CPUC Class Location Study

Chhatre Ravindra

From: Hayes, William [WDH2@pge.com]
Sent: Friday, July 01, 2011 12:10 PM
To: Chhatre Ravindra
Subject: Class Location Study
Attachments: 6-30-11 Class Report_Final2.pdf

Ravi - As follow-up to our discussion yesterday morning, attached is the Class Location study commissioned by the CPUC and submitted accordingly. Providing this for your information only.

Bill Hayes

Pacific Gas and Electric Company®

Brian K. Cherry
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June 30, 2011

Paul Clanon, Executive Director
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Re: PG&E's Class Location Study Report

Dear Mr. Clanon:

In your letter to PG&E dated September 13, 2010 (Item 9), and in the Commission's Resolution L-403 adopted on September 23, 2010 (Ordering Paragraphs 18 and 19), PG&E was directed to review the classification of its natural gas transmission pipelines, determine if the classification has changed since the initial designation, and report the results to you. In response, on September 23, 2010, PG&E committed to report the results of its review by October 4, 2010, and perform a system-wide verification of pipeline class location designations and report the results by June 30, 2011.

On October 4, 2010, PG&E provided the Commission with its results on the review of all gas pipelines operating at pressures greater than 60 psig. Enclosed with this letter is PG&E's report on the results of its system-wide verification of pipeline class locations.

Please let me know if you have any questions.

Sincerely,

Brian K. Cherry
VP, Regulatory Relations

cc: Michael R. Peevey, President
Mike Florio, Commissioner
Catherine Sandoval, Commissioner
Timothy A. Simon, Commissioner
Mark Ferron, Commissioner
Michelle Cooke, Assistant Chief ALJ
Richard Clark, Consumer Protection Safety Division
Julie Halligan, Consumer Protection Safety Division
Frank Lindh, General Counsel
Harvey Y. Morris, Legal Division
Patrick S. Berdge, Legal Division
Joe Como, Division of Ratepayer Advocates
Julie Fitch, Energy Division

Pacific Gas and Electric Company's Class Location Study Report

June 30, 2011

Summary

This report provides the results of Pacific Gas and Electric Company's (PG&E's) system-wide verification of class location designations for transmission pipe. In brief, the class location review has indicated that some segments of pipe had or may have a Maximum Allowable Operating Pressure (MAOP) higher than appropriate for its current class location. As a result, PG&E has reduced pressure on approximately 3.5 miles of pipelines, and is in the process of reducing pressure on approximately 4 miles of additional pipelines. We are still reviewing our records for another approximately 100 miles of pipe and may take additional pressure reductions depending upon the results of that review.

PG&E may need to restore operating pressure on some of these lines or segments in a heat wave or other emergency situation to avoid electric outages. We will coordinate closely with the California Independent System Operator ("CAISO"), and will, if necessary, seek a special permit from the CPUC. PG&E's first and foremost concern is public safety and we want to stress that – even though we are reducing pressure – the system is and was safe. A class change requires an operator to confirm or revise its MAOP, if more people live nearby. But the strength of the steel in the ground, and its ability to safely operate, does not change when a class location changes; a line that was safe to operate when in a Class 1 location is not "unsafe" now that a new house is built and it is a Class 2 location.

The actions PG&E has already taken and is continuing to take as a result of the class location review are as follows:

- PG&E has already reduced pressure on 3.5 miles of pipe where the prior MAOP was inconsistent with the class location designation confirmed by this report. To date we have been able to avoid any customer impacts from these reductions.

- PG&E is in the process of implementing additional pressure reductions based on the results. This will involve over thirty different locations and requires careful planning to perform safely and without unintended adverse consequences. Some of these reductions can be done without an immediate customer impact. Other pressure reductions will affect electric generators and possibly other customers. PG&E will be coordinating with the CAISO about the generator impacts. A list of the pressure reductions that can be done without immediate customer impact are contained in Attachment A. A list of the pressure reductions that may impact customers is contained in Attachment B.

