

**Questions And Answers About  
Corrosion In Underground Tanks Storing Diesel Fuel  
U.S. Environmental Protection, Office of Underground Storage Tanks  
July 2016**

**What does EPA's research on corrosion in underground tanks storing diesel fuel show?**

EPA's July 2016 research report on corrosion in underground tanks storing diesel fuel shows moderate or severe corrosion of metal components inside 35 of 42 – or 83 percent – of examined diesel fuel tanks. Since the corrosion may potentially lead to releases in the environment and many UST owners may be unaware their systems are affected, EPA thinks it is important to alert owners.

**Why did EPA do this research?**

Beginning around 2007, UST owners reported to servicing companies new incidents of severe and rapid corrosion of internal metal components of tanks storing diesel fuel. These reports usually described severe corrosion of equipment in upper portions of UST systems in the regions generally not submerged in fuel. Prior to 2007, a corrosion risk in diesel fuel tanks was considered minor and, if it occurred, appeared in the wetted, or lower, portion of the tank.

EPA began working on this research in 2014 to understand how serious and widespread the metal corrosion problem could be. EPA held discussions with UST industry experts and worked collaboratively to develop field-based research that would further the understanding of corrosion inside USTs storing diesel. EPA designed our research to examine many factors on a diverse population of 42 UST systems in order to find potential predictive factors among them. We thought any predictive factors identified in our research would help focus the search of potential causes for the next phase of follow-on research.

EPA's research builds on a [prior industry study](#) about rapid and severe corrosion in USTs storing diesel, which the Clean Diesel Fuel Alliance (CDFA) completed in 2012, and [previous research](#) by EPA's Office of Research and Development.

**What should owners do about corrosion on metal components inside their diesel tanks?**

The best way to minimize the risk of corrosion is to regularly monitor the diesel UST system for water in the tank and remove it. Monitoring for water and keeping it to a minimum is standard industry practice and part of a critical regular maintenance routine. Maintaining water presence as close to zero as possible is the best way to minimize the chance of corrosion and risks to functional failure of the tank or equipment due to corrosion.

Contact your UST servicing company to give you information about the corrosion risk in your UST system. The servicing company will check for and remove water, examine your system, and may perform functionality testing of equipment.

If corrosion is moderate or severe, the UST servicing company may suggest you use a micro-biocide treatment to eliminate microbial colonies or begin using regularly scheduled corrosion inhibitor treatments. The servicing company may also recommend other options such as beginning a regular water and fuel testing regimen to monitor microbial growth. The servicing company may also suggest other enhanced maintenance routines or different equipment. Industry stakeholders are currently exploring other potential solutions as well.

Several organizations developed documents, which suggest practices for maintaining USTs storing diesel fuel. EPA recommends you access these resources for more information about minimizing the risk of corrosion in USTs storing diesel fuel:

- Coordinating Research Council (CRC)
  - *Report 672 - Preventive Maintenance Guide for Diesel Storage and Dispensing Systems*  
(<http://www.crao.org/reports/recentstudies2016/CRC%20672/CRC%20672.pdf>)
  - *Report 667 - Diesel Fuel Storage and Handling Guide*  
(<http://www.crao.org/reports/recentstudies2014/CRC%20667/CRC%20667.pdf>)
- Clean Diesel Fuel Alliance - *Guidance for Underground Storage Tank Management at ULSD Dispensing Facilities* ([http://www.clean-diesel.org/pdf/GuidanceforUndergroundStorageTankManagement\\_FINAL.pdf](http://www.clean-diesel.org/pdf/GuidanceforUndergroundStorageTankManagement_FINAL.pdf))
- Steel Tank Institute - *R111 Storage Tank Maintenance Standard*  
(<http://www.steel tank.com/Portals/0/Shop%20Fab/R111%20%20with%20updated%20cover.pdf>)
- ASTM D6469 - *Standard Guide for Microbial Contamination in Fuels and Fuel Systems*  
(<http://www.astm.org/Standards/D6469.htm>) (Note: this document is publicly available but must be purchased)

### **What should owners do if they suspect their tanks may be leaking diesel fuel?**

If you see fuel leaking from a diesel UST, you should notify your implementing agency immediately and take actions to safely stop and contain the release. The UST system should be taken out of service until the problem is discovered and corrected. The underground storage tank regulation in 40 CFR 280.50(a) discusses this in detail.

If you cannot see fuel but suspect a slow release of diesel fuel underground, check your release detection equipment results and contact your implementing agency and UST servicing company as soon as possible to have the UST tested. Your servicing company will test your tank or piping for tightness and may suggest additional diagnostic inspections to check the functionality of equipment or integrity of the tank. The underground storage tank regulation in 40 CFR 280.50(b) discusses the requirements when unusual operating conditions are discovered. Some

unusual operating conditions include the erratic behavior of product dispensing equipment, the sudden loss of product from the UST system, an unexplained presence of water in the tank, or liquid in the interstitial space of secondarily contained systems.

### **What is EPA doing to address the challenge of corrosion in diesel USTs?**

EPA completed a comprehensive peer-reviewed research report in July 2016. The research identified a significant prevalence of corrosion in the population of USTs surveyed while statistically analyzing for any corrosion predicting factors within the population. EPA is reaching out to UST owners to help prevent releases from diesel fuel UST systems. EPA is notifying owners about our research findings, the potential risks posed by corrosion in diesel UST systems, and what owners can do about it. We will work with industry and implementing agencies to deliver this message directly to owners.

EPA is involved in industry activities to evaluate the causes and resolve diesel storage tank corrosion issues. The Coordinating Research Council is organizing these activities. Industry is leading this effort; EPA is cooperating with and contributing to it. EPA shared preliminary results and early research drafts with industry. In addition, we are allowing access to data and samples collected, as well as participating in the scientific research design.

EPA will continue to explore avenues to better understand and address these challenges through coordination and cooperation with our various stakeholders.