



UNDERGROUND STORAGE TANK Flood Emergency Policy and Guidance

March 30, 2015

Flooding can create many issues for Underground Storage Tank (UST) sites. When tanks are submerged, damage to UST systems as well as remediation systems is expected. The impact of this damage must be evaluated to determine what steps are necessary to safely place these sites back into service without risk of a new release. Therefore, UST systems must be evaluated to determine 1) if flood waters caused any damage to the UST system, 2) if there has been a release of product from the system and if so 3) what corrective action must be taken to assess the extent of the release.

Existing agency rules do not adequately address what actions must be taken to allow UST systems to be brought back into service as a result of impacts from a flood. Therefore, the department issued in 2008 this emergency policy in order to establish a policy and procedure for owners and operators to follow and document before they can bring their UST systems back into service.

This policy also describes the actions owners and operators must take to investigate whether there has been a suspected or actual release from their UST system, reporting requirements and corrective action that must be taken in response to a suspected or actual release.

Submerged UST systems or UST systems affected by flood waters must be inspected by an Iowa licensed installer, installation inspector or compliance inspector. The department recognizes that this may create delays in re-opening UST systems and alternatives may be approved depending on the demand for inspections and potential delays.

APPLICABILITY: This policy and procedure applies to all UST systems submerged by floodwaters or otherwise affected by flooding, such as saturation damage/exposure. UST systems are affected by flooding in the following ways:

- 1) The buoyancy of the tanks could offset the restraint of backfill and pavement over the tanks causing the UST system to move or shift in the backfill. Connections in the UST system could be loosened or broken. If the UST was not anchored, it may be pushed out of the tank pit and float. Contact Tom Collins at 515.725.8322, Paul Nelson at 515.725.8324 or Lisa Niedermayer at 515.725.8336 to report a petroleum release, a floating tank or if you have any questions or concerns about the evaluation or problems scheduling someone to evaluate your UST system.

- 2) It is likely that water infiltrated the tank. When it does, it settles at the bottom of the tank and pushes out the product. If water found its way in, product can be forced out. However, if fill port caps, probed caps, vapor recovery port caps are tight and intact, flood waters do not reach the top of the vent line, and the tank is anchored, then little damage may result.
- 3) If the ports at the top of the tanks are not tight, the tank will fill with water and displace product.
- 4) Tanks that are not anchored or weighted down with fuel will float up destroying the overburden, product lines and vent lines and spill product. UST systems that suffer this type of damage will require replacement.
- 5) Submerged electrical power systems, such as pumps, turbines, dispensers, ATG consoles and underground wiring can be damaged due to extended contact with water.
- 6) Above and below ground components of remediation systems will also be damaged by flood waters and may need either replacement or an extensive overhaul. Groundwater professionals must carefully investigate and monitor systems that remain intact, but had submerged underground components.

UST SYSTEM EVALUATION

Before flooded UST systems are returned to operation, they must be evaluated by an Iowa licensed UST professional to determine the extent of damage or whether they are suitable to receive product. The owner or operator must submit proof that the system has been inspected and certified as safe to return to operation. A list of Iowa licensed UST professionals (installers, installation inspectors, compliance inspectors) can be found at DNR's UST Section website:

<http://www.iowadnr.gov/InsideDNR/RegulatoryLand/UndergroundStorageTanks/LicensedUSTProfessionals.aspx>

Owners and operators of submerged or flood damaged UST systems should immediately contact their financial responsibility or insurance provider and file a notice or claim.

The evaluation of UST status should begin as soon as conditions and officials allow flood area re-entry. This policy assumes that there is a reasonable likelihood that a release of product may have occurred if an UST system has been submerged or affected by flood waters. The following procedure is intended to, in part, comply with the "system check" requirements whenever there is a suspected release as provided in agency rule 567 Iowa Administrative Code 135.6. This policy further assumes that damage may have occurred such that inspection, product removal and repairs may need to be undertaken. All submerged and flood affected USTs must follow the proceeding evaluation before start up.

