Overview of PG&E's Quality & Improvement Program

August 21, 2013

BACKGROUND

- **Sept 2011 –** NTSB report on San Bruno identifies one of the probable causes of the accident to be lack of QA/QC during the 1956 L-132 relocation project
- **Oct 2011 –** Revamping QA/QC capability identified as one of PG&E's top priorities for Gas Operations
- **Jan 2012 –** Quality & Improvement Department was formed
- **2012 –** establish key quality programs (leak survey, leak repair, locate & mark, re-dig)
- **2013 –** expand comprehensive QA/QC, implement broad Corrective Action Program

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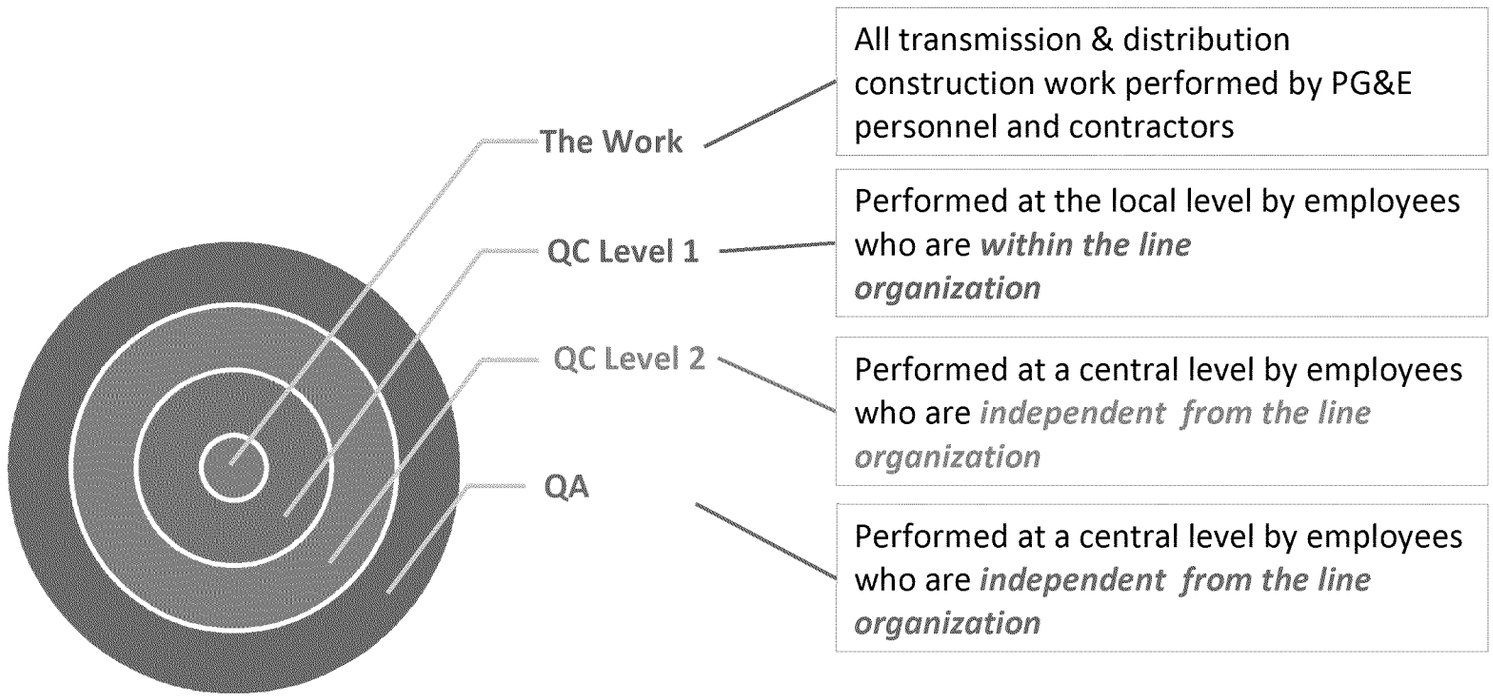
Quality:

Monitoring operations, for adherence to standards and procedures to ensure safe work practice performance and identify improvements -- through direct observations, statistical valid sampling and trending , formal audits, and monitoring the gas industry (and other industries) for safety-related issues and events.



