CPUC Pipeline Safety Frequently Asked Questions
Oct. 8, 2010

Q: Do first responders know where pipelines are in their area?
A: Gas safety regulations require operators, including PG&E, to "establish and maintain liaison with appropriate fire, police, and other public officials…" It is intended that through this process both the operator and the officials can learn of each other's abilities to respond to a gas pipeline emergency and plan how mutual assistance can help minimize hazards to life and property during an emergency.

Regulations do not require PG&E to provide maps of its gas facilities to the local agencies, but following the San Bruno explosion, PG&E is now offering more information to first responders.

Maps have typically not been provided due, to some degree, to security reasons. There are other challenges that have prevented the maps from being routinely provided, which include the following:

1) PG&E would have to provide updated maps to all agencies on an on-going basis. Every update would have to be communicated to every fire, law enforcement, and other official agencies with which PG&E maintains liaison. If the local agency did not update its maps as often as PG&E updated them, it could potentially respond to a scene with incorrect information.

2) Gas safety regulations require that anyone performing a covered task on a pipeline be qualified per the operator's qualification program. This is not a one-time, but an on-going process by which the operator becomes responsible for the qualification of the individual and the work performed by that individual. If the responding agency were to use the maps to identify and close pipeline valves, it would require PG&E to fully equip and qualify any agency personnel to perform this task.

Q: What is a High Consequence Area (HCA)?
A: The federal pipeline safety regulations, CFR 49, Part 192, Subpart O contains requirements for gas transmission pipeline integrity management. One of the elements of an integrity management program is the identification of all the high consequence areas. The regulations provide specific methods to identify high consequence areas. In general, these methods take into account the number of buildings intended for human occupancy and their proximity to the pipeline. The methodology is specified in Part 192, sections 192.903 and 192.905.

To determine which segments of an operator's transmission pipeline system are covered by the gas transmission integrity management rules, an operator must identify the high consequence areas in its service territory. For each covered segment, an operator is required to identify the associated threats and risks, prioritize the segment for baseline assessment, and evaluate the merits of conducting additional preventative and mitigation measures.

Q: What are the state and federal regulations governing pipe safety?
A:

- Federal Pipeline Safety Regulations, Title 49 of the Code of Federal Regulations
- Pipeline Safety Improvement Act of 2002, Public Law 107-355
- CPUC General Order 112-E
- CPUC Gas Safety Program Requirements are codified in Public Utilities Code Sections 315, 768, 4351-4361 and 4451-4465

Q: How big are the backbone pipes vs. distribution pipes?
A:

- Smallest distribution piping: 1/2 inch
- Most distribution piping: 2, 4, and 6 inches
- Largest transmission piping: 42 inches
- Most transmission piping: 24, 30, and 36 inches

Q: What is the percentage of lines that cannot be inspected with a pig? (System wide transmission and Line 132)
A: According to its 2004 Baseline Assessment Plan, PG&E has 5,777 miles of transmission pipelines. Within this, PG&E has stated that it has 944 miles of PG&E and 28 miles of StanPac (a line PG&E co-owns with an another party, but is operated by PG&E) that are HCA miles. From among the total 972 HCA miles, PG&E provided an estimate that approximately 25 percent is piggable (this includes PG&E's plans to make pipelines piggable that are not already piggable). For the remaining 75 percent of HCA mileage, PG&E has assessed, or intends to assess, using External Corrosion Direct Assessment.

Q: What does an external inspection of a pipeline entail?
A: External inspection of a pipeline consists of routinely monitoring cathodic protection levels on a pipeline as well as a more detailed external inspection known as External Corrosion Direct Assessment (ECDA).

Cathodic protection (CP) is applied, on a continual basis, to steel pipelines to reduce the potential for external corrosion on these lines. CP levels must be monitored, at various locations in the vicinity of the pipeline, and actions taken to remediate any readings that do not comply with those specified by gas safety regulations. Line 132 was cathodically protected.

ECDA is a more specialized inspection process performed on a pipeline to look for external corrosion issues including low cathodic protection levels, as well as pipeline coating issues. Unlike routine CP monitoring performed at select locations, ECDA is performed over the entire length of the line being inspected.

