Summary of Updates for SP001 Standard for the Inspection of Aboveground Tanks and SP031 AST Repair Standard

Session W-G3

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SP001 Standard for the Inspection of Aboveground Storage Tanks

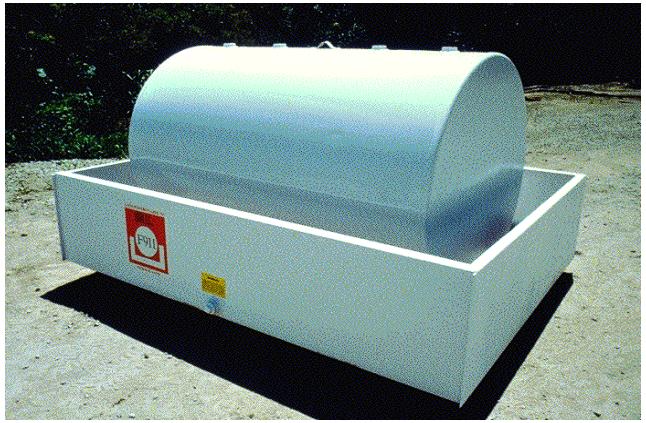
- One of the two commonly used AST inspection standards
- Referenced in state and federal laws
- Originally published in November 2000 to address different designs used by shop built tank builders and not addressed in API 653
- Covers storage tanks constructed of steel* and portable containers (metallic and non metallic)
- The new version is the 7th edition
- Revised about every 5 years since 2005

*Tanks with steel primary tanks

SP001 Standard for the Inspection of Aboveground Storage Tanks

- The SP001 inspection process will depend on the overall tank design
- A tank system design that incorporates provisions to prevent releases due to leaks and overfills gets a more advantageous inspection cycle
- Tank systems that do not incorporate mechanisms to prevent product releases will require more intrusive inspection procedures
- Under SP001 a properly constructed and maintained tank system will only be subject to external inspections (no internal inspection)

Types of Tanks Covered Under SP001



SP031 Standard for the Repair of Shop-Fabricated ASTs for Storage of Flammable and Combustible Liquids

- The standard covers repairs and modifications of tanks built to common shop built tank standards, primary the UL construction standards
- Original standard created in 2003, the current version is the 5th edition
- Based on API 653 but takes into account unique configurations found in shop-built tank

How are Revisions Done on SP001 (and SP031)

- Done by a committee made up of tank builders, tank owners, tank inspectors and regulators (state and Federal)
- A public notice was sent out to interested parties in Sept 2022 requesting recommendations
- The committee considered each suggestions and approved, denied or accepted with modifications made by the committee
- A total of 115 recommendations were received, about 1/3 were grammatical in nature, some repeats occurred
  - 36 approved for SP001, 33 approved in SP031
- Approved items are then incorporated into the standard.
- The final version must be approved by the committee before publishing (Completed in February 2024)

What stays the same in SP001?

- All inspection schedules are unchanged
- The three major tank categories remain unchanged
  - Category 1, tanks with spill containment and a means to detect release
  - Category 2, tanks with spill containment but no designed means of Leak Detection
  - Category 3 No spill containment
- Formal inspection report format

SP001 Inspection Schedule

Tank Size		Category 1	Category 2	Category 3
Shop built tanks	0 - 1100	P	P	P, E&L(10)
	1101 - 5,000	P	P, E&L(10)	[P, E&L(5), I(10)] or [P, E(5) & L(2)]
	5,001 - 30,000	P, E(20)	[P, E(10)& I(20)] or [P, E(5) & L(10)]	[P, E&L(5), I(10)] or [P, E(5) & L(1)]
	30,001 – **75,000**	P, E(20)	P, E&L(5), I(15)	P, E&L(5), I(10)
Field erected		P, E(5), I(10)	P, E(5), I(10)	P, E(5), I(10)
Portable containers		P	P	P **

Categories for SP001 Tank Inspections

- Category 1
  - Spill Control
  - Release Detection Method (CRDM)
  - Overfill Prevention for Double Wall AST
- Category 2
  - Spill Control
- Category 3
  - No Spill Control

What is changing in SP001

- Increased emphasis for inspector to identify findings that require action to repair
- Increased emphasis by the owner to respond to finding that require action
- Increased emphasis placed on the tank owner to document the original tank system design
- Clarification on start date, the date when product first is placed into the tank
  - Inspection schedule does not reset if tank is sold or transferred
- Can be used on tanks designed to store material with a specific gravity over 1

