

**High Speed Train Delay
Channel Tunnel
December 18-22, 2009**

High-speed train service in the Channel Tunnel (connecting Britain, France and Belgium) resumed partially on Tuesday, December 22, 2009 after a complete stoppage that began Friday, December 18th when five trains failed inside the tunnel.

Eurostar, the operator of the train, has stated that the failure of the trains were caused by an electrical failure due to condensation from snow that was able to enter the snow screens protecting the engine and higher temperatures within the tunnel than outside. Unseasonably cold weather was believed to cause finer, lighter snow than usual, which was able to enter the screens.

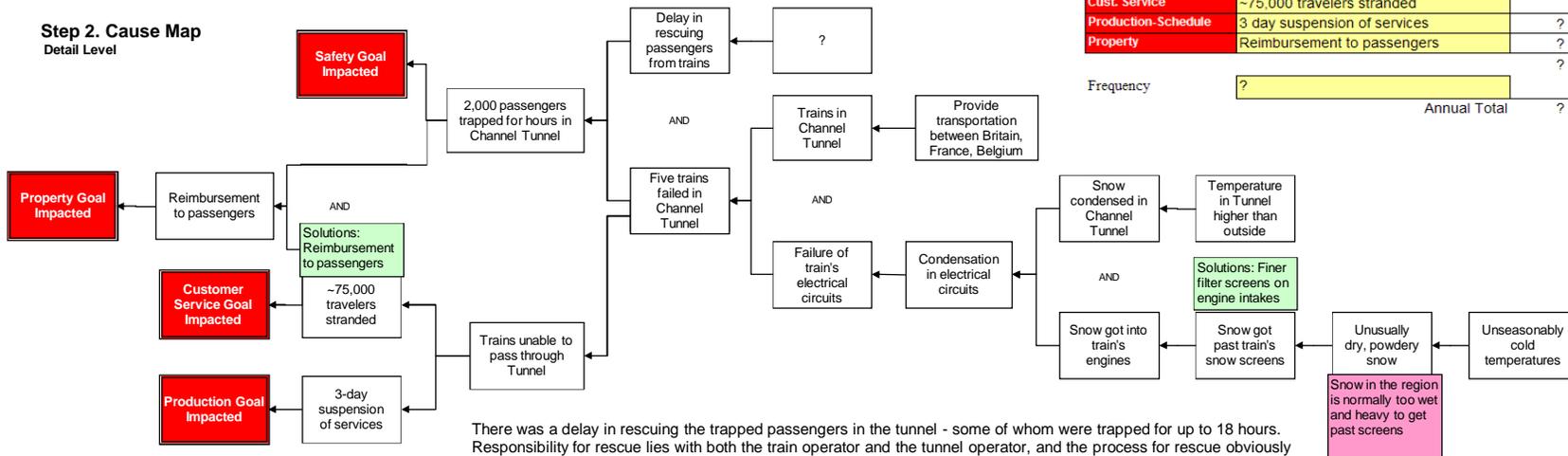
Step 1. Outline

What	Problem(s)	Trains trapped in Channel Tunnel, 3 day suspension of services
When	Date	12/18/2009 (problems began)
	Time	N/A
	Differences	Unusually dry, powdery snow
Where	Physical Location	Channel Tunnel
	Unit/Process/Equipment	Eurostar High Speed Rail Service
	Work Being Done	Linking Britain, France & Belgium

Impact to the Goals

Safety	2,000 passengers trapped for hours in Channel Tunnel	
Environmental	N/A	
Cust. Service	~75,000 travelers stranded	
Production-Schedule	3 day suspension of services	?
Property	Reimbursement to passengers	?
		?
Frequency	?	?
	Annual Total	?

**Step 2. Cause Map
Detail Level**



There was a delay in rescuing the trapped passengers in the tunnel - some of whom were trapped for up to 18 hours. Responsibility for rescue lies with both the train operator and the tunnel operator, and the process for rescue obviously needs to be reviewed by both parties to determine a better course of action the next time a rescue plan is needed. Additionally, the train operator will want to review its policies based on the reports of abysmal customer service throughout the event.

Eurostar took immediate action to install finer filters on the engine intakes and trains were put back into service on Tuesday, the 22nd. The company has also stated it will reimburse passengers for the delay, but this solution will take longer to implement.

Why?



NOTE: Read the Cause Map from left to right with the phrase "Was Caused By" in place of each arrow.

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Step 3. Solutions

Action Items Table

No.	Cause	Action Item	Owner	Due Date	Status	Completed
1	2,000 passengers trapped for hours in Channel Tunnel	Reimbursement to passengers	Eurostar	?	?	
2	~75,000 travelers stranded					
3	Snow got past train's snow screens	Finer filter screens on engine intakes	Eurostar	ASAP	Completed	12/22/2009