Julie Halligan, Deputy Director
Consumer Protection and Safety Division
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, California 94102-3296

Dear Ms. Halligan:

This letter responds to your April 13, 2011 letter requesting additional information about PG&E's plans to hydrostatically test or replace approximately 152 miles of HCA pipeline on our natural gas system. In addition, I have included a correction to our response to your April 8 letter and that correction relates to the list of pipelines where pressure has been reduced. Finally, I am also responding to two additional questions that Interim Deputy Executive Director Michelle Cooke posed to us through e-mail.

Hydrostatic Testing Plan

PG&E has updated its hydro test plan and schedule since our response to your April 8, 2011 letter. The updated plan is attached and the changes are highlighted for your convenience. This schedule will continue to evolve based on field conditions, permits, etc.

Management of Pipeline Contaminants

PG&E's policy is to treat any substance cleaned from a pipeline as hazardous until laboratory testing can be completed to accurately characterize the material. The sampling methodology that PG&E follows for all our waste determination is EPA's method SW- 846. The details of the EPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" can be found at http://www.epa.gov/epawaste/hazard/testmethods/sw846/index.htm. All field sampling will be done following this methodology, which requires, among other things, that sampling be random and representative of the waste. Additionally, SW-846 establishes testing criteria and methods for waste characterization that are included in PG&E's chain of custody form, a copy of which is attached.

PG&E's laboratory tests will also include analyses of pipeline liquids to determine the potential for internal corrosion, such as the presence of microbes, the type of oil and the water content of the sample.

Laboratory Testing of Pipe Cut-Outs

PG&E will have a standardized protocol for tracking the custody of each piece of pipe removed as part of each hydrotest. Pipe sections will be cut out to allow the installation of test heads, to repair leaks or ruptures, and/or to allow for the insertion of video

cameras. PG&E will label each section of pipe removed with its line number, location, horizontal field station, orientations, flow direction, and the location of the top of the pipe. Pipe sections will be transported to a secure location to be analyzed and stored. PG&E's custody protocol will track each specimen through analysis and storage. A copy of PG&E's Chain of Custody Form is attached for your reference. The as-built drawings will include all the hydrotest dig locations including repair locations showing horizontal field stationing information, Northing & Easting orientations, and GPS coordinates, providing a reference for where each cut out section was originally located.

Venting Air during the Fill Process

PG&E recognizes that it is critical to vent as much air as possible from the pipeline during the water fill process. As part of its hydro testing protocol PG&E will use foam/poly pigs that will be inserted at the front-end test head. Hydro test water will then be forced in behind the poly pig as it travels down the line pushing air in front of it until the poly pig reaches the opposite end test head. Back-pressure will be maintained on the poly pig to avoid air by-passing the pig by preventing the pig from moving faster than the rate at which the water is filling the test section. This process will ensure that air will be expelled from the pipeline prior to testing.

Uniformity of Test Segments

Most of the pipeline segments to be hydro tested contain sub-segments with differing wall thicknesses and yield strengths. The test pressure may cause pipe of different diameter or thickness to experience different hoop stress levels. This is acceptable provided that the highest percentage of SMYS reached on the weakest part of the test section is below the target maximum stress. That means there only has to be one test pressure so long as that test pressure stresses each different pipe to the minimum level required for its class location. PG&E will account for these differences as the pipeline engineer prepares the hydrotest plan for each test segment. If differences in the pipe segments are too great, the test will be broken into two or more tests. The attached spreadsheet provides the pipeline specifications for each segment in a test section. This data is currently based on PG&E's GIS data but the actual pipeline specification data will be verified using construction drawings and other materials as each hydro test plan is developed by a pipeline engineer.

Status of PG&E's Hydrostatic Testing Procedures

PG&E is in the process of developing a hydrostatic testing procedure manual that will provide comprehensive hydro testing procedures. Where necessary, PG&E will develop new, or revise existing procedures. Process mapping also is underway to ensure compliance with the procedure manual. PG&E expects to be able to share this procedure manual with CPSD on May 2, 2011. PG&E also intends to share the manual with industry experts. PG&E will revise its procedures as needed based on input from the CPSD and industry experts as well as throughout the implementation of the hydro test plan based on in-field learning.

Video Inspections

PG&E plans to assess approximately 37 miles of pipe (remaining pre-1962 30" DSAW pipe still in service) for the presence of an internal weld along the long seam. This assessment will take place either through the use of a video camera or a specialized In Line Inspection Tool (i.e. a crack tool).

PG&E is not conducting video inspection of all the pipelines to be hydro tested because there are only a limited number of cameras available that can conduct this type of inspection. PG&E has carefully planned its schedule to maximize the use of the available cameras and will conduct as much video inspection as possible. When video inspection is done prior to a hydro test, PG&E will review the results for any pipe anomaly and will repair or replace that piece of pipe before the test.

Using a remote vehicle video camera PG&E recently has assessed nearly 2 miles of pipeline. The majority of this footage was on L-132, with a very small amount on L-101. Approximately 20 miles of pre-1962, 30" DSAW pipe to be evaluated will be assessed by video. These 20 miles are in pipelines that are not piggable. This is currently the best available method for assessing these sections of pipeline to determine if the pipe-mill interior long seam weld is absent. The remaining 15 miles of pipe is currently scheduled to be assessed by means of In-Line Inspection Tools.

