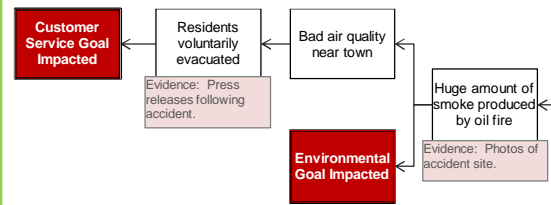


1 Problem

What	Problem(s)	Train collision, large oil fire
When	Date	December 30, 2013
	Time	- 2:20 p.m.
	Different, unusual, unique	??
Where	Facility, site	Train tracks near Casselton, North Dakota
	Unit, area, equipment	Freight trains
	Task being performed	Transporting grain and crude oil

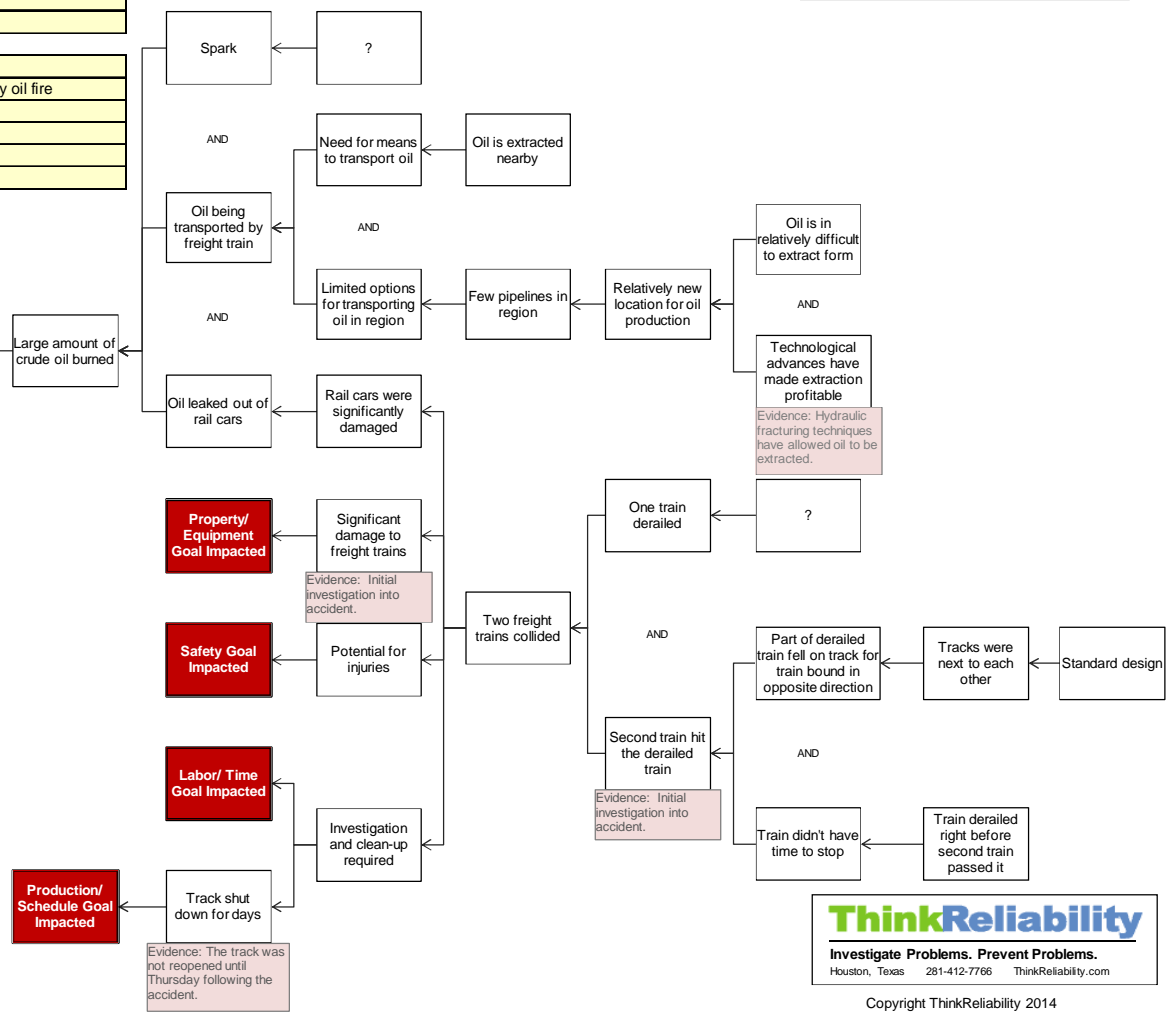
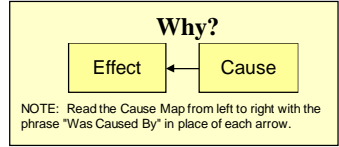
Impact to the Goals	
Safety	Potential for injuries
Environmental	Huge amount of smoke produced by oil fire
Customer Service	Residents voluntarily evacuated
Production/ Schedule	Track shut down for days
Property/ Equipment	Significant damage to freight trains
Labor/ Time	Investigation and clean-up required

2 Analysis



Freight Train Carrying Crude Oil Explodes After Colliding With Another

On Monday, December 30, 2013, a 106-car freight train carrying crude oil derailed in North Dakota and violently exploded after colliding with another derailed train that was on the tracks. No injuries were reported, but the accident did cause an impressive plume of hazardous smoke and major damage to two freight trains.



3 Solutions

The final step in the Cause Mapping process is to determine solutions that can be implemented to reduce the risk of similar accidents occurring in the future. In this example, more information is needed to determine why the first freight train derailed. Investigations are also looking into the safety of the tank cars used to haul oil to determine if they are adequate.

