Mississippi Oilfield Explosion & Fatalities

On June 5, 2006, three oilfield workers were killed after they were blown off of two storage tanks. Four contract workers arrived at a well pad to weld a new pipe connection between two storage tanks. As the welder began welding, vapors from a third storage tank that contained hydrocarbon liquids ignited causing an explosion.

Expand as Needed As more details become clear, your Cause Map expands. The severity of this incident was made worse because the 3 workers killed were not using fall protection, which is not captured in the 5-why. Fall protection, a form of personal protection equipment would not have prevented the explosion, but the use of a gas monitor, also considered personal protection equipment may have.

New Piping Connection

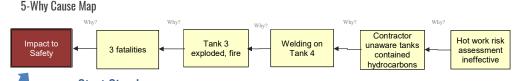
Open-ended Piping

Tank

#3

Overflow Pipes

#2



Sparks present

AND

Hydrocarbon

vapors in

Tank 3

vapors ignited

Start Simple An analysis breaks a problem down into basic cause-and-effect relationships. The 5-Why Cause Map (above) is a simple and guick way to start an investigation. Adding more causes naturally leads to a wider range of solutions being considered. A quick 5-why may focus on the lack of hot work safety

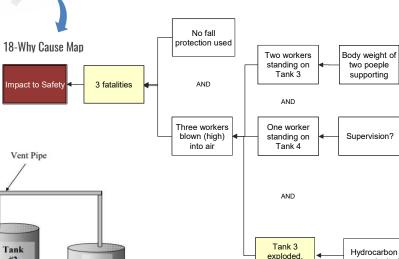
Welding on

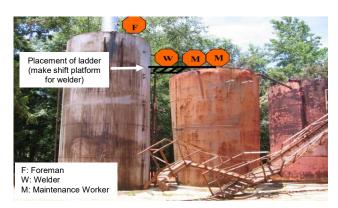
Tank 4

Hydrocarbon

traveled from

Tank 2





Images and diagrams from Chemical Safety Board

Lowering Risk

Tank

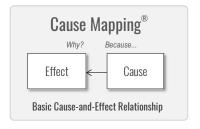
#1

Water

The Chemical Safety Board investigated this incident and made several recommendations to the contractor, well site owner, state, and federal agencies.

fire

- Contractor Develop and implement written procedures to ensure safe work practices during hot work, tank cleaning, and work at elevated loctions
- Well Site Owner Establish written health and safety performance standards and performance metrics such as those found din Recommended Practice for Occupational Safety for Onshore Oil and Gas Production Operations, API RP-74
- State Oil & Gas Board Establish a program to identify and refer to the federal OSHA potentially unsafe health and safety conditions observed during g board field inspections of well sites and drilling operations. Ensure that the program includes:
 - Written procedures that define how the referrals will be implemented
 - Training of field inspectors so that they are able to recognize the potentially unsafe health and safety conditions that should be referred to OSHA
- OSHA Implement a Local Emphasis Program (LEP) to inspect companies in the oil



Installing a pipe

from Tank 4 to

Tank 3

AND

Contractor

unaware tanks

contained

hydrocarbons

Evidence: Statement

by contractor to CSB

after the incident

Oil level in

bottom of

Tank 2

AND

Tank 2

connected to

Tank 3 with pipe

Hot work risk

assessment

ineffective

Evidence: Gas detection

monitor not used before

or during welding work

flame to test T4, serving

flushed with fresh water

but T2 and T3 were not

flushed / cleaned prior to

Evidence: Used a lit

employee statement

Evidence: T4 was

incident



To learn more visit our website at www.thinkreliabilitv.com email: info@thinkreliability.com phone: 281-412-7766

Tank

Production Tank