Changes in SP001

- Changes, repairs and modifications to the system to be done using “good engineering practice”
- Appendix D for Thermoplastic tanks, it was made clear that the tank is subject to inspection whenever it contains material no matter the state of the material (liquid or solid)
- Clarify that a tank jacket or tank insulation does not necessarily provide secondary containment
- More emphasis on removal of vegetation, soil and refuse collecting in the tank containment area or around the tank

Changes for Record Keeping

- The monthly and annual checklists have been updated and directs the inspector to identify issues found and obligates the tank owner to address items found
- If an issue is noted that could change the tank category the tank owner must address the issue, or adopt the inspection cycle for the new tank category
- Inspector needs to confirm system documentation is in place during formal inspection (Tank Record).

More Records

- More emphasis on documenting the original system design parameters
- This information should be part of the SPCC plan as well
- The use of the AST Record form at time of system construction is strongly encouraged, and include the information called for in the SPCC plan, or include the completed form
- Any formal inspection should include the evaluation of the AST record information and update it as needed
- Formal inspections (external or internal) by a certified inspector must include written report and statement of suitability for continued service

STI SP001 AST Record

Form completed by (Name) _____ Date _____

(Title) _____

OWNER INFORMATION	FACILITY INFORMATION	INSTALLER INFORMATION
Name	Name	Name
Number and Street	Number and Street	Number and Street
City, State, Zip Code	City, State, Zip Code	City, State, Zip Code
	Regulatory facility ID number (if applicable)	

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OWNER'S TANK ID	OTHER ID	INITIAL SERVICE DATE
Manufacturer:	Contents:	Construction Date: / Last Repair/Reconstruction Date:
Dimensions:	Capacity:	Last Change of Product Date:
Design: ☐ UL _____ ☐ SwRI _____ ☐ API _____ ☐ Other _____ ☐ Unknown ☐ Horizontal ☐ Vertical ☐ Rectangular		
Construction: ☐ Bare Steel ☐ Cathodically Protected (Check one: A. ☐ Galvanic or B. ☐ Impressed Current) Date Installed: _____ ☐ Coated Steel ☐ Concrete encased steel ☐ Stainless steel ☐ Other _____ ☐ Double-Bottom ☐ Double-Wall ☐ Lined inside; Date lining installed: _____		
Spill control: ☐ Earthen Dike ☐ Steel Dike ☐ Concrete ☐ None ☐ Other _____	CRDM: ☐ yes ☐ no If yes, type: ☐ Release Prevention Barrier ☐ Elevated tank ☐ Double bottom tank ☐ Double wall tank ☐ CE-AST ☐ other _____	
Tank elevated on supports ☐ yes ☐ no Support material: ☐ steel ☐ concrete ☐ other _____		
Release Prevention Barrier: ☐ yes ☐ no If yes, Date Installed: _____ If yes, Type: ☐ concrete ☐ synthetic liner ☐ clay liner ☐ steel ☐ other _____	AST Category: ☐ Category 1 ☐ Category 2 ☐ Category 3	

