

Pacific Gas and Electric Company  
Distribution Integrity Management – Asset Engineering  
Farm Tap HPR Executive Summary  
November 22, 2013

#### Farm Tap Regulators

A farm tap regulator set or customer primary regulator is a high pressure regulator (HPR) set that serves a single service line directly from a transmission pipeline, and in most cases, is constructed using HPR-type regulating equipment. Historically, farm tap regulator sets received maintenance only when a problem was reported.

#### Determining Inventory of Farm Tap Regulators

In 2009, farm tap regulator sets were recognized as a gap in PG&E's atmospheric corrosion (AC) process. As a result, PG&E established a process to identify the inventory of farm tap regulator sets throughout the PG&E service territory. The findings were used as the first step to begin conducting the code required atmospheric corrosion inspections. Throughout the course of the first AC inspections, additional farm tap regulator sets were found utilizing local knowledge and were added to the population for inspection. A second review was made as a part of PG&E's MAOP validation program and the results from the two evaluations are currently being compared to ensure that all HPR assets have been captured appropriately. Future validations are planned using mapping systems to check the location of distribution and transmission piping relative to meter locations.

#### HPR Replacement or Rebuild Program

In 2011, PG&E began a program to rebuild or replace HPR-type regulator sets and stations. This program addresses the known risks associated with HPR-type regulator sets, including inadequate maintenance, inadequate design or poor condition. At that time, PG&E had approximately 4,700 farm tap regulator sets and 1,000 HPR-type district regulator sets. As of October 2013, approximately 1,700 have been removed or rebuilt. In mid-2013, PG&E decided to base the HPR program on relative risk to optimize risk reduction investments between programs. Efforts are currently underway to put in place the risk-based prioritization methodology to guide the decision to replace or rebuild HPR.

#### Farm Tap Conversion to District Regulator

A farm tap regulator set becomes a district regulator station when the service line is converted to a distribution main (more than two services line downstream of the regulator set). District regulator sets have annual maintenance requirements. The HPR replacement program confirms if the pipeline downstream of an HPR is a service line or main as stations are replaced or rebuilt to ensure the station is set up for appropriate maintenance going forward. In addition, estimating processes are being revised to ensure HPR are appropriately re-classified as a District Regulator if additional services are added.

#### Three Year HPR Maintenance and Design Validation Cycle Established

Finally, maintenance practices have been changed to further improve the safety of HPR-type regulator sets. Beginning in 2014, a new maintenance program will be implemented for HPRs. This maintenance

program will check for atmospheric corrosion, verify set points and confirm pressure control. PG&E can leverage these field inspections to validate HPR design characteristics and collect additional data as needed to validate HPR design and operation. Once all HPR locations have been replaced, rebuilt or inspected, the HPR maintenance program will be reviewed to ensure that maintenance levels are appropriate for the asset inventory.