

AIHA + ASSP  
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# The Pale Yellow Solid in Tank 45

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**TANK #45**

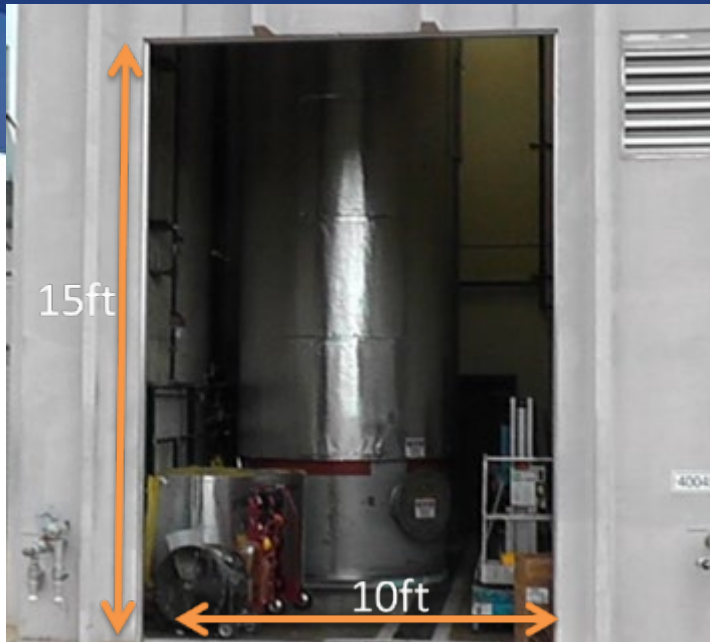
*September 2009*

HEALTH	2
FLAMMABILITY	1
REACTIVITY	1
<small>Hazard Probability</small>	<b>B</b>

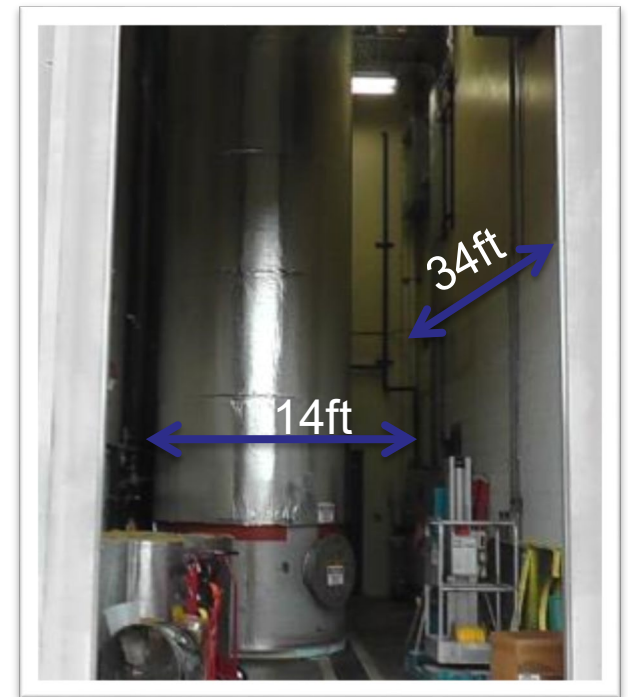
**DANGER**

**CONFINED SPACE  
ENTER BY  
PERMIT ONLY**

# Reason for Inspection



Not a lot of space  
here...



# Background



# Incident

- Expected 3-5 days
- Tech Sheet – Not SDS
  - Pale Yellow Liquid
- PRCs entry procedures
- 2 Entries
  - 30lb
  - 60lb





# Incident

- Symptoms On-set
- Heat Related?
- Medical Treatment



# Diagnosis

- Methemoglobinemia (methgb)
  - Initial methemoglobin – 72.6%
  - Multi-system organ failure
  - Cardiac arrest during transfer to tertiary hospital
  - Resuscitated and transferred
- Unknown cause
  - Enzyme deficiency
  - Prescription medication
  - Occupational exposure

# National Office Assistance

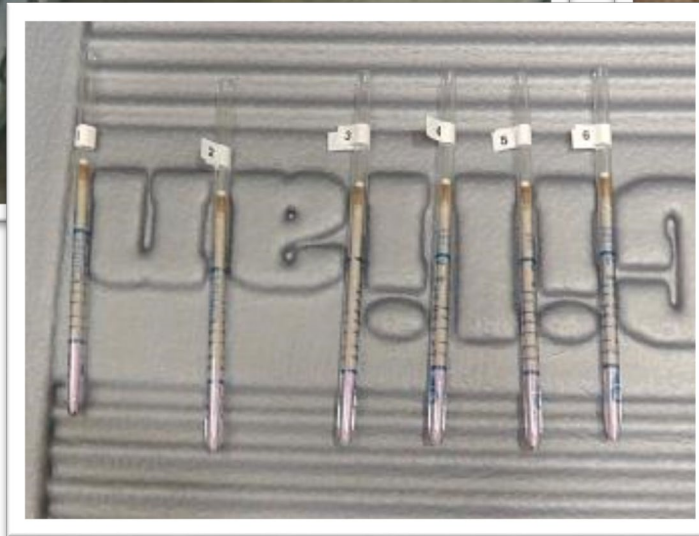
- Office of Occupational Medicine and Nursing (OOMN)
  - No reported methgb from isocyanates
- Salt Lake Technical Center – Health Response Team