Level 1 activities (***performed by the Line of Business***) include real-time monitoring, supervision, and inspection of work performed in the field.

Level 2 activities (***performed by the Quality & Improvement organization***) typically consist of a representative sampling of data or work performed in the field in order to draw conclusions with an acceptable level of confidence.

Quality Assurance activities typically consist of planned activities which look at the upstream processes/procedures to help assure quality and safety standards will be met. These activities include auditing, assessments, qualification activities, and process monitoring.

GENERAL QC PROGRAM FRAMEWORK

- Define regulations, policies, standards, work procedures governing the work
- Develop a risk-based scorecard
- Identify the population of completed work
- Perform field post-work verifications on a random sampling basis
- Communicate findings
- Adjust the sampling based on findings
- Develop local or system corrective actions for any findings as appropriate

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QC PROGRAMS – LEVEL 2

QC PROGRAM	STATUS	DESCRIPTION
Field Services	Operational since the 1990's	Performs in field quality control reviews of Gas Service Rep completed tags including customer appliance inspections and leak investigations
Leak Survey	Operational since 2009	Measures the quality of leak survey maintenance process including whether any Grade 1's were missed
Leak Repair	Operational since 2009	Evaluates completed leak repairs for the presence of gas 90 days post-repair and checks zero'd out leaks
Locate & Mark (L&M)	Operational since 2011	Validates and scores completed L&M tags including "No Conflict" tags
Transmission Construction	Operational since 2011	Measures the quality of transmission construction work performed by PG&E employees and contractors as the work is being performed
Distribution Construction (Re-Dig)	Operational since 2013	Measures the quality of short cycle distribution installation and leak repair work performed by PG&E employees and contractors after the work has been completed
Metering	Actively under development	Pilot planned for 2nd quarter. System-wide rollout by end of 2013.
Corrosion Control	Actively under development	Development starting in 2013, pilot scheduled for 2013.
Regulation Maintenance	Future	Development starting in 2013, pilot scheduled for early 2014.
Valve Maintenance	Future	Development starting in 2013, pilot scheduled for early 2014.

QUALITY ASSURANCE (QA)

- Typically consists of audit activities
- The primary focus of QC assessments are the field work, while QA activities look at the upstream processes and procedures
- Annual audit plan is developed based on the risk register
- Audit plan is implemented
- Findings are issued and corrective action plans are developed and implemented to address findings

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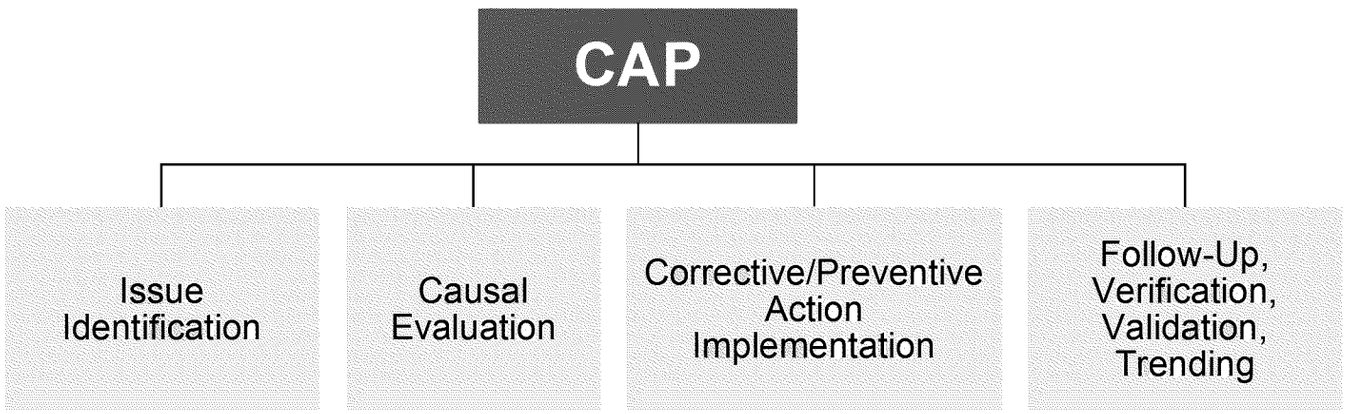
AUDITS COMPLETED in Q1, Q2 of 2013
Q1 2013
• Valve Maintenance Process – system-wide audit encompassing transmission and distribution. • Pipeline Safety Enhancement Plan – Welding and Radiography Procedures. • Gas Asset Mapping Metric – Testing of 2012 Year-End Results. • IGIS – review of potential issues associated with downgrading/closing of leaks. • Safety Phase Protocols and Procedures /SFFD commitments – evaluate newly implemented procedures/controls.
Q2 2013
• Gas Leak Survey – Tablet Computer Technology. • Pipeline Centerline Survey (PLCL) Project (Part 1) • Pipeline Replacement and Valve Automation Environmental Permit Compliance • Non-Major Capital Projects (Utility-wide audit that will include review of some Gas Operations projects) • Gas Emergency Response Plan (GERP) - evaluate effectiveness of response to Level 1, 2, and 3 events • Gas Storage – assess management of contracted work, including procedures, qualifications, oversight, and quality of work