- PG&E is proceeding with the engineering and planning to replace those appurtenances (such as valves, fittings, blow-downs, drips) or pipe segments that may be the limiting feature on the MAOP, so we can quickly restore pressure and system capacity. PG&E has opened an Incident Command Center to coordinate the pressure reductions and to replace pipe or appurtenances as expeditiously as possible.

- PG&E is aggressively reviewing its records for approximately 100 miles (less than 2%) of its system that, according to information in PG&E's Geographic Information System (GIS) database, may be operating at pressures above their current class level. PG&E may make additional pressure reductions as that review progresses, and we will keep the Commission closely informed of our progress.

Background

By letter dated September 13, 2010, and Resolution L-403, the California Public Utilities Commission directed PG&E to:

> Ordering Paragraph 18: PG&E shall review the classification of its natural gas transmission pipelines and determine if those classifications have changed since the initial designation.
>
> Ordering Paragraph 19: PG&E shall report the results of its review of the classification of its natural gas transmission lines and any subsequent changes to those classifications since PG&E's initial designation to the Executive Director within ten (10) days of the date of this Resolution.

In response, on September 23, 2010, PG&E committed to the following:

1. PG&E will review the classification of our natural gas transmission lines and determine if the classification has changed since the initial designation and will report the results by October 4, 2010.

2. PG&E will perform a system-wide verification of pipeline class locations designations. PG&E will complete the review, change its records and practices accordingly and report the results by June 30, 2011.

With respect to Commitment # 1, on October 4, 2010, PG&E reported to the CPUC that PG&E had reviewed the class designations for all gas pipelines operating at pressures greater than 60 pounds per square inch gauge (psig), totaling approximately 6,700 miles[1]. Utilizing its GIS database to compare the classification recorded at initial installation with the then-current classification, PG&E identified 1,057 miles of pipeline where the then-current classification differed from the initial classification.

To complete Commitment #2, PG&E retained Willbros Engineers, (U.S.), LLC ("Willbros") to perform the system-wide verification. Willbros has an in-depth understanding of GIS databases backed by extensive gas transmission engineering expertise, and has experience performing this type of verification effort.

[1] The approximately 6,700 miles includes pipe operating above 60 pounds per square inch gauge (psig). This report is focused on transmission pipe, as defined by 49 CFR 192.3, which is 5766.7 miles.

Results of System-wide Verification

The basic concept of class location designations is the greater the population density (i.e., the number of buildings intended for human occupancy) within any continuous one mile of pipeline (the so-called "sliding mile"), the higher the class location designation. (See 49 C.F.R. 192.5(a)(1) (definition of "class location unit"). The following table sets forth the different class definitions:

Table 1 – Summary of Class Definitions

Class	# of Buildings; Other Criteria
1	10 or fewer
2	11 – 45
3	46 or more (or public assembly areas)
4	Buildings of 4 or more stories

In total, the system-wide verification has determined that approximately 550 miles have changed in class designation. Of these, 173 miles (3%) have gone up in class location, and 378 miles (6.5%) have gone down in class location.[2] The following table provides a detailed breakdown:

Table 2 - Total Miles of Transmission Pipe and Change in Class Location Designations

Category	Miles
Total Pipe	
Class 1	3,679.4
Class 2	401.0
Class 3	1,684.8
Class 4	1.5
Total	**5,766.7**
Class Change Up	
Class 1 to Class 2	54.2
Class 1 to Class 3	52.1
Class 1 to Class 4	0.4
Class 2 to Class 3	64.4
Class 3 to Class 4	1.0
Total Class Up	**172.1**

[2] PG&E has not yet investigated why particular segments went down in class. We believe this is largely due to increased accuracy of measurement or to segments having been listed in PG&E's Geographic Information System database based on the class for which they were designed, not the class based on population.