OWNER'S TANK ID	OTHER ID	INITIAL SERVICE DATE
Manufacturer:	Contents:	Construction Date: / Last Repair/Reconstruction Date:
Dimensions:	Capacity:	Last Change of Product Date:
Design: ☐ UL _____ ☐ SwRI _____ ☐ API _____ ☐ Other _____ ☐ Unknown ☐ Horizontal ☐ Vertical ☐ Rectangular		
Construction: ☐ Bare Steel ☐ Cathodically Protected (Check one: A. ☐ Galvanic or B. ☐ Impressed Current) Date Installed: _____ ☐ Coated Steel ☐ Concrete encased steel ☐ Stainless steel ☐ Other _____ ☐ Double-Bottom ☐ Double-Wall ☐ Lined inside; Date lining installed: _____		
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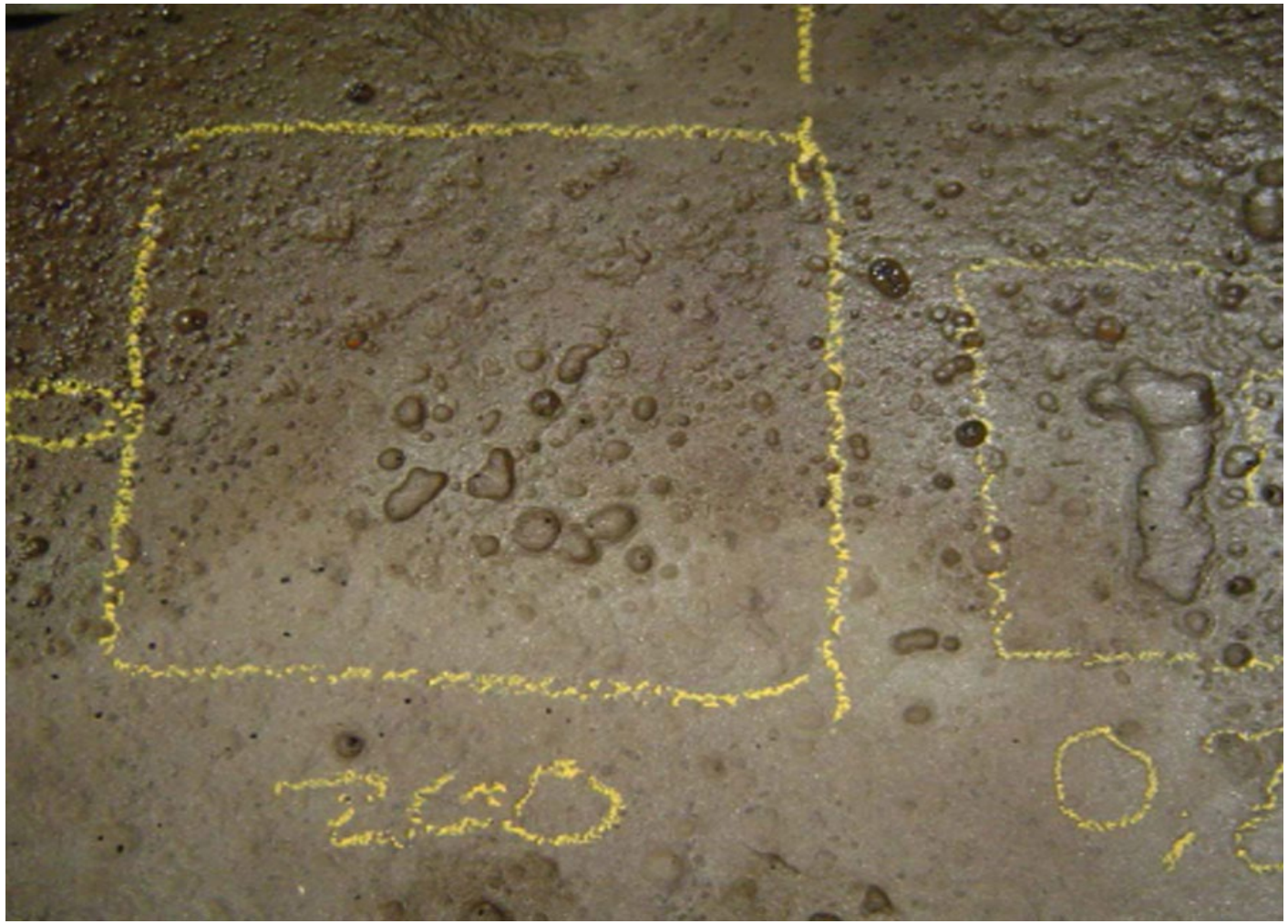
Changes in testing

- Clarifying who can do ultrasonic thickness testing done as part of inspection
  - Spot thickness testing can be done with minimal training
  - Scanning or other testing requires more qualifications
- Documenting the instruments used for testing and that they were calibrated
- Scans of tank floors in contact with the ground should use equipment capable of scanning rather than measure individual points.

Water in Tanks

- Some clarification offered on how often tanks should be checked for water, the default is monthly, but some category 1 tanks can have reduced testing
- Many category 1 tanks can go to annual testing after 4 months of annual testing with no water found
- Some Category 1 tanks that see significant throughput do not need to be checked for water
- Other tanks which contains waste material that often contains water (think waste oil) can forgo water testing if the tank is emptied completely every 180 days
- Tanks storing material that absorbs water or thermoplastics don’t need testing for water
- New fuel blends also respond to the presence of water differently
- Smaller tanks can see effects of water quickly

