

# Line 147 Update

PG&E Gas Operations  
City of San Carlos  
June 17<sup>th</sup>, 2014

# Pipeline Safety Enhancements

Program	Description	Status
<b>Strength Testing</b>	<ul style="list-style-type: none"><li>Line 147 has been successfully strength tested</li><li>Significant portion of the line was tested in 2011</li></ul>	Completed
<b>Valve Automation</b>	<ul style="list-style-type: none"><li>Automated Valves installed at <span data-bbox="1161 664 1503 717">Redacted</span> <span data-bbox="523 728 1271 771">Redacted</span> in 2013</li></ul>	Completed
<b>In-Line Inspection (ILI)</b>	<ul style="list-style-type: none"><li>Replacement of a bend required prior to ILI</li><li>In-Line Inspection runs to be performed</li></ul>	Scheduled in 2014
<b>Routine Maintenance</b>	<ul style="list-style-type: none"><li>Increased pipeline patrolling and leak survey activities</li></ul>	Ongoing

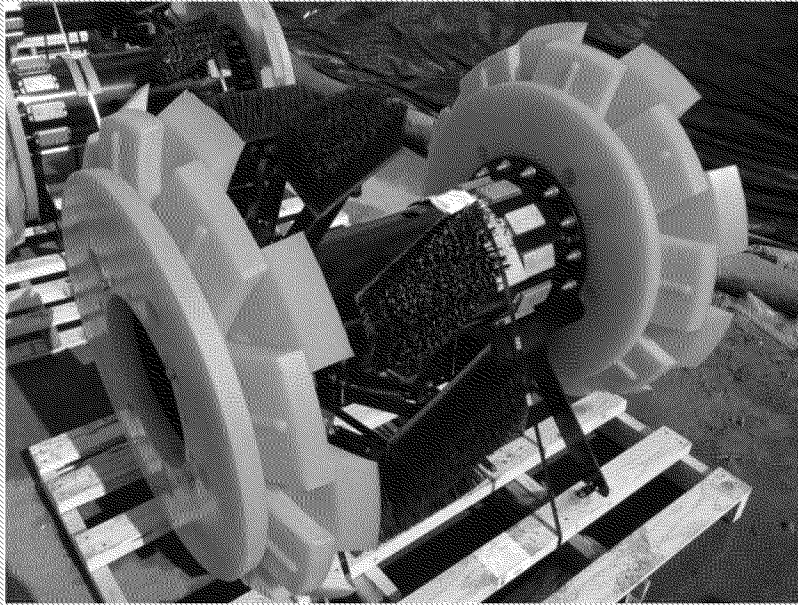
# Pipeline Retrofit

This section of L-147 contains a 25 degree bend and associated pipe that crosses a creek and will require replacement

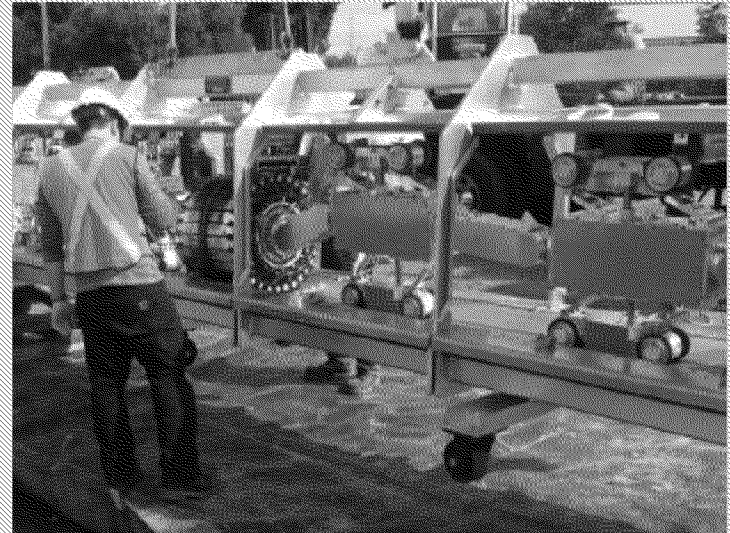
- Located in Mid-Peninsula Open Space
- Currently in permitting process (started October 2013) with California Department of Fish and Wildlife



# In-Line Inspection Tools



- In-Line Inspection (ILI) tools are used to assess the integrity of pipelines. A “pig” travels inside the pipe to measure and record irregularities that may indicate the presence of corrosion, deformations (dents, gouges, etc.) or other types of defects.
- ILI tools also provide information regarding pipeline specifications including changes in wall thickness and designation between seam and seamless pipe.





# Pig Launcher and Receiver

Temporary above-ground piping will need to be installed at the launcher and receiver locations to insert the ILI tools into the pipeline. This piping will remain until the inspection is completed.

**Launcher:** [Redacted] (San Carlos)




**Receiver:** [Redacted] – Unincorporated San Mateo County

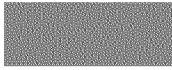
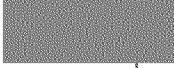





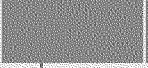

( [Redacted] )



# Project Timeline

## Line 147 In-line Inspection Schedule

	Pipeline Modification
	Pressure Increase
	In-Line Inspection

	2014 Q3	2014 Q4	2015 and Beyond
Pipeline retrofit of bend to facilitate ILI			
Prepare launcher and receiver stations for in-line inspection at <span style="border: 1px solid black; padding: 2px;">Redacted</span> <span style="border: 1px solid black; padding: 2px;">Redacted</span>			
Perform Cleaning Run at 310 psig			
Perform Geometry Tool Run at 310 psig			
Determine most successful ILI option			
<b>Preferred Option:</b> Perform MFL Run using traditional tool at current Operating Pressure of 310 psig (MAOP = 330 psig)			
<b>Alternative 1:</b> Perform MFL Run using traditional tool with the vendor requirement of 365 minimum operating pressure (Temp. Pressure Increase required)*			
<b>Alternative 2:</b> Perform non-traditional (robotic) ILI			 

\*Schedule based on assuming an expedited process for a temporary pressure increase, only for the duration of performing the ILI run, is approved by the CPUC

# Traditional ILI

Traditional ILI tools are propelled through the pipeline using the pressure and flow from natural gas.

Benefits	Challenges
Proven technology with extensive PG&E and Industry Experience	ILI vendor recommends minimum pressure of 365 psig (hydraulic limitations)
Minimize pipeline impact – utilizes existing stations at start and end of Line 147	Potentially impacts ability to serve natural gas to customers – Cannot be performed during winter months (hydraulic limitations)
Minimal interruption in ability to serve natural gas to customers.	At lower pressures, the tool performance is compromised and there is a higher potential for tool damage
	Only one tool available on the market for inspection of 20-24" gas pipelines at this pressure

# Non-Traditional ILI

Non-traditional ILI tools can also inspect the pipeline. These tools are battery operated and move through the pipeline via robotic crawlers

## Benefits

Allows for inspection to be performed without the need for natural gas pressure and flows

## Challenges

Potentially impacts ability to serve natural gas to customers – Cannot be performed during winter months (hydraulic limitations)

New Technology with limited PG&E and Industry Experience

Limitations on inspecting bends

Some sections of Line 147 may remain uninspected due to tool limitations

Requires at least 7 excavations for in-line charging, pressure control fittings, and/or short pipe removals

Significant extended project duration



# Line 147 Overview Map

Redacted



Thank You