Category	Miles
Class – No Change	
Class 1	3,359.7
Class 2	291.9
Class 3	1,564.7
Class 4	0
Total No Change	**5,216.3**
Class Change Down	
Class 4 to Class 3	3.7
Class 3 to Class 1	103.3
Class 3 to Class 2	54.9
Class 2 to Class 1	216.5
Total Class Down	**378.4**

The class location designations in Table 2 above are based on the number of buildings in the vicinity of the pipeline, and other physical criteria (such as the existence of playgrounds or other places of public assembly).

Under state and federal regulations, a pipeline's MAOP is required to be commensurate with its class location. Table 3 below shows the maximum permissible percentage of Specified Minimum Yield Strength (SMYS) by class.

Table 3 - Permissible Percentage of SMYS

Class	Maximum % of SMYS without Pressure Test	Maximum % of SMYS with both Class Change and Pressure Test
1	72%	72%
2	60%	72%
3	50%	60%
4	40%	50%

This is an upper limit: the majority of PG&E's transmission pipelines operate at a much lower percentage of SMYS than the maximum permissible under the Code. In fact, approximately 45% of PG&E's transmission lines have an MAOP below 40% of SMYS, and more than 60% operate with an MAOP below 50% of SMYS. In other words, an increase in the class location designation for a pipeline does not automatically mean that the pipeline segment is operating at too high a pressure. The pipeline may be operating well below the maximum percentage, or may have been built in a rural location but designed with future population growth in mind.

In addition, a utility normally can take up to 24 months within which to confirm or revise its MAOP after there has been a change in class location. (See 49 CFR 192.611(d).) PG&E has not yet determined when the class location changes actually occurred in order

to calculate the twenty-four month period for each segment. Our primary focus is on safety and ensuring that pressure is commensurate with the current class, regardless of whether the "twenty-four month" window has expired. PG&E is moving as quickly as possible to confirm or revise its MAOP in light of these results, and has or is in the process of reducing the MAOP for any portion of the system that is not commensurate with its current class.

PG&E Response and Next Steps

PG&E has taken and is taking a number of steps in response to this class location validation review, including a number of pressure reductions as discussed below.

1. Pressure Reductions and Pipe Replacement.

First, PG&E has reduced pressure on several pipelines as a result of the class location validation effort, as follows:

- Lines 300A and 300B in Kern County from 766 psig to 714 psig.
- Line 400 near Antioch from 965 psig to 798 psig.
- Line 300A near Bakersfield from 754 psig to 688 psig.

In addition, PG&E reduced pressure from 250 psig to 50 psig on outlet piping supplied by Line 331 to a customer in Merced County. The repair on this outlet was completed and the pipe has been restored to its original operating pressure.

Second, PG&E is in the process of implementing additional pressure reductions. This will involve over thirty different locations and requires careful planning to perform safely and without unintended adverse consequences. A list of the segments where PG&E is in the process of reducing pressure and we do not think there will be immediate customer impacts is set forth in Attachment A.

Some of these reductions will affect electric generators, and PG&E has notified the CAISO. We will be coordinating with the CAISO and the generators. A list of the pressure reductions that may impact customers, including generators, is contained in Attachment B.

We have already begun planning for both the pressure reductions and for the pipe and appurtenance replacement projects to upgrade the system to allow the restoration of the MAOP commensurate with the new class. We are prioritizing the engineering of replacement work above all other non-emergency work. Many of the segments listed on Attachments A and B are small, with some as short as two feet.[3] We will be performing field inspections or engineering jobs to replace these short segments as quickly as possible. We are continuing to refine our analyses and actions plans, but Attachment B is

[3] Even though the limiting feature may be only a few feet long, the work involved to replace it could involve a larger segment. Even if only the small segment needs to be replaced, the work will probably involve a much greater area, depending upon how far the segment is from valves to reduce pressure.

the current list of the most significant segments that PG&E plans to address as quickly as possible. We commit to report to the Commission on our progress on a bi-weekly basis, or on any other interval that the Commission deems appropriate.

