

R Stamp University

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Top 10 Deficiencies
Found At
Ammonia Facilities

#10 Cast Iron Fittings



#9 Railcars As Storage Tanks



#8 Obvious Leaks



#7 Improper Maintenance



#6 Improper Support



#5 Inadequate Installation



#4 Flex Hoses



#3 Non-Existent Bulkhead



#2 Insufficient Pull-Away Protection



#1 Non-R Stamp Repair



Unauthorized Attachments





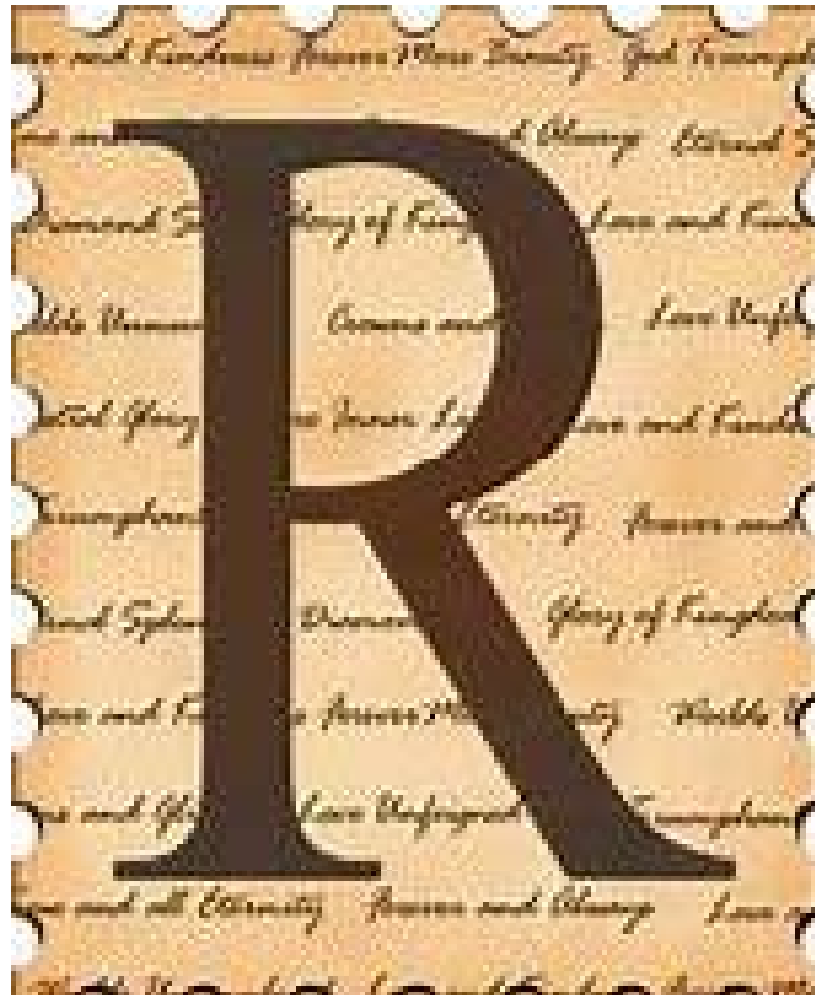
ANHYDROUS
AMMONIA
INHALATION HAZARD



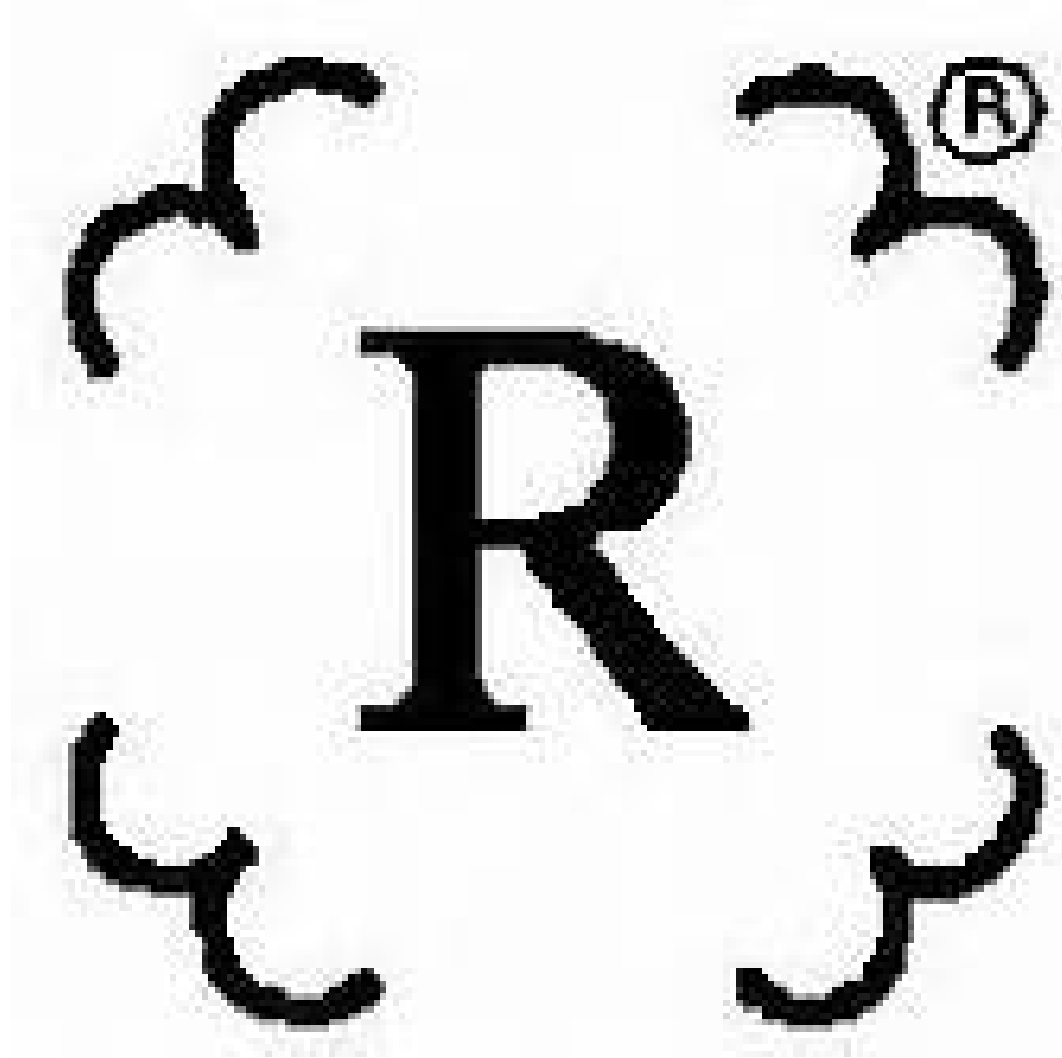
What is an R Stamp?

- It is a certification from The National Board
- It is a quality control monitoring system
- It is a check and balance system for proper repair
- It is a procedure qualification for weld processes

This is NOT the R Stamp we are talking about



Proper R Stamp Marking



How to obtain an R Stamp

- Contact The National Board
- Contact an AI (authorized inspection company such as Hartford)
- Set up a contract with NDE (non destructive examination) contractor
- Perform WPS's (weld procedure specification) and PQR's (procedure qualifications record) and WPQ's (welding performance qualification)

How to obtain an R Stamp

- Create Quality Control Manual
- Order and Review ASME and NBIC code books
- Joint review between contractor, AI, ASME representative at shop location
- Wait for final approval from ASME and The National Board to hold the R Stamp certification

Proof of R Stamp Certification



WPS (Weld Procedure Specification)

- Proves that base material can be welded with correct filler metal
- Sets parameters for thickness, amperage, voltage, root gap, type of arc, and bead placement