More MIC



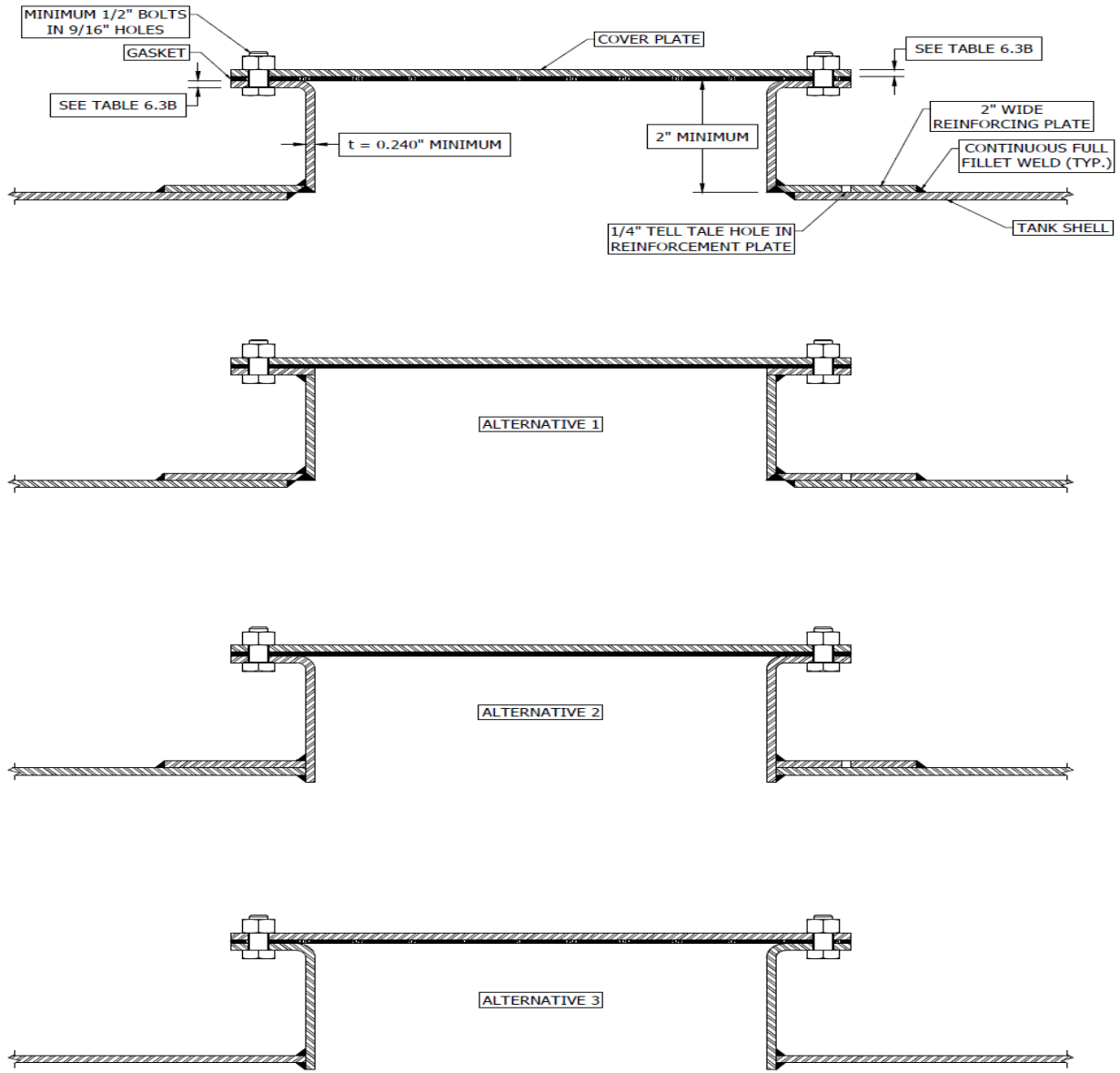
Changes to SP031

- Some additional options for making repairs were offered
- Some changes made to reflect changes to UL 142
- Some of the unique shop built designs are now reaching the age where repairs are needed
- Experience from fabricators was used to help make sure some repairs can be done
- Increase in tank costs and lead time for some larger tanks are resulting in more tanks being fixed instead of replaced.