PG&E will also utilize an experimental In-Line Inspection Tool in L-153 to determine if there are any long seam issues. Additionally, PG&E is evaluating the use of a high resolution "caliper pig" that has been used on pipelines outside of the United States. It is believed that this tool is precise enough to determine if there is a weld cap on the inside of a pipe.

Finally, PG&E is working with the developer of a self propelled ILI technology for un-piggable pipelines to modify the device to be a self-propelled high resolution video camera. Because this device is self-propelled rather than tethered the inspection lengths could be longer. This camera would also be able to be used inside of a pipe which is under pressure thereby allowing it to inspect the inside without having to take the pipe out of service.

Pipe Coating Inspection

PG&E has a requirement to inspect the pipe coating and complete Form H each time a pipeline is exposed. PG&E will be completing a copy of the attached Form H for each location where a pipeline is exposed during the hydro test activity.

Line 132 from Mile Post 46.59 to 51.53

In its response to Julie Halligan's letter dated 4-08-11, PG&E included Line 132 from milepost 46.59 to 51.53 in a list of pipelines that have had their pressure lowered. This

information is incorrect. That portion of Line 132 continues to operate up to its 145 psig MOP; the pressure has not been lowered. However, a hydro test is planned for this line in 2011 because the line's pressure cannot be lowered by 20% without a high risk of core outages. With lowered Milpitas pressures, the loss of Line 132 in San Bruno, and the large temperature sensitive demand at the end of the system in San Francisco, the Peninsula local transmission system is extremely sensitive. A 20% reduction in pressure for this section of Line 132 will result in limiting the upstream pressure at Martin Station to the low 100 psig range while the minimum system pressure into San Francisco must be maintained in the 90 to 110 psig range to meet demand. Under APD conditions, San Francisco pressures would drop to the 40 to 90 psig range, thereby putting as many as150,000 core customers in San Francisco at risk of curtailment.

Automated Ball Indentation Test

PG&E has been informed by experts from Kiefner and Associates and Exponent that the Automated Ball Indentation (ABI) Test is not a good method for calculating fracture toughness. Since the fracture toughness and Charpy energy information would not be used to develop or alter the hydro test plan, PG&E proposes that this type of test be conducted at a lab on the sections of pipe cut out during the hydrotest work. PG&E will cut out test samples from each removed pipe spool for laboratory testing to measure yield strength, hardness, pipeline chemical composition, fracture toughness and Charpy energy. Test samples will be as close to full size as possible, considering the pipe wall thickness.

PG&E expects to use the as the ABI test method to validate the yield strength of the pipe prior to conducting each hydro test. Because questions have been raised about the accuracy of this test when used on *in-situ* pipe, PG&E proposes for the first few tests to compare the in-field test with the lab test on the removed portion of pipe. If the yield strength based on the ABI test is within 5% of the lab test, then PG&E would continue to use the ABI test for all of its hydro tests.

Tie-in Welds

In addition to the questions in your April 13 letter, by e-mail to Trina Horner dated April 15, 2011, Michelle Cooke expressed concern about "the four (4) new welded joints not easily being hydro tested as required by CFR 49 Part 192."

This situation arises nearly every time any new pipe is installed. These welds are known as "tie-in welds." To address the inability to hydro test these tie-in welds, the code makes provision for the integrity of these welds to be established via non destructive radiography. These welds will be nondestructively tested as required by 49 CFR § 192.243. PG&E uses independent radiography contractors who must certify that each weld has passed the mandated test. If the weld does not pass, it must be cut out and re-welded. Additionally, while the pipe joint used for the tie-in is excepted from testing pursuant to 49 CFR § 192.503 (d), PG&E intends to include these pieces in the hydro test through a piped connection, or perform a pre-installation test pursuant to 49 CFR §

192.505(e) to ensure that all seam welds and all other components in the completed pipeline have been tested, and that all tie-in welds have been non-destructively examined.

PG&E's Records as Basis For Hydrostatic Testing Plan

Through an e-mail to Ms. Horner on April 17, Michelle Cooke asked, given the state of PG&E's records, how can the CPUC be confident that the list of pipeline segments that PG&E plans to test would have captured San Bruno?

PG&E's 2011 hydro test program is directed at pre-1962 24 to 36-inch DSAW and pre-1974 seamless pipe greater than 24 inches in diameter. The ruptured segment in San Bruno was installed in 1956 and recorded in PG&E's Geographical Information System (GIS) as 30-inch SMLS (seamless), although the documents in the job file show it to be 30-inch DSAW. Thus, the criteria we are using to define the test segments for the 2011 hydro test program would capture the San Bruno segment whether recorded in GIS incorrectly as seamless or correctly as DSAW.

As part of PG&E's ongoing Data & MAOP Validation Project, the San Bruno pipe would have been flagged since 30-inch seamless pipe was not manufactured at the time of the segment's installation in 1956. The seam would thus have been classified as "unknown" and would have been resolved through field verification, such as radiography, to identify the seam type.

If additional segments of pipe are identified as part of the Data & MAOP Validation Project that meet the criteria of the 152 miles (priority 1), they will be flagged immediately and prioritized for field verification to confirm pipe characteristics and scheduled for field action, as required (i.e. pressure reduction, hydro test, replacement, etc.)

Please contact me if you need any additional information on any this.

Sincerely,

William C. Stock

cc:
Richard Clark
Michelle Cooke

Attachments