



# Above Ground Storage Tanks: Repairing Roof Top Leaks In-Service



**Company:** National Cooperative Refinery Association (NCRA) - McPherson, Kansas

**Situation:** NCRA had two above ground storage tanks (AST) holding gasoline and diesel fuel with chronic rooftop leaks requiring repetitive repairs. To manage the leaks, every 60 days the company's maintenance team had to access each tank's roof to drain the exposed fuel and scrape, seal and coat the leak using a nonpermanent epoxy solution. The cost, time and safety impacts of this situation resulted in the company planning to take the tank out of service to complete a more permanent repair.

**FTI Solution:** Instead, NCRA chose to contract Forge Tech, Inc. (FTI) to complete a mechanical repair using FTI's patented Portable Friction Bonding (PFB) application. This repair was completed in-service over two days. The FTI team installed 3/16" thick deck plates over each leak as shown in detail on the next page. The PFB application bonds metal studs at a low temperature that does not produce any sparks or flame and does not generate enough heat to meet the API-2207 definition of "Hot Work". Thus, this work was completed without the tank having to be decommissioned or de-gassed.

**Results:** Permanent seals installed that have 5 year warranty. Time, expense and safety risk of draining/patching every 60 days was avoided. Work was performed in-service without process interruption.

"The Forge Tech Friction Bonding technology repaired our above ground storage tank roof leaks avoiding the need to take those critical storage tanks out of service to repair. We now have an engineered mechanical repair with a 5 year warranty."

**Justin L Reynolds**

Inspector/ Tank Coordinator, NCRA

Phone 620-241-9321 or 620-755-1508

NCRA produces fuel for the farms of Mid-America from a position in-between the crude oil producer and the farmer.

At its fully integrated modern oil refinery with the capacity of 85,000 barrels per day, NCRA acquires raw crude oil, refines it, and sells the resulting gasoline and diesel fuel to its farmer-owned Member-Owner cooperatives.





**Location of the leak:** Roof of gasoline storage tank. Repair replaced temporary patch.

### The FTI Solution:

- Prepare the site
- Affixing studs
- Install 3/16" thick deck plate



## The Forge Tech Solution: Mechanical Repairs In-Service

- Mechanical Repairs = No Emissions**
- No Sparks, No Flames = No Ignition Source**
- No Shutdowns, No Decommissioning = Lower Costs**
- Significant Lifecycle Cost Savings = Improved Cash Flow**
- 5-Year Warranty**

### Forge Tech Inc.

900 Anders Ln. Bldg#15 • Kemah, TX 77565

24 hour service 888-854-8414

Fax: 832-864-2235

[www.forgetechinc.com](http://www.forgetechinc.com)