*	*Amount PG&E>DRA (d=c-b)*	*Percentage PG&E>DRA (e=d/b)*
Traditional ILI	$14,521	$14,521	$0	0%
Non-Traditional ILI	$146	$146	$0	0%
ILI Casings	$3,545	$3,545	$0	0%
Traditional ILI DE&R	$13,310	$13,310	$0	0%
Non-Traditional ILI DE&R	$0	$0	$0	0%
Total ILI Expenses	$31,521	$31,521	$0	0%

Table 4B-5
ILI Capital Expenditures for 2013-2015[10]
(In Thousands of Dollars)

Description	*ORA Recommended*			*PG&E Proposed*		
	2013	**2014**	**2015**	**2013**	**2014**	**2015**
Traditional ILI	$85,819	$31,418	$71,279	$85,819	$31,418	$71,279
Non-Traditional ILI	$0	$0	$3	$0	$0	$3
Total ILI Capital Expenditure	$85,819	$31,418	$71,282	$85,819	$31,418	$71,282

**The 2013 Traditional ILI capital expenditure is the recorded for 2013.*

[9] PG&E Workpapers, Chapter 4A, p. WP 4A-1.

[10] PG&E Workpapers, Chapter 4A, p. WP 4A-1 and PG&E response to ORA-DR-081 Q1.