ECDA is a four step process that combines pre-assessment, indirect inspections, direct examinations, and post assessment to evaluate the impact of external corrosion on the integrity of a pipeline. The pre-assessment step consists of collecting pipeline data, determining whether ECDA is feasible for the pipeline to be evaluated, selecting indirect inspection tools, and identifying ECDA regions. The indirect inspection step consists of using two or more indirect inspection tools with the objective to identify and define the severity of coating faults, other

anomalies, and areas at which corrosion activity may have occurred or may be occurring. The direct examination step consists of prioritizing the indications found during the indirect inspections, excavating to expose the pipe surface so that measurements can be made on the pipeline, evaluating the remaining strength, performing root cause analyses, and evaluating the process. The post assessment step consists of defining the reassessment intervals and assessing the overall effectiveness of the ECDA process.

Q: Do funds allocated during a General Rate Case stay within maintenance or can they be transferred elsewhere? Does a utility need permission from the CPUC to shift funds between funding categories?
A: In most cases, when the CPUC issues a decision on a utility's General Rate Case application or in the Gas Accord proceedings (PG&E's Gas Transmission and Storage revenue requirement request), the CPUC adopts a revenue requirement and the investor-owned utility (IOU) has the discretion to determine how best to use that revenue to operate its system. The IOUs do not need permission from the CPUC to shift funds between funding categories. In very limited circumstances, the CPUC has approved a specific funding amount for a specific type of work (tree trimming for example). In that case, those funds can only be used for that purpose and cannot be shifted elsewhere.

Q: What are the specific records the CPUC looks at when it conducts an audit?
A: A typical General Order 112-E audit involves review of records of operations and maintenance at the operator's local division or district. The following is a list of records most commonly reviewed during this type of audit:

- leak survey
- leak repairs
- cathodic protection survey and repairs
- atmospheric corrosion control monitoring
- line patrolling records
- compressor station procedures and inspection/maintenance records
- pressure limiting and regulating stations inspection records
- valve inspections and repairs
- vault maintenance
- odorization sampling
- identifying changes in Class Locations and review of the maximum allowable operating pressure (MAOP)
- pipeline testing records for new segments placed in service
- uprating records
- operator qualification records
- one-call tickets in response to the damage prevention program

Program-specific audits are also conducted. These audits include a review of the operator's processes and procedures for compliance with 49 CFR Part 192. The following is a list of program-specific audits:

- Operation, Maintenance, and Emergency Plans
- Operator Qualification

- Welding and Joining procedures
- Drug and Alcohol testing
- Public Awareness Program (going forward as the Pipeline and Hazardous Materials Safety Administration creates inspection process for this)
- Integrity Management Program

Q: What types of inspections were done on the San Bruno segment of pipe in March and in November 2009?
A: PG&E performed aerial pipeline patrols of Line 132 from approximately 16 miles south of the rupture location to the San Francisco county line on the following dates (03/18/09; 06/29/09; 09/16/09; 12/09/09; 03/17/10; and 06/16/10). None of these patrols noted any dead vegetation, construction, or other activity occurring near the incident location.

Leak surveys performed by PG&E, which included the rupture location on Line 132, were performed on the following dates: May 23-25, 2008; March 25, 2009; and March 18, 2010.

Finally, in 2009, PG&E performed a Direct Assessment on Line 132 as part of the baseline assessment of the line required by federal pipeline safety regulations. As noted above, the External Corrosion Direct Assessment process has four steps. Step 1 – pre-assessment includes data collection, and feasibility assessment to select the appropriate indirect assessment tool to use. Step 2 of the ECDA process includes indirect inspections. Indirect assessment was performed on a segment of Line 132 (M.P. 37.80-43.75), which included the location involved in the September 9th explosion and fire. The particulars of this indirect assessment will be examined as part of the NTSB's investigation. The type of indirect assessment method generally utilized by PG&E for this segment is a Close-Interval Survey. A close-interval survey involves a person holding electrodes walking along the line or close to the line to measure the current to ensure that the cathodic protection is working all along the line. The purpose of the survey is to identify areas where the cathodic protection may not be working effectively. This survey method detects situations such as pipeline coating holidays, interference, and contact with other metallic structures that may interfere with cathodic protection. Based on the indications received in the Step 2 survey, Step 3 calls for Direct Examinations of specific locations. Direct examination requires excavation of the pipe to measure coating defects, metal loss. Step 3 may also include ultrasonic testing or X-ray of the pipe. PG&E performed some Phase 3 - Direct Examinations in 2009 on Line 132 (specific locations will be confirmed as part of the NTSB investigation), but no direct examination excavations included the location involved in the September 9th explosion and fire.