- 1) Measure for water in the tank bottoms with your ATG system or by using a gauge stick (capable of measuring the level of product to within 1/8 inch) and water finding paste. If you have over an inch of water you will need to remove it. No amount of water is acceptable for tanks containing an ethanol blend as the water will be absorbed by the ethanol and creates fuel quality problems. Contact a hazardous waste management company (see last page for a list) for more information about removing water/ethanol mix from ethanol blended tanks. Fuels sold in retail markets must meet strict ASTM standards—make sure your fuel quality is not compromised. Fine silts are present in flood waters and may contaminate the fuel. The fine silts will need to be removed if present. Fuels will have to be removed if the UST system is found to be damaged during the evaluation.
- 2) Before returning to operation, all flooded UST systems must conduct tank and line tightness testing (0.1 gph leak rate). Tightness testing may be conducted using an Automatic Tank Gauging (ATG) system or a third party tightness tester. Tanks with secondary containment (double wall) may use interstitial monitoring in lieu of tightness testing. Tanks with confirmed “Fail” results must be emptied.
- 3) If water entered interstitial spaces of tanks and product lines, they must be drained and flushed where possible. Tanks with brine, vacuum or interstitial sensors may be returned to service if the levels are normal.
- 4) Empty and clean all containment sumps, spill buckets and dispenser pans. If there is not petroleum sheen on the water, you should be able to empty it onto the concrete where it can evaporate. Water with a petroleum sheen or floating product in a containment sump must be investigated for release. The water and petroleum must be removed and properly disposed of by a hazardous waste management company (see last page for a list). Do not discharge contaminated water to streets, storm sewers, ditches or sumps. Do not operate pumps and dispensers if they continue to fill with flood waters as there is chance water could enter the fueling system and damage components.
- 5) Submerged dispensers may have to be replaced or repaired if possible. Any submerged suction system will have damaged motors and pumps. Check hanging hardware for damage.
- 6) Check sump lid gaskets. After initial cleaning and drying make sure sumps, under dispenser containment (UDC) and spill buckets are liquid tight and prevent water ingress.
- 7) If you have more than one inch of water in a diesel or gasoline tank (non-ethanol blend), have it removed by a hazardous waste management company. More than an inch of water at the bottom of the tank can contaminate fuel systems in vehicles. Hazardous waste management companies can remove the water and leave the product in the tank.

- 8) Check the deflection of fiberglass tanks to make sure they meet the manufacturer's specification.
- 9) Determine whether the tank moved or shifted. If problems are found, repair according to manufacturer's instructions and appropriate industry standards and regulations. These tanks must not receive fuel until they are deemed safe and tight.
- 10) Check vents for movement, cracking, blockage and proper operation. This is a common area for water ingress and damage from flooding.
- 11) Check dispenser filters and submersible check-valve screens for plugging with dirt or mud.
- 12) Check critical safety devices (e.g., emergency power off controls, line leak detectors, air compressor pressure limiters, shear valves, stop switches, isolation relays on dispensers, etc.). Shear valves may be salvaged if they can be cleaned and lubricated with corrosion preventative. Some may still have to be replaced.
- 13) Sump sensors may need to be replaced after emergency conditions cease.
- 14) Submersible turbine pumps, ATG probes, overfill devices, ALLDs and all caps at the top of the tanks must be assessed for damage and replaced if necessary.
- 15) After flooding has abated, submerged CP systems must be assessed by a NACE or Steel Tank Institute certified cathodic protection professional. Submerged rectifiers may have to be replaced, if not submerged they must be checked for proper operation. Inspect CP wiring in saw cuts for damage and replacement if necessary.
- 16) Make sure the electrical system for the ATG, fueling and corrosion prevention systems are checked for shorts and continuity before restoring power.
- 17) All electrical junction boxes and conduit should be inspected for the presence of water and dried or vacuumed and for the presence of electrical shorts or opens. Open all dispenser panels to inspect and dry out.
- 18) Make sure tank management tags are present on the fill port. If missing contact the numbers listed in this guidance.

