

1 Problem

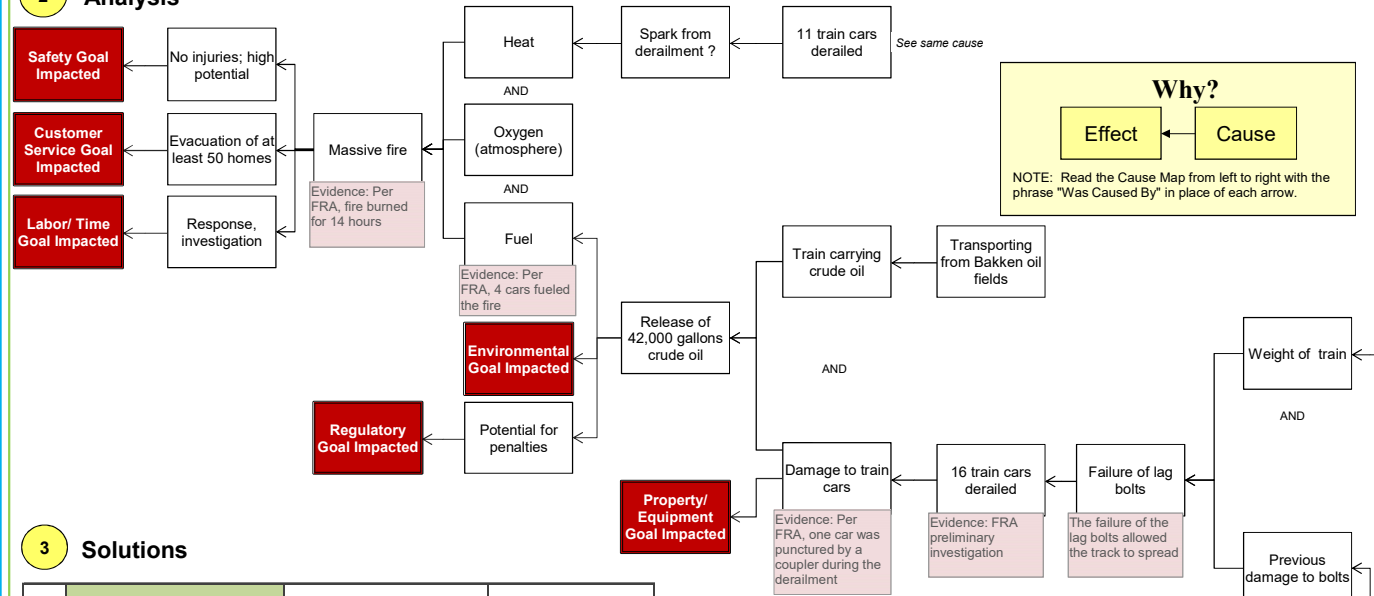
What	Problem(s)	Train derailment, oil spill, massive fire
When	Date	June 3, 2016
	Time	12:15 PM PDT
	Different, unusual, unique	Inspections within days of derailment did not identify damaged bolts
Where	Facility, site	Mosier, Oregon
	Unit, area, equipment	94-car train
	Task being performed	Hauling crude oil from North Dakota

Impact to the Goals

Safety	No injuries; high potential
Environmental	Release of 42,000 gallons crude oil
Customer Service	Evacuation of at least 50 homes
Regulatory	Potential for penalties
Production/ Schedule	Requested halt on oil train traffic
Property/ Equipment	Damage to train cars
Labor/ Time	Response, investigation

Frequency: Only one other known instance where failed lag bolts caused a derailment

2 Analysis



3 Solutions

No.	Action Item	Cause	Owner(s) (Names)
1	Replace with heavier-duty bolt	Failure of lag bolts	Railroad
2	Perform GRMS 4x/ year	Not identified by GRMS	
3	Enhanced hi-rail inspections 3x/ week	Damage not identified prior to failure	
4	Increase track inspections to 3x/ week		
5	Perform lag curve walking inspections monthly	Railroad inspections performed from vehicle	

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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BROKEN BOLTS CAUSED DERAILMENT

Damage was not seen on inspections 3 days prior

Cause Map

"Railroads can always and they should go above and beyond our minimum maintenance requirements and our minimum inspections requirements. But the reality is we have to move dangerous products in this country all the time."

- Administrator of the Federal Railroad Administration Sarah Feinberg



US Coast Guard photo

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 What's the Problem?
Step 2 Analysis Why did it happen?
Step 3 Solutions What will be done?

