

# TANK CRADLE ARM FAILURE

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## DESCRIPTION:

A 1,000-barrel tank was being moved into place when the cradle arm bracket failed. The bracket was held in place by the main mast pin, which was secured with a cotter pin. The cotter pin broke, allowing the main mast pin to slide out of place. As a result, the tank slid off the cradle, fell to the ground, and landed on its side, damaging the tank. No injuries occurred.



**Example of a tank cradle arm with the bracket intact**

**The main mast pin slid out of the bracket**



**Failed bracket at the top of the tank cradle arm**



**Close-up of the failed bracket with the Main mast pin out of position**

**CAUSE OF INJURY OR LOSS:**

The cotter pin was either not put in place correctly, or shifted during the move.

**CONTRIBUTING FACTORS:**

- No previous inspection records were available
- Equipment was not visually inspected prior to use
- Cotter pins used in this application are prone to damage while being transported
- The cotter pin used may not have been made from the correct material for the equipment

**CORRECTIVE ACTIONS:**

- Revise existing policies/procedures to include specific equipment inspection points prior to use
- Cotter pin holding the main mast should be replaced with a grade 8 capture pin  
(Note: the manufacturer of the equipment has not suggested an upgrade to the cotter pin design, however, it is possible that without frequent inspections of the current cotter pin design, this failure could happen again)