Depending upon guidance from CAISO, and the upcoming weather, PG&E may need to raise pressure in some of these lines, even before replacement equipment is installed, in order to try to avoid significant electrical impacts. We will only raise pressure when and where it is safe to do so, and only with the Commission's authorization. To avoid the safety risks associated with uncontrolled outages, PG&E may need to issue substantially more frequent Operational Flow Orders (OFO), and potentially Emergency Flow Orders (EFO).[4]

PG&E is continuing to find records to support the current operating pressure; for example, in the past two days we were able to remove from the "not commensurate list" several backbone segments, and we are guardedly optimistic that we will find more records, even for the segments on Attachment B.

2. Records Review for Other Segments.

PG&E is aggressively reviewing its records to confirm the appropriate MAOP for approximately 100 miles (less than 2%) of the transmission system that, according to information in PG&E's GIS database, may be operating at a higher pressure than appropriate for their current class designation.[5] PG&E is confirming that it has pressure tests for those segments operating above their current class. As noted in Table 3 above, an operator can operate one level above the normal class MAOP if, among other things, there has been a class location designation change, the segment is in satisfactory physical condition and the segment has been pressure tested for a period of not less than 8 hours. PG&E has identified approximately100 miles of pipe where PG&E needs to validate a complete pressure test record, based on GIS information for SMYS and MAOP. This work is moving forward as rapidly as possible.

3. Increase Scope of the MAOP Validation Effort.

PG&E will prioritize gathering the necessary records to perform the records-based MAOP validation for approximately 94 miles of additional Class 3 and Class 4 segments that were originally scheduled to be addressed during later phases.[6]

[4] These pressure reductions will also interfere with PG&E's hydro testing efforts, although we have not finished analyzing the specifics of those effects.

[5] PG&E's GIS database is not the system of record for determining SMYS; PG&E's job files are the primary records for validating SMYS and MAOP.

[6] Although there are 117 miles of former Class 1 and Class 2 location pipe is now Class 3 or Class 4, about 23 miles of that pipe was already included in the MAOP validation review because it was in an HCA.

4. Process Improvements.

PG&E recognizes the need to identify development along its pipelines in real time and to diligently capture changes in class location for its system. Accordingly, PG&E has enhanced its ongoing class verification efforts. PG&E will perform a system-wide class location review once each calendar year, not to exceed fifteen months. PG&E has also strengthened its processes for timely assessment of the impact of potential class location changes. PG&E will develop improved methods to capture structure information at the field level and will streamline the class location calculation process such that a more robust and repeatable program is implemented.

Conclusion

PG&E is committed to improving our operations and enhancing public safety. We are continuing to dedicate significant internal and external resources to the effort to confirm the appropriate class and the appropriate MAOP. Much of this is based on the records effort, and, as both PG&E and the Commission know, we need to improve the accessibility of our records. Although we have not completed the process of verifying that every segment is operating at an MAOP commensurate with its current class designation, we have less than 2% of the transmission system left, and we will complete this as soon as possible.