# Health Response Team

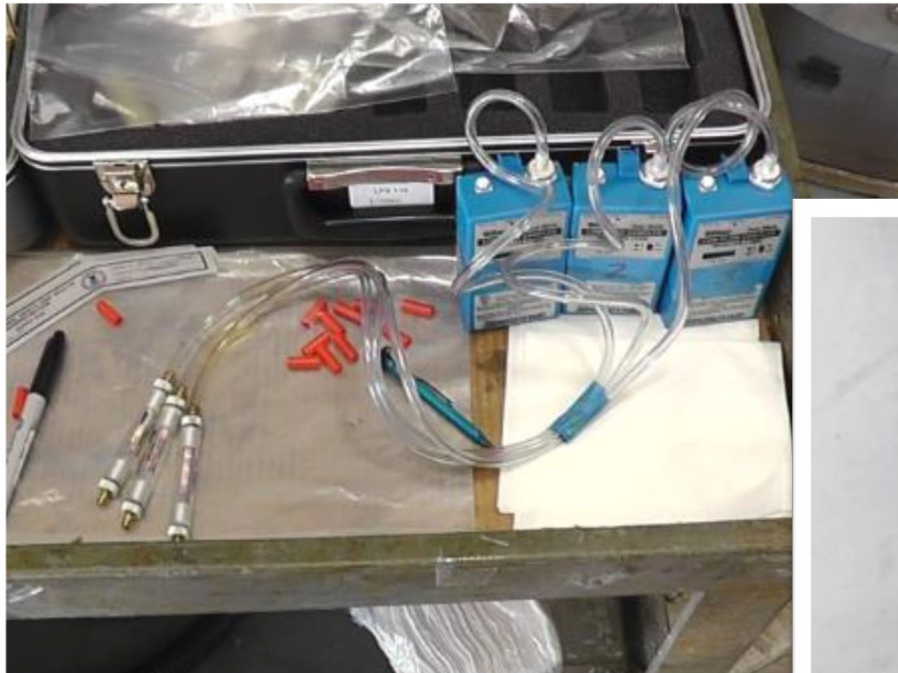


# Results





# Atmosphere



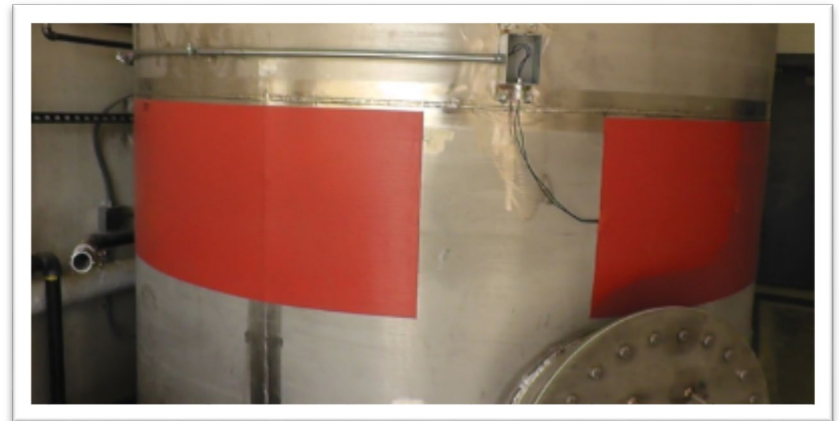
# Air Sampling Results

Chemical	Results	OSHA PEL	ACGIH TLV *	NIOSH IDLH
Aniline	193.54 ppm 205.85 ppm	5 ppm	2 ppm	100 ppm
P-Toluidine	44.12 ppm 51.07 ppm	N/A	2 ppm	N/A

\* Skin Notation – potential significant contribution to the overall exposure by the cutaneous route, including mucous membranes and the eyes, by contact with vapors, liquids, and solids

# How'd this happen?

- How did aniline and p-toluidine come to be in the tank?
  - Runaway exothermic reaction



# Entrant

- 5 weeks in hospital
- 2 weeks in rehabilitation hospital
- Permanent cognitive impairment, dysphagia, dysarthria, balance and coordination impairment, malnutrition, fatigue, and anemia
- Unable to return to work



# Resolution

- The majority of 1910.146 was cited
  - 14 violations
    - 146(c)(9)(i): General requirements
    - (d)(2): Identify and evaluate
    - (d)(3)(i), (iv), (vi): PRCS procedures
    - (d)(4)(i), (ii): Testing equipment
    - (d)(4)(iv): Appropriate PPE
    - (d)(5)(i), (ii): Determine / test acceptable entry conditions
    - (h)(1), (i)(1), (i)(2), (j)(1): Entrant / supervisor duties

# Resolution

- Hazard Communication
  - 1910.1200(h)(1): Hazard training
  - 1910.1200(g)(8): SDS onsite
- Total penalties
  - \$30,000
    - Small employer – received significant reductions
    - The employer accepted all citations

# Abatement Method

- Safety Team
  - Bidding Strategy
  - Site Review
  - Supplemental Control

# Conclusion

- Incongruence between past jobs and present conditions
- Incorrect set of assumptions
- Develop a system to recognize and address assumptions

Many Thanks

Phil Smith, HRT

Jeff Lodwick, HRT

Dr. Kathleen Fagan, OOMN

Dr. Jenni Amani, OOMN

# Thank you for your commitment

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