The following steps should be taken after your UST system is evaluated as safe and operational:

- 1) Check daily for the presence of water (with water finding paste) to ensure the system is tight. If these water checks indicate excessive water or you are showing loss of product on daily inventory, the tanks should be emptied of product and use of the tanks should discontinue. Such a condition must be

reported to DNR (515.725.8322 or 515.725.8324) no later than 24 hours after discovery. See rule 567 IAC 135.6.

- 2) Use daily inventory control and monthly reconciliation if your current electronic method of leak detection is not operating. Guidance books and log sheets for daily inventory control and monthly reconciliation are provided on EPA's website: <http://www.epa.gov/OUST/pubs/doing.htm>

SUSPECTED RELEASE OR CONFIRMED RELEASE

- 1) Current agency rules require owners and operators to report a "suspected" or actual release within 6 hours if it constitutes a "hazardous condition" or within 24 hours if it does not. During the inspection, it may be evident that a release of fuel from the UST system has occurred. For example, you may observe sheen on water or around the system, product levels may be below the levels gauged before flooding, leaks from dispenser connection or fuel in sump pits. You must notify the Department as soon as possible and within 24 hours if you have reason to believe a release may have occurred. You should also contact your UST insurance provider and file a claim.
- 2) Rule 135.6(3) requires a system check within 7 days of discovery. The Department intends to use its enforcement discretion by allowing owners and operators more time to complete this investigation, but you must notify us and propose a plan of action. You should make arrangements to immediately empty the tanks if a full investigation cannot be completed within 7 days.

FINANCIAL RESPONSIBILITY (INSURANCE)

Owners and operators should contact their insurance provider and in many cases the insurance provider may require and possibly pay for a system inspection in order to allow re-activation and continued coverage. If so, please submit the results of any insurance provider inspections. Owners and operators are encouraged to obtain a "binder" or other written certification from the provider that confirms that your pre-activation inspection satisfies their standards and that continuing coverage will not be denied solely on the basis of your re-activation of the UST system. You may want to seek the advice of an attorney before bringing your system into operation.

CERTIFICATION OF UST SYSTEM INSPECTION AND REPAIRS

Owners and operators must submit written documentation that the UST system has been inspected as provided above and the results of any inspection and repairs that have been made. The inspector must certify that the system meets current structural and operational requirements under Department rules.

LIST OF KNOWN COMPANIES WHO OFFER TANK CLEANING AND VACUUMING SERVICES IN IOWA <i>(In Alphabetical Order)</i>			
Company	Address	City/State/Zip	Phone
Acterra Group	Corporate Office 200 35 th Street	Marion, IA 52302	319.377.6357
Enviromark	7301 Vine Street Court	Davenport, IA 52806	563.388.9100
Environmental Management Services, Inc.(EMS)	1030 South Rolff Street	Davenport, IA 52802	800.457.1042
Geotek Engineering & Testing Services	909 E 50 th Street North	Sioux Falls, SD 57104	605.335.5512
Global Filter, LLC	7201 Mount Vernon Road S.E.	Cedar Rapids, IA 52403	319.743.0110
Hazardous Waste Management	PO Box 159	Waukee, IA 50263	515.986.4800
Hydro-Klean Environmental Services	333 NW 49 th Place	Des Moines, IA 50313	515.283.0500
Seneca	4140 E 14 th Street	Des Moines, IA 50313	515.262.5000
Seneca	7241 Gaines Street Court	Davenport, IA 52806	800.728.6900
Tanknology	2923 Industrial Dr	Faribault, MN 55021	507.334.8960
Unified Contracting Services	2425 NE 46 th Street	Des Moines, IA 50317	515.266.5700

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