JANE K. YURA
Vice President, Gas Engineering and Operations
Date: June 30, 2011

Attachment A: Pressure Reductions Without Immediate Customer Impact

No.	Line	Mile Point	COUNTY	MOP before	MOP revised	% reduction	feet
1	300A	248.41	KERN	766	688	10%	161
2	300A	248.6	KERN	766	688	10%	574
3	300B	242.71	KERN	766	688	10%	1567
4	300B	243.0887	KERN	766	688	10%	915
5	300B	246.14	KERN	766	688	10%	448
6	300B	246.4706	KERN	766	688	10%	3155
7	300B	247.16	KERN	766	688	10%	10
8	300B	247.161	KERN	766	688	10%	17
9	300B	247.17	KERN	766	688	10%	1119
10	300B	248.91	KERN	766	688	10%	136
11	300B	271.2766	KERN	754	631	16%	1184
12	300A	181.77	San Bernardino	860	741	14%	55
13	300A	181.85	San Bernardino	860	754	12%	119
14	300A	181.87	San Bernardino	860	741	14%	787
15	300A	182.11	San Bernardino	860	741	14%	93
16	300A	199	KERN	860	741	14%	713
17	300A	199.2	KERN	860	741	14%	647
18	300B	190.614	KERN	860	745	13%	1362
19	300B	191.02	KERN	860	745	13%	95
20	1213-01	0.03	FRESNO	839	725	14%	143
21	1213-01	0.6707	FRESNO	839	725	14%	58
22	1213-01	0.6707	FRESNO	839	725	14%	814
23	300-1	0.0121	KERN	754	490	35%	6
24	300-1	0.0057	KERN	754	541	28%	85
25	300B	384.2827	FRESNO	839	741	12%	681
26	STUB6247	--	KERN	860	789	8%	6
27	DREG5479	--	SHASTA	600	451	25%	95
28	DREG3873	0.0025	MARIN	450	368	18%	16
29	STUB8500	--	MARIN	450	368	18%	1

Attachment A: Pressure Reductions Without Immediate Customer Impact

No.	Line	Mile Point	COUNTY	MOP before	MOP revised	% reduction	feet
30	X6338	16.66	MARIN	450	367	18%	10
31	X6339	6.42	MARIN	450	440	2%	15
32	X6339	6.42	MARIN	450	440	2%	15
33	X6340	13.72	MARIN	450	367	18%	11
34	X6340	13.72	MARIN	450	377	16%	15
35	X6340	13.72	MARIN	450	377	16%	4
36	X6342	16.66	MARIN	450	367	18%	10
37	STUB6082	--	SAN JOAQUIN	412	315	23%	5
38	STUB6098	--	MERCED	400	377	6%	5
39	DCUST1496	--	FRESNO	650	378	42%	80
40	DRIP5664	--	FRESNO	400	377	6%	5
41	STUB6259	--	San Bernardino	861	802	7%	7
42	6635-01	--	KERN	754	445	41%	15
43	6635-01	--	KERN	754	445	41%	15
44	200-435	--	SOLANO	800	650	19%	3
45	200-435	--	SOLANO	800	710	11%	9
46	X6554	--	SACRAMENTO	965	378	61%	65
47	200A-2-1	--	SOLANO	800	650	19%	3
48	200A4-2	--	SOLANO	800	736	8%	3
49	BD	--	SOLANO	792	731	8%	5
50	STUB8239	--	SACRAMENTO	510	452	11%	1
51	STUB8284	--	COLUSA	975	835	14%	2
52	STUB9013	--	SACRAMENTO	800	541	32%	22
53	X6553	--	SACRAMENTO	520	452	13%	10
54	X9097	--	SACRAMENTO	510	306	40%	8

Attachment B: Pressure Reductions That May Impact Customers

No.	Line	Mile Point	COUNTY	MOP before	MOP revised	% reduction	feet
1	L300A	443.8	SAN BENITO	620	550	11%	2
2	L300A	482.49	SANTA CLARA	631	542	16%	15
3	L300A	489.34	SANTA CLARA	631	451	28%	91
4	108	--	SAN JOAQUIN	412	315	27%	5
5	STUB6285	--	STANISLAUS	408	376	8%	12
6	196A	--	SACRAMENTO	800	440	47%	2
7	138	--	SONOMA	650	378	44%	80
8	191	--	CONTRA COSTA	600	462	26%	5
9	L401	83.33	SHASTA	884	814	8%	673
10	L401	83.8121	SHASTA	884	814	8%	496
11	L400	113.6221	SHASTA	884	785	11%	1216
12	L401	113.75	SHASTA	911	814	10%	369
13	L401	113.92	SHASTA	911	814	10%	446