- Has nothing to do with position of weld

PQR (Procedure Qualification Record)

- Proving the WPS
- Weld test will be bent to prove tensile strength of weld
- Should break in base metal not weld metal
- Now the shop is set to weld based on the WPS however this does not qualify the actual welder

WPQ (Welder Performance Qualification)

- Certifies each individual welder
- Test can be performed in 1G-6G position
- Sets parameters for specified welder such as thickness and with/without backing

Let's do a repair

- Initial review of proposed repair
- Find U1A report
- Check weld procedures based on the materials welding to
- Check welders qualifications
- Perform repair

Welding



NDE (non-destructive examination)

- Can include x-ray, magnetic particle test, dye penetrate test, angel beam ultra sound, etc.
- These tests can be performed before and after welding
- Must have a contract with a Level III certified inspector

Magnetic Particle Testing



Hydro Static Test

- Fill tank with water and test at maximum 1.5 times MAWP (maximum allowable working pressure)
- Insures no leaks on welds and proves tank can handle MAWP
- Pneumatic test not recommended but can be done with proper jurisdiction approval



Proper Stamping Of Vessel



Other Things To Consider

- R Stamp shop must have The National Board of inspection code audit every 3 years
- A certified welder does not mean they are R Stamp certified
- Documentation is everything to the R Stamp process
- Not only do you have to follow ASME and NBIC codes but you also may have other jurisdictions such as state and DOT that regulate some of your repairs

Thank

You