

PG&E Plan for Over Pressure Event Prevention, Detection, Mitigation, and Elimination

June 27, 2012

Short-Term Plan

The short-term portion of the plan ensures that the gas system is safe for 2012 winter operations. The key elements of this portion of the plan include:

- Identify, gather, and organize information necessary for the analysis of pressure excursions. Information includes, but is not limited to: pressure recorder charts, SCADA pressure data, regulator and over pressure protection device set points, SCADA alarm set points, MAOP data, standards and policies, and root cause analysis reports for events.
- Given gathered information, validate existence of pressure excursions and determine root causes.
- Prioritize systems for analysis and corrective action.
- Establish a corrective action plan and understand implications on system operations and customers. Corrective actions include:
 - Develop required alarm limits to promptly detect and mitigate an excursion.
 - Validation of alarm set points against MAOP requirements.
 - Actions may include but are not limited to: set point adjustments at regulator stations, providing training on changed policies and processes, and routine and frequent reporting on progress of implementing the corrective action plan.

Mid-Term Plan

The mid-term portion of the plan covers the period Q4 2102 through year-end 2013. The key elements of this portion of the plan include:

- Ensuring that procedures and work plans are modified to ensure the ongoing effectiveness of the pre-winter corrective action plans.
- Implementing a new distribution clearance process which is designed to eliminate many work procedure errors that occur today without Gas Control approval and oversight of distribution work.
- Improving the transmission clearance process based on industry best practices to eliminate work procedure errors on the transmission system.
- Beginning to implement system investments and improvements to expand system capacity, where needed, to implement control set points to allow more operating margin.
- Continuing to replace equipment and install new equipment at locations where failures are occurring and are identified as a root cause of over pressure events.

Long-Term Plan (by 2017)

The long-term portion is subject to approval of PG&E's 2014-2017 General Rate Case request. The key elements of this portion of the plan include:

- Field investments to help eliminate overpressure events. As proposed in the GRC, by the end of 2016, 85 percent of the distribution system will have, at a minimum, one remote monitoring point at each distribution regulator, and one remote monitoring device at a critical low point per hydraulically independent system. In addition, 90 percent of regulators and valves that are identified as critical will have remote control capability.
- A new control center will help PG&E to mitigate system risks through new procedures and enhanced system visibility and control. It will provide real time visibility into the dynamic pressures and flows within the gas distribution system. It will have remote control capability for

key distribution facilities such as regulators and valves, which will enable responsive, centralized system operation. These capabilities, combined with immediate access to gas dispatch and transmission control and a new, rigorous clearance process for field work, will substantially improve distribution system oversight as well as system planning, integrity, and reliability.

- Follow-up to other longer-term actions identified in the short-term and mid-term plans.

Team chaired by Mel Christopher, Gas System Operations.