Corrective Action Program (CAP)

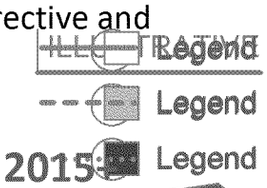


Examples of Issues to be reported into CAP:

- Employee Feedback
- Audit Findings
- Incidents
- Near Hits

PG&E's Vision for the Corrective Action Program (CAP):

"Process for centrally reporting all gas related issues for evaluation, risk-based analysis, corrective and preventive action tracking, and trending for the purpose of improving safety."



2012	2013	2014	2015
Title Unit of measure			
Establish	**Implement**	**Reinforce**	**Institutionalize**
• Establish CAP as Key Process for Gas Ops • Identify CAP Process Owner, Champion and functional Team • Develop initial high-level CAP process and procedures • Initiate Pilot for CAP System	• Complete CAP Pilot and identify Lessons Learned • Launch formal CAP project including: processes, procedures, system, change management, communications, and training • Roll-out CAP process to all employees including audience-specific training	• Continue education, training, and communication campaign for reinforcement • Use CAP metrics to drive improvements • Increase ownership of issues and actions across all departments • Develop and implement Human Performance Tools program • CAP Process/System improvement based on user feedback	• Employees frequently initiate CAP notifications • Reduce rate of critical, high, and repeat issues • High level of organizational ownership from issue origination through action completion • Establish formal links or consolidation between CAP and other issue reporting systems • Use CAP data to routinely initiate risk-based process improvement projects

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CAP – RISK MATRIX

Severity \ Probability		D **Rare** Once in 35 year career	C **Possible** Once in 10 years	B **Likely** Once a year	A **Almost Certain** More than monthly
1	One of the following occurred or has the potential to: • One or more fatalities • Damage to critical asset with widespread loss of service • Financial loss > $250M • Pipeline or facility shut down by regulatory agency • Catastrophic environmental effect • Extended national / international and media coverage (> 6 months)				
2	One of the following occurred or has the potential to: • Serious or disabling injuries • Damage to critical asset with limited loss of service • Financial loss $7M-250M • Regulatory penalty, legal action, or large fines • Widespread environmental effect • Extended national / international media (1 week - 6 months)				
3	One of the following occurred or has the potential to: • Minor injuries or near hit with exposure to serious injuries • Damage/degradation of critical asset with threat to continuity of service • Financial loss $200k-7M • Warning letter, notice of violation, no fines expected, audit findings • Localized environmental effect • Local / State media coverage				
4	One of the following occurred or has the potential to: • First aid, no injuries, or safety concern • Limited or no damage to assets, no threat to continuity of service • Financial loss <$200k • Limited or no regulatory action, inspection findings • Limited or no environmental effect • No media coverage				