VALDEZ OIL SPILL

Errors Compounded by Fatigue

People make more mistakes when they are fatigued. When an entire crew is fatigued, the mistakes can be compounded until disaster strikes. This vicious cycle can only be stopped by instituting policies that ensure crewmembers will be rested enough to perform their duties.

Basic Cause-and-Effect

Shortly after midnight on March 24, 1989, the VALDEZ, transporting crude oil from Alaska to California, struck Bligh Reef. The damage to the vessel allowed 258,000 barrels (10.8 million gallons) of crude oil to be released into Prince William Sound, in the most ecologically damaging oil spill in North America, and possibly the world.

1. **Problem**
   - **What**: VALDEZ grounding, oil spill, navigational error
   - **When**: March 24, 1989
   - **Where**: Prince William Sound near Valdez, AK
   - **Impacted**: Transporting crude oil

2. **Analysis**
   - **Basic Level Cause Map**: Start with simple Why questions.
   - **Basic Cause-and-Effect**: Why did it happen? What will be done?

3. **Solutions**
   - **1. Solution**: Modify routes
   - **2. Solution**: Give warnings when vessels out of bounds
   - **3. Solution**: Add radar sites
   - **4. Solution**: Limit speed in Sound
   - **5. Solution**: Require two watch officers on watch to check plot
   - **6. Solution**: Require two watch officers on watch to check plot
   - **7. Solution**: Require vessels to transit sound by day
   - **8. Solution**: Allow larger layover in AK
   - **9. Solution**: Increase crew size
   - **10. Solution**: Increase rest times

**Cause Mapping** is a Root Cause Analysis method that captures basic cause-and-effect relationships supported with evidence.