

The first step of the investigation is to fill out the outline.

Train Explosion Viareggio, Italy June 29, 2009

On the evening of June 29, 2009, a train carrying liquefied natural gas derailed and exploded in the town of Viareggio, in western Italy. Search and rescue operations are still ongoing, and the cause for the derailment is not yet known. Although that means we are lacking some information, we can still begin our root cause analysis investigation, in the form of a Cause Map. A thorough root cause analysis built as a Cause Map can capture all of the causes in a simple, intuitive format that fits on one page.

The benefit to beginning a root cause analysis investigation before all the information is known is to provide a framework for the investigation to build on. People find it much easier to comment on a partially finished Cause Map than to piece together the investigation from scratch.

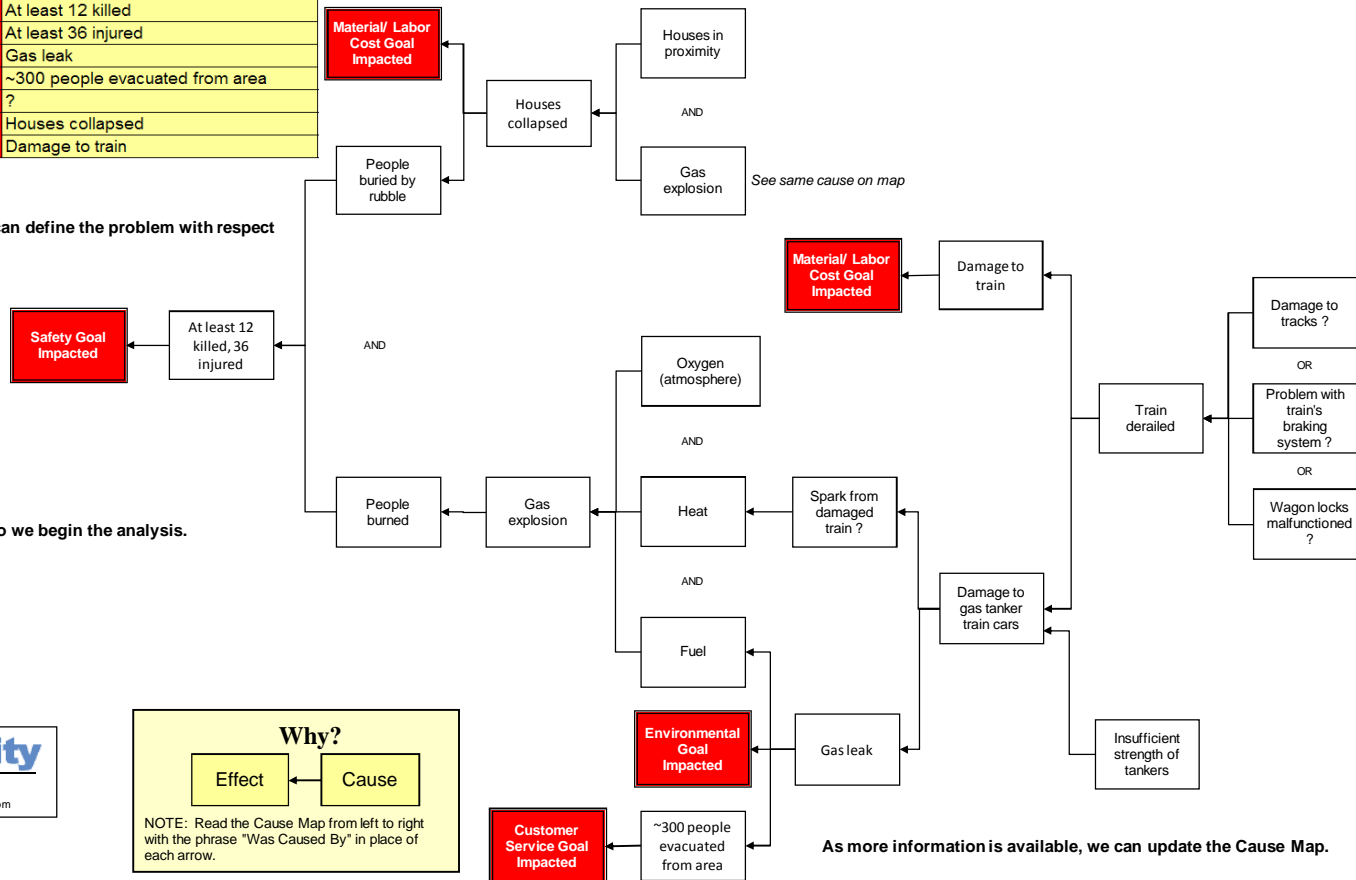
Step 1. Outline the Problem

What	Problem(s)	Gas leak, explosion, train derailment
When	Date	June 29, 2009
	Time	11:45 p.m. local time (2145 GMT)
	Differences	?
Where	Physical Location	Viareggio, Italy
	Unit/Process/Equipment	14-carriage train
	Work Being Done	Transporting liquefied natural gas

Impact to the Goals

Safety	At least 12 killed
	At least 36 injured
Environmental	Gas leak
Community	~300 people evacuated from area
Production-Schedule	?
Material, Labor Cost	Houses collapsed
	Damage to train

Once we've defined the problem, we can define the problem with respect to the impact to the goals.

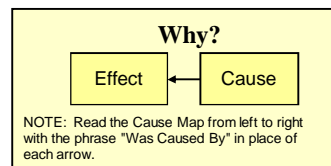


Only after completing the outline do we begin the analysis.

Cause Map Detail Level



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As more information is available, we can update the Cause Map.