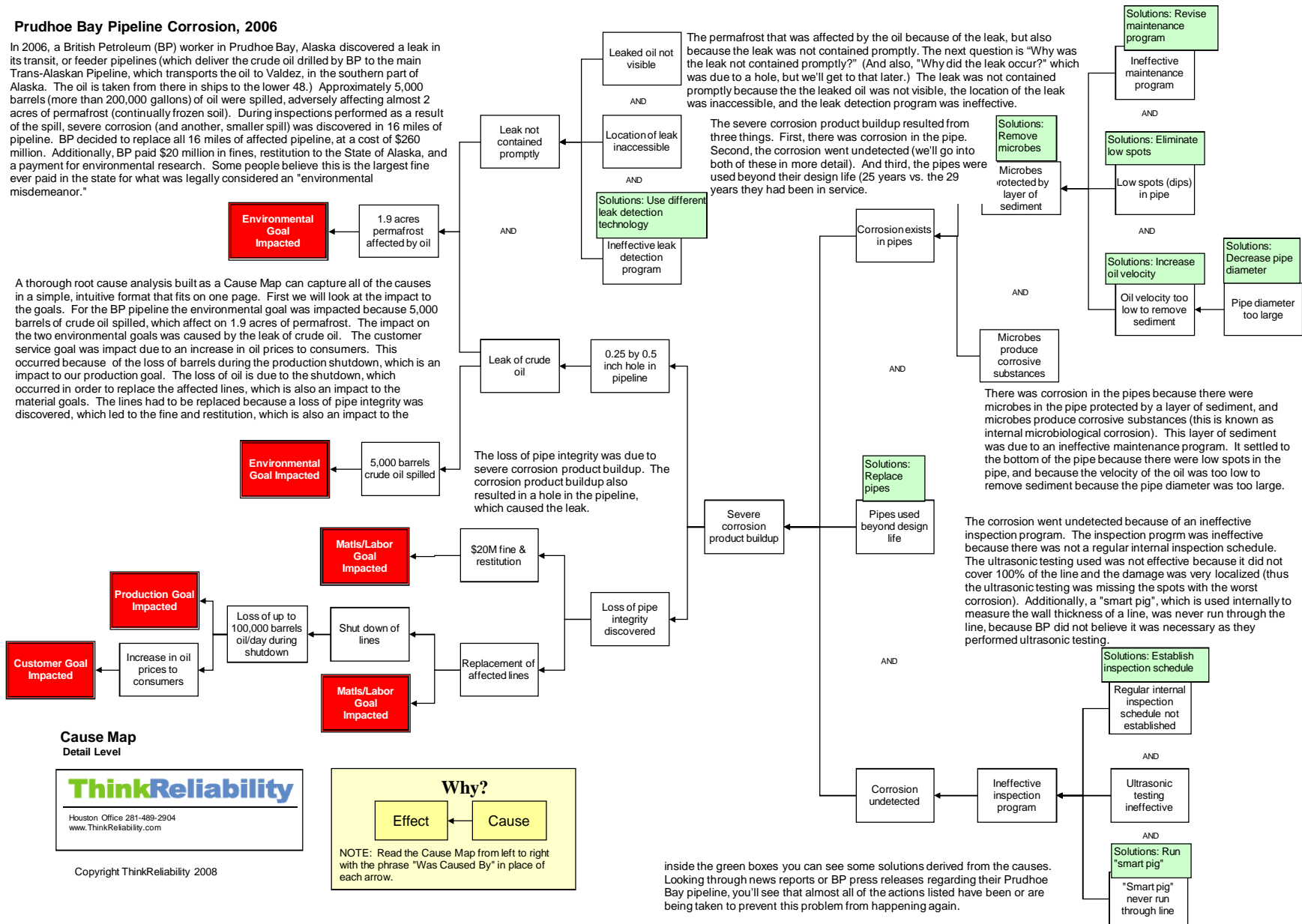


Prudhoe Bay Pipeline Corrosion, 2006

In 2006, a British Petroleum (BP) worker in Prudhoe Bay, Alaska discovered a leak in its transit, or feeder pipelines (which deliver the crude oil drilled by BP to the main Trans-Alaskan Pipeline, which transports the oil to Valdez, in the southern part of Alaska. The oil is taken from there in ships to the lower 48.) Approximately 5,000 barrels (more than 200,000 gallons) of oil were spilled, adversely affecting almost 2 acres of permafrost (continually frozen soil). During inspections performed as a result of the spill, severe corrosion (and another, smaller spill) was discovered in 16 miles of pipeline. BP decided to replace all 16 miles of affected pipeline, at a cost of \$260 million. Additionally, BP paid \$20 million in fines, restitution to the State of Alaska, and a payment for environmental research. Some people believe this is the largest fine ever paid in the state for what was legally considered an "environmental misdemeanor."

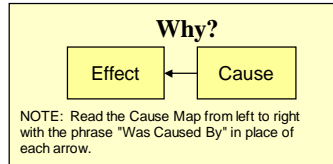
A thorough root cause analysis built as a Cause Map can capture all of the causes in a simple, intuitive format that fits on one page. First we will look at the impact to the goals. For the BP pipeline the environmental goal was impacted because 5,000 barrels of crude oil spilled, which affect on 1.9 acres of permafrost. The impact on the two environmental goals was caused by the leak of crude oil. The customer service goal was impacted due to an increase in oil prices to consumers. This occurred because of the loss of barrels during the production shutdown, which is an impact to our production goal. The loss of oil is due to the shutdown, which occurred in order to replace the affected lines, which is also an impact to the material goals. The lines had to be replaced because a loss of pipe integrity was discovered, which led to the fine and restitution, which is also an impact to the



Cause Map
Detail Level



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inside the green boxes you can see some solutions derived from the causes. Looking through news reports or BP press releases regarding their Prudhoe Bay pipeline, you'll see that almost all of the actions listed have been or are being taken to prevent this problem from happening again.