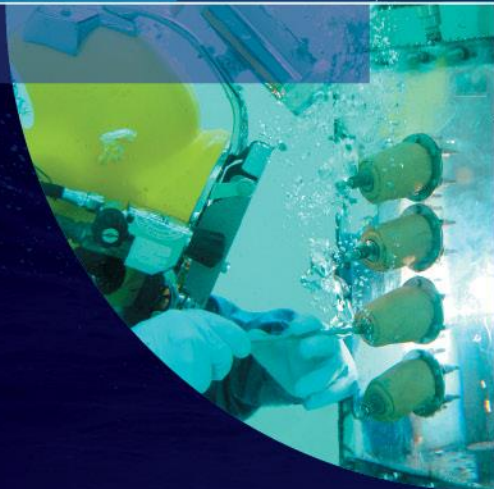
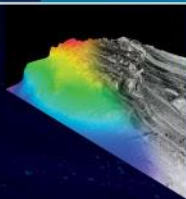


# Australian Oil & Gas Convention

March 13 2019



## “The Role of Inspection in the Safety Chain”



Cass Willis

www.neptunems.com

# Foreword



- ≡ Defining the context.
- ≡ What is a Pressure Vessel / Boiler
- ≡ History of Humans, Pressure and Industry.
- ≡ How Inspection was born from public outcry.
- ≡ The Safety Paradox
- ≡ Learning from History

# Defining the Context.



*'Unfortunately, not enough of us are take the time or effort to read between the lines; that is, more fully appreciate the true dynamic of the safety message.*

*To begin with, can I see a show of hands of those of you whose family members know specifically what it is you do for a living. What you do, day in day out.. sure the family know you do something with pressure equipment, but what about your friends or neighbours?*

*My point is that if those close to us don't know what we do, how can we expect the general public? And why should we care about the general public? Why should the general public care about what we do?*

*Well, the answer is safety.*

**Paul Brennan – Director National Board Pressure Vessel Inspectors**



# What is a Pressure Vessel / Boiler



*'Possibly the most important invention leading to growth of industrialized nations.*

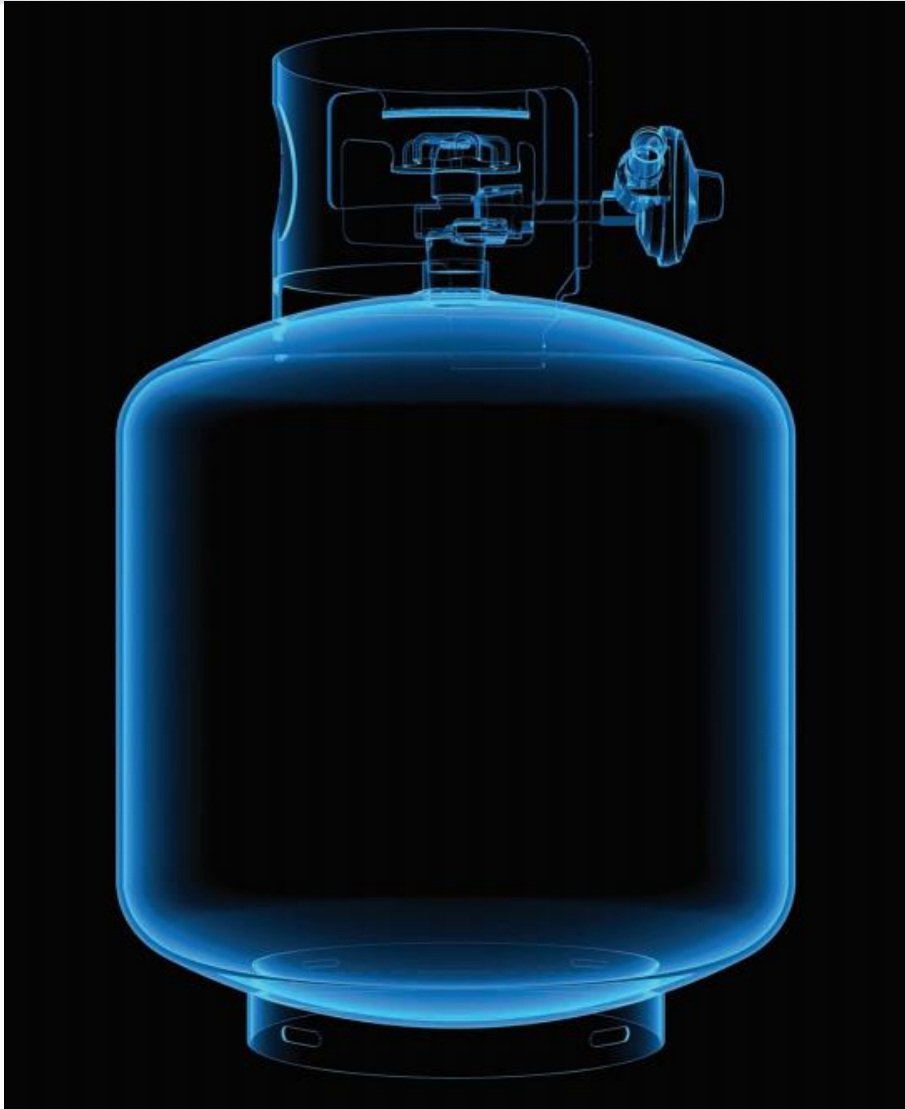
*The industrial might of great countries was born of fire and water...  
.....Steam.*

