

Outline

Define the Problem

What	Problem(s)	Crash of balloon, loss of mission
When	Date	April 29, 2010
	Different, unusual, unique	High winds
Where	State, city	Australia
	Facility, site	Alice Springs Balloon Launching Center
	Unit, area, equipment	400-foot NASA balloon
	Task being performed	Launching Nuclear Compton Telescope

Impact to the Goals

Safety	Near miss - injury to onlookers	
Environmental	?	
Cust. Service	Build team devastated	
Production-Schedule	Balloon flights put on hold	
Property, Equip, Mtis	Damage to telescope	Millions
	Damage to nearby vehicle	?
Labor, Time	Rebuild/repair telescope	

This incident Millions

Frequency ~4% of balloon launches fail

Annualized Cost ?

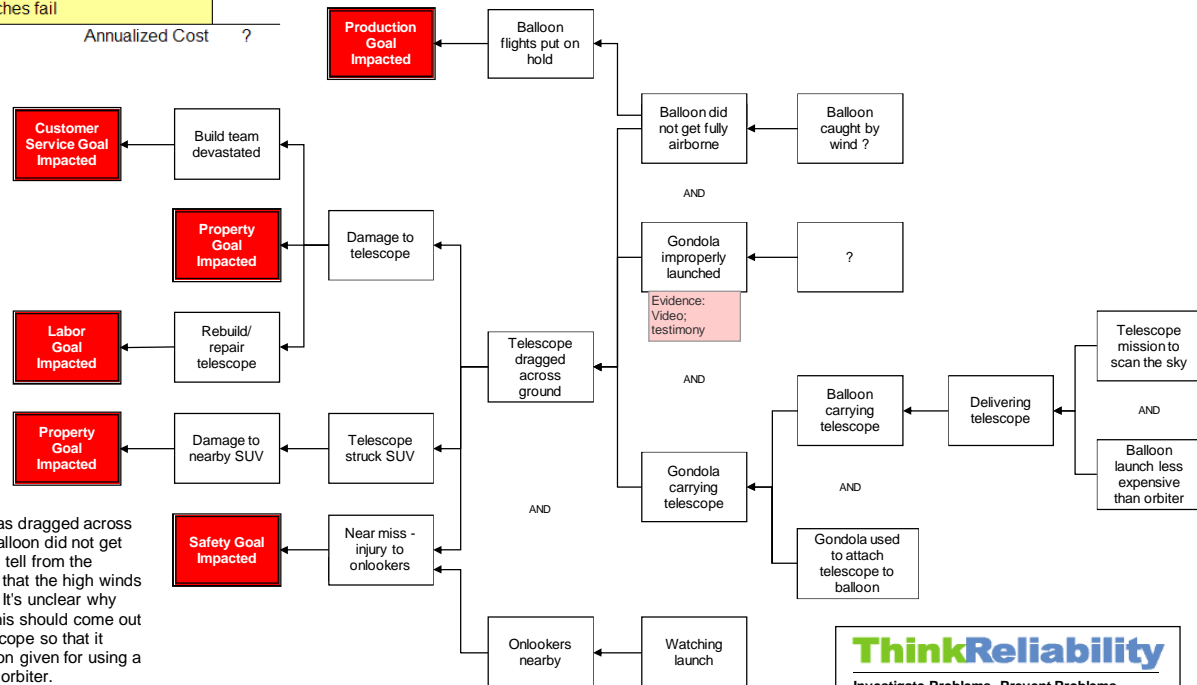
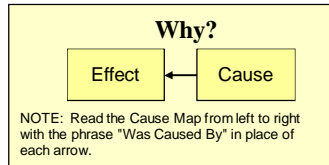
**Balloon and Telescope Payload Crash
Alice Springs, Australia
April 29, 2010**

The plan for the telescope was exciting. It was a nuclear compton telescope (NCT), built to map gamma rays, to aid in locating astrophysical objects like supernovae, pulsars and black holes. The telescope was being launched by balloon from Alice Springs, Australia for an optimal view. The NCT team had been hard at work and on April 29, 2010, eagerly awaited the launch, as did news crews and other onlookers.

However, instead of delivering the telescope to nearly 25 miles above ground, the gondola carrying the telescope left the launcher awkwardly and dragged across the ground. It hit and overturned a nearby vehicle and barely missed injuring the spectators gathered nearby. The telescope suffered major damage. The build team was devastated and will likely be spending considerable effort and resources rebuilding or repairing it. As a result, all balloon launches were put on hold. (The next launch was scheduled for this month.)

Although an in-depth investigation is taking place, we can begin a root cause analysis with the information that is known so far. The near miss of injuring onlookers is an impact to the safety goal. The devastation of the build team is an impact to the customer service goal. Balloon flights on hold are an impact to the production goal. The damage to the telescope and the vehicle are impacts to the property goal. The rebuild or repair of the telescope is an impact to the labor goal. With these impacted goals in mind, we can begin a Cause Map.

**Cause Map
Detail Level Analysis**



The damage to the telescope occurred when the telescope was dragged across the ground. It was dragged across the ground because the balloon did not get airborne, the gondola launched improperly (as best as we can tell from the video), and the gondola was carrying the telescope. It's likely that the high winds in the area impacted the ability of the balloon to get airborne. It's unclear why the gondola was improperly launched - more information on this should come out through the investigation. The gondola was carrying the telescope so that it could be launched by balloon to complete its mission. A reason given for using a balloon is that it is less expensive to build and launch than an orbiter.

