

1 Problem

What	Problem(s)	Natural gas leak, fire, explosion
When	Date	February 19, 2013
	Time	See timeline
	Different, unusual, unique	Businesses not fully evacuated
Where	State, city	Kansas City, KS
	Facility, site	Business plaza
	Task being performed	Gas line struck during installation of fiber-optic cable

Impact to the Goals

Safety	One fatality; 15 injuries
Environmental	Natural gas leak
Customer Service	Ineffective evacuation
Production-Schedule	?
Property, Equip, Mtls	Restaurant destroyed
	Damage to adjoining buildings
Labor, Time	Investigation by state utility regulators

NATURAL GAS LEAK

Explosion results, killing one

A natural gas leak was reported to the Kansas City Fire Department just prior to 5 pm. However, the area was not evacuated until just prior to an explosion that left 1 dead and 15 injured. The leaking gas was not shut off until 3 hours after the report.

"We don't do gas." - Kansas City Fire Chief

Cause Mapping is a Root Cause Analysis method that captures basic cause-and-effect relationships supported with evidence.

CAUSE MAPPING

Problem Solving • Incident Investigation • Root Cause Analysis

Step 1 **Problem**

Step 2 **Analysis**

Step 3 **Solutions**

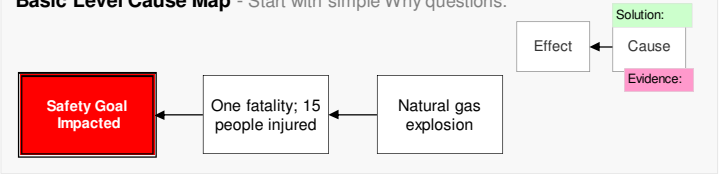
What's the Problem?

Why did it happen?

What will be done?

2 Analysis

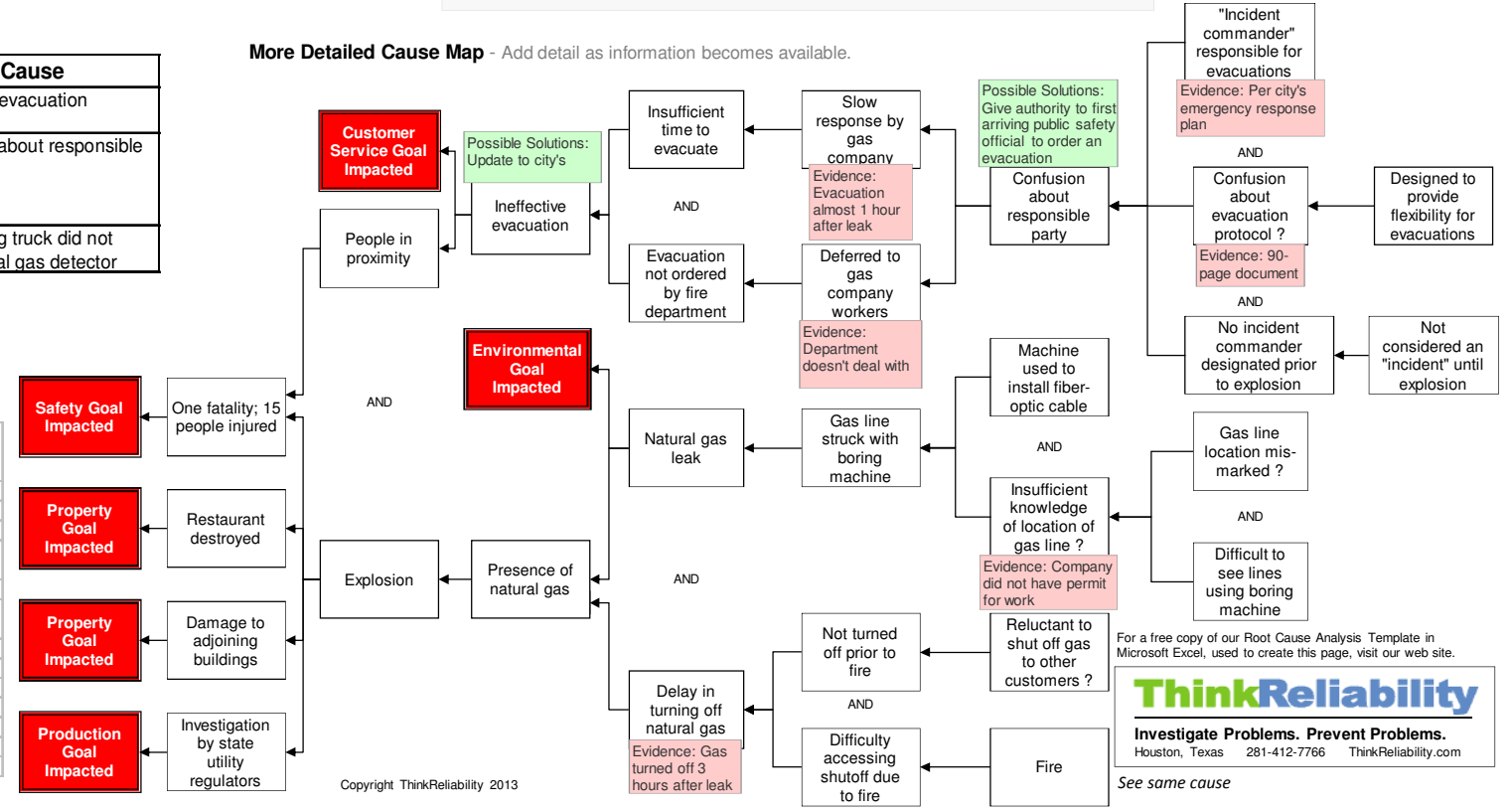
Basic Level Cause Map - Start with simple Why questions.



3 Solutions

No.	Action Item	Cause
1	Update to city's evacuation protocol	Ineffective evacuation
2	Give authority to first arriving public safety official to order an evacuation	Confusion about responsible party
3	Outfit all fire trucks with gas sniffers	Responding truck did not have natural gas detector

More Detailed Cause Map - Add detail as information becomes available.



Timeline

Time	Description
8:00 AM	Construction company notifies state officials of plan to dig as deep as 7' near site to install fiber-optic cable
	Construction begins
??	2" gas line struck with boring machine
??	Reports of smells of gas
4:54 PM	Construction company calls 911 to report gas leak
4:55 PM	Firefighters alert gas company
5:04 PM	Fire department pumper truck arrives on-scene
5:16 PM	Gas company worker on-scene
5:17 PM	Pumper truck put into service
5:31 PM	Second gas company worker on-scene
Before 5:50 PM	Restaurant asked to evacuate
6:00 PM	Fire starts at restaurant
	Explosion
8:00 PM	Leaking gas shut off

For a free copy of our Root Cause Analysis Template in Microsoft Excel, used to create this page, visit our web site.



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See same cause