Q: What is the history of actions the CPUC took to enforce or implement NTSB findings?
A: Following the September 12, 2008, Metrolink – Union Pacific Railroad multiple fatality collision in Chatsworth, the NTSB issued a new recommendation and reiterated previous recommendations to the Federal Railroad Administration (FRA):

- New: Inward-facing cameras should be installed on railroad (e.g., Union Pacific RR, Burlington Northern Santa Fe, Amtrak, Metrolink) locomotives to monitor the crew's actions. The FRA has jurisdiction regarding the installation of devices on railroad locomotives. However, the CPUC currently has a formal proceeding open to adopt an

inward-facing camera requirement for rail transit (BART, SF Muni light rail, Sacramento Rapid Transit District light rail, L.A. Metro) systems.

- Previous: Ban railroad crews from using personal electronic devices (PED) such as cell phones. Six days after the Chatsworth collision, the CPUC issued an emergency order implementing a ban on PED use by employees on railroads and rail transit systems in California. A few weeks later the FRA issued its own emergency order banning such use on railroads, replacing the CPUC's action regarding railroads. Regarding rail transit systems, the Federal Transit Administration (FTA) has no power to make such an order or regulation. The CPUC currently has a formal proceeding open to adopt a permanent ban in a General Order for rail transit systems.
- Previous: Positive Train Control technology should be installed that will prevent red signal violations and other collision scenarios on railroads. Again, the FRA has primary jurisdiction, although the CPUC has an open proceeding of its own to examine any state role needed.

Following a February 1, 2001, fatality on Angels Flight, an historic funicular railway in Los Angeles, the NTSB issued the following recommendations to the CPUC:

- Verify that the drive system meets accepted industry standards engineering practices. The CPUC required and verified this before operation was allowed to resume. Operations resumed March 2010.
- Require emergency stopping capabilities in all foreseeable failure modes. The CPUC required Angels Flight to rebuild its system with this new capability before resuming operations in 2010.
- Provide end-gates to contain passengers in the event of a collision. The CPUC required such installation before Angels Flight resumed operations.
- Provide emergency egress and ingress for passengers and emergency responders according to ANSI standards for funiculars. The CPUC, in conjunction with the L.A. Fire Department, determined such standards were met, although there is a continuing dialogue with the NTSB on this issue.

Following an April 26, 1997, San Francisco Municipal Transit Agency (MUNI) light rail vehicle collision with a handicapped loading platform, the NTSB recommended:

- That the CPUC, along with MUNI and an independent safety auditing organization, conduct a comprehensive safety review of the MUNI operations and infrastructure. The American Public Transit Association (APTA) and CPUC conducted a joint audit of MUNI in February 1998.

On July 31, 1991, in response to the increasing number and severity of accidents on the nation's rail transit systems, the NTSB made safety recommendations to all States in which such systems operated. The NTSB asked that the Governor of California:

- Develop or revise, as needed, existing programs to provide for continual and effective oversight of rail transit safety. In response, and in accordance with the FTA's final rule on guidelines for state safety oversight (SSO) of fixed guideway systems, the Governor designated the CPUC as California's SSO organization under the new federal guidelines. While the FTA does not have authority to directly regulate the rail transit systems, it works through the states with requirements such as for System Safety Program Plans and

audits of those plans. The CPUC added these responsibilities to its long-standing authority and regulatory program for rail transit.

Following a November 7, 1990, multiple-fatality collision of two Atchison, Topeka, and Santa Fe Railway Co. (ATSF) trains near natural gas and petroleum pipelines, the NTSB recommended:

- That the CPUC compile a 24-hour emergency phone number list for pipeline operators whose transmission lines are near ATSF property. Although the pipelines near this accident site were not involved in the casualties, the NTSB made the recommendations based on similar accidents where the pipelines became involved. The CPUC and ATSF completed this list in 1991.

Following a December 19, 1989, multiple fatality collision of an Amtrak train with a truck near Stockton, the NTSB issued the following recommendation to the CPUC:

- Require the use of active warning devices in advance of railroad/highway grade crossings actuated by the railroad crossing warning system where sight distances are frequently reduced by dense fog. The CPUC has been requiring this installation on a case-by-case basis, and has been educating local jurisdiction personnel of the need for identification of dense fog areas and advance warning installations.