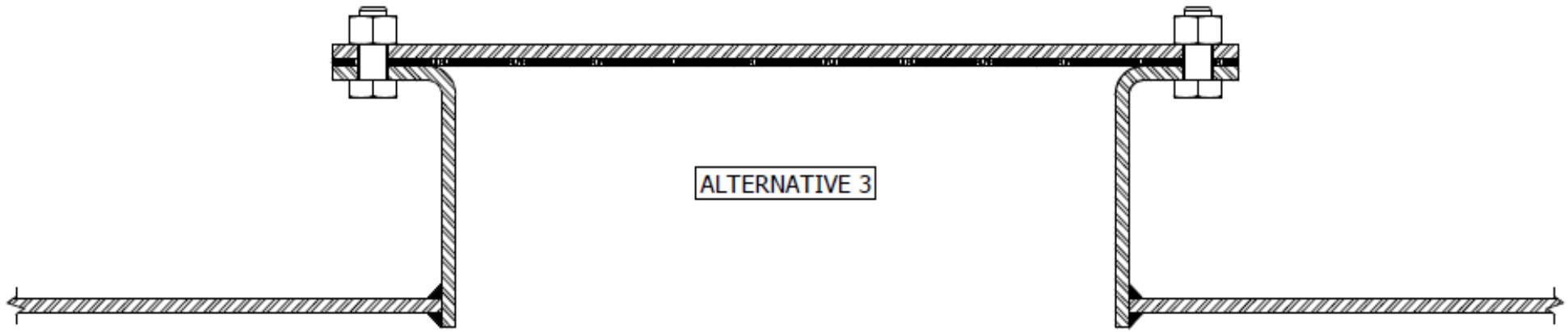
Changes to SP031

- Offered clarification on the size of reinforcing ring if needed on larger tank shell openings (2” minimum for reinforcing ring)
- New manway option reflects design listed in UL 142
- Update welding options to reflect changes in UL 142, needs of repair to existing double wall tanks and repairs to rectangular tanks.

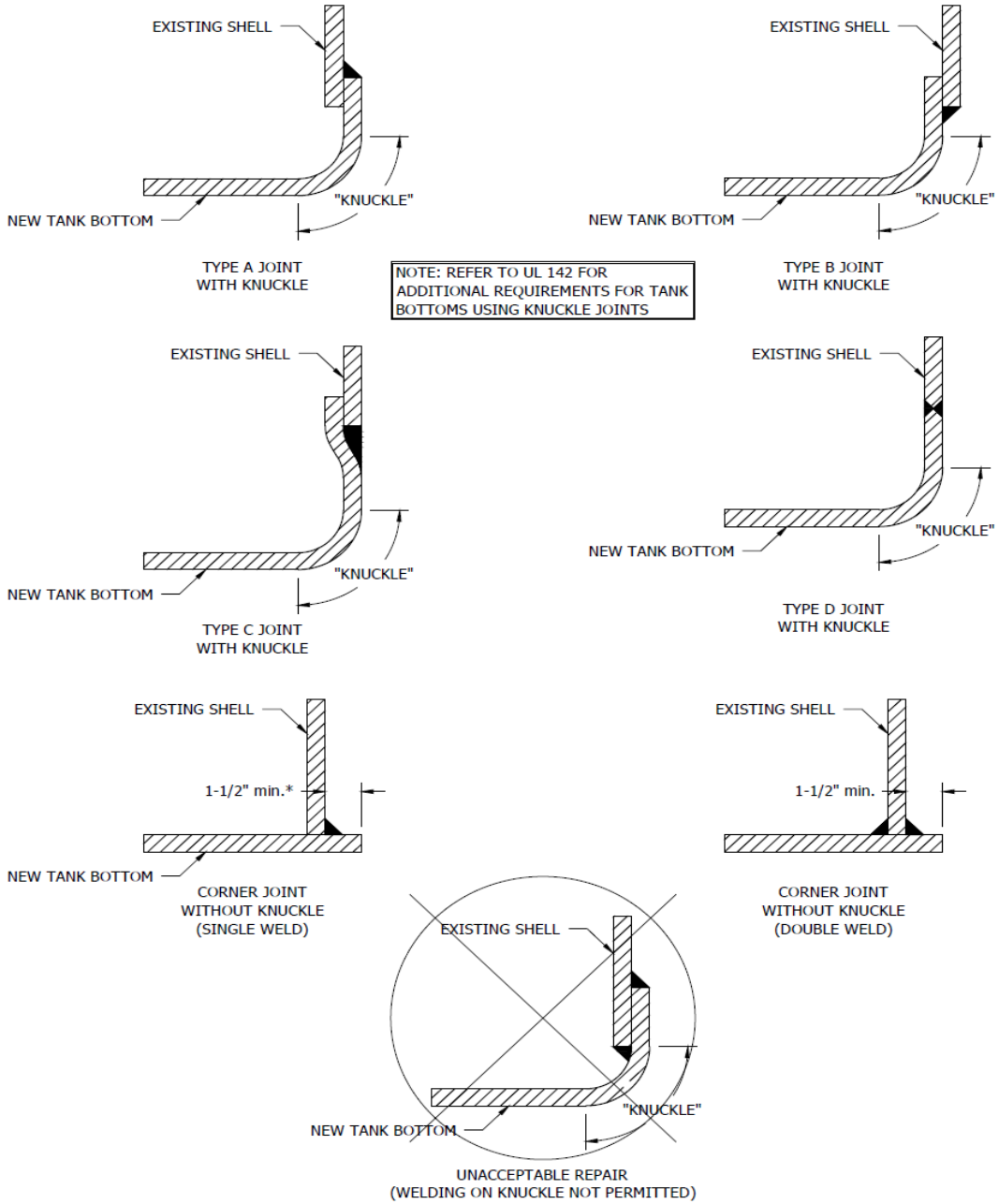
Added an option for adding a manway below liquid level