*Paramount to the production of steam is the pressure vessel.*

*Pressure Vessels are now integrated into human society so well, we often forget they are there – indeed you would struggle to live for an hour without being exposed to one.*

*(examples)*

# What is a Pressure Vessel



# What is a Pressure Vessel



# What is a Pressure Vessel





# What is a Pressure Vessel



*'Exposed to high heat (400°F), the water is converted to steam, which causes the kernel to explode and yield its tasty cargo. The eruption actually turns the kernel inside out to a size approximately 40 times its original mass.'*



# What is a Pressure Vessel



[https://youtu.be/iH5bT7xk\\_Rw](https://youtu.be/iH5bT7xk_Rw)

# What is a Pressure Vessel



# History of Humans, Pressure & Industry

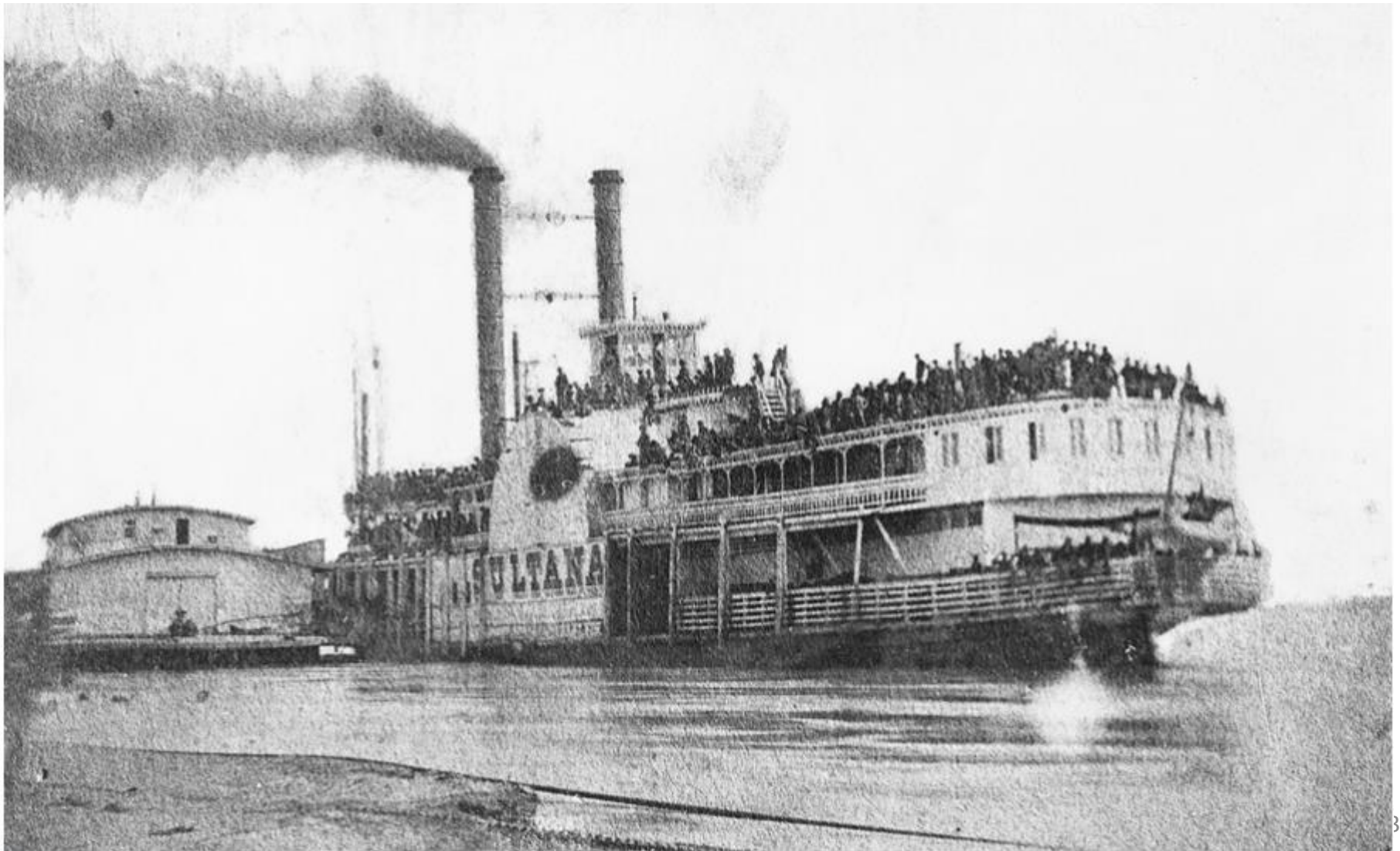


- ⇒ History is littered with examples of laws born of catastrophe.
- ⇒ That is the little unspoken truth about tragedy: Without death and destruction, the number of safety regulations would be far fewer than the thousands upon thousands shaping our lives today.
- ⇒ Lets “refresh” lest we “forget”

# History of Humans, Pressure & Industry



# History of Humans, Pressure & Industry





# Inspection – Borne of Public Outcry



- ⇒ Within a year of Sultana's demise, two former members of the Polytechnic Club created the Hartford Steam Boiler Inspection and Insurance Co. (HSB).