Added Manway Option Without Reinforcement Ring

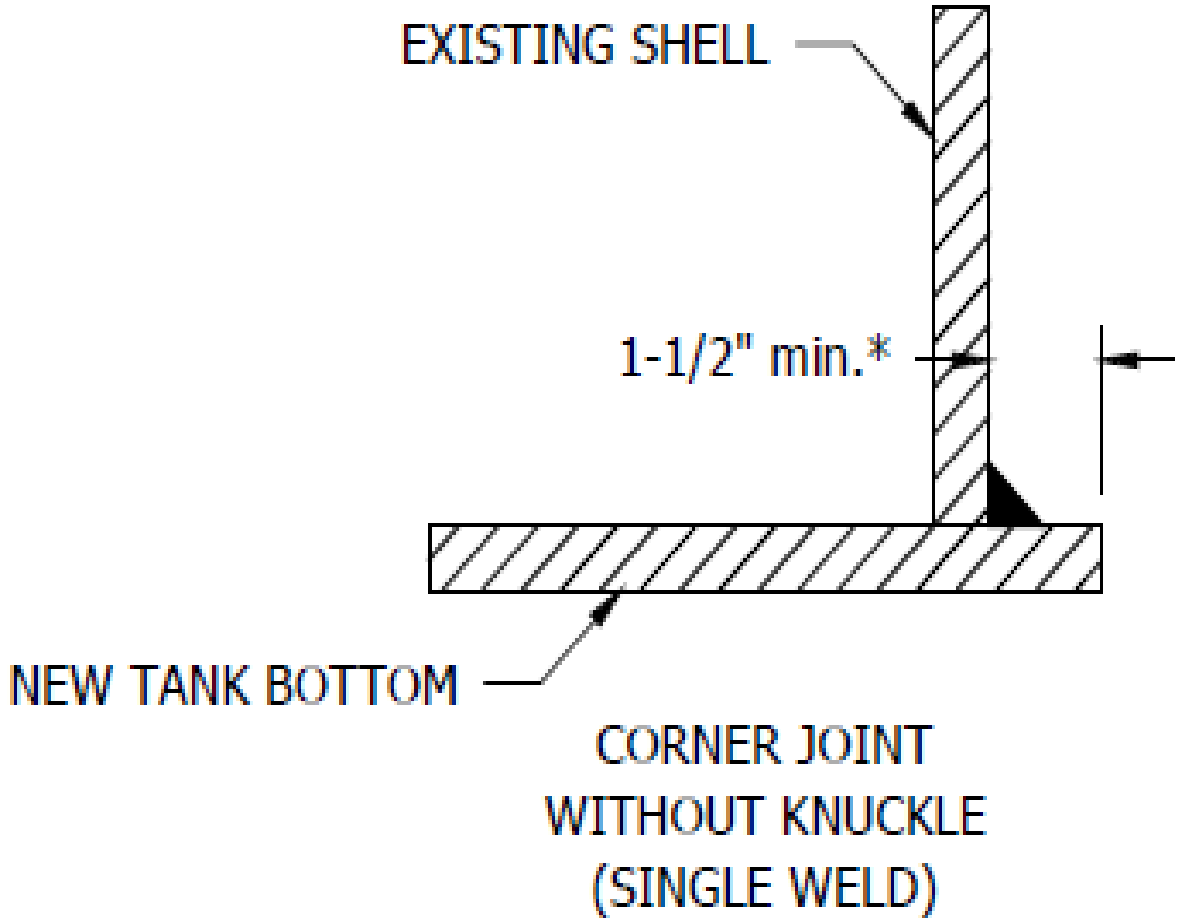


Added additional bottom weld options to be consistent with UL 142



Single Fillet Weld of Tank Bottom

*allows for smaller chime for primary tank bottom



Questions?

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