- ⇒ In the ten years between 1895 and 1905, it was estimated over 7,600 individuals – an average of two per day – were killed by boiler explosions in the United States. Between 1885 and 1895, over 200 boiler explosions were reported per year. The following decade saw more than 3,600 such explosions, or approximately one each day.

# Inspection – Borne of Public Outcry



- ⇒ In 1905 The Grover Shoe Factory Explosion marked over 100 years of destruction.
- ⇒ As a consequence of this avoidable accident, the commonwealth of Massachusetts enacted the most rigorous boiler inspection laws in the United States.
- ⇒ The event also lead to the establishment of ASME which was first printed some 9 years later.



# Inspection – Borne of Public Outcry



# The Safety Paradox



- ⇒ We inspect our assets at regular intervals to determine their continued fitness for service. The dilemma is, to do so, we have to perform high-risk, confined-space inspections.
- ⇒ Lets make sure we have a firm grasp of consequence!

1913

- ✚ *“For want of reliably tested materials, secure fittings and proper valves, boilers of every description, on land and at sea, were exploding with terrifying frequency...Engineers could take pride in the growing superiority of American technology but they could not ignore the price of 50,000 dead and two million injured by accidents annually”*

## *1997-2007*

- ✚ Tragically, a total of 127 people have lost their lives as the result of boiler and pressure vessel accidents during the past 10 years.
- ✚ On average, that is just less than 13 fatalities per year.
- ✚ Whilst we aim for 0 – lets stay closer to 13 than to 50000

# Questions

