IOWA DEPARTMENT OF NATURAL RESOURCES

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UNDERGROUND STORAGE TANK

Flood Emergency Guidance

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Flooding can create many issues for Underground Storage Tank (UST) sites. When tanks are submerged, damage to UST systems is expected. The impact of this damage must be evaluated to determine how to safely place these UST systems 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.

The Department of Natural Resources (DNR) issued this emergency guidance in order to establish a procedure for owners and operators to follow and document before they can bring their UST systems back into service.

This emergency guidance 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.

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 facilities; therefore, 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 the Environmental Emergency Reporting Hotline at 515-725-8694 to report a petroleum release or a floating tank.
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 did 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 may release product. UST systems that suffer this type of damage may require closure.
5) Submerged electrical power systems, such as pumps, turbines, dispensers, ATG consoles and underground wiring, and impressed current cathodic protection systems can be damaged due to extended contact with water.

UST SYSTEM EVALUATION

Before flooded UST systems are returned to operation, they must be evaluated by an Iowa licensed UST installer, installation inspector, or compliance inspector to determine the extent of damage or whether they are suitable to receive product. The owner or operator must submit documentation that the system has been inspected and certified as safe to return to operation. A list of Iowa licensed UST professionals (installers, installation inspectors, and compliance inspectors) can be found at DNR's UST Licensed Professional website. The documentation should be submitted to USTOperations@dnr.iowa.gov.

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 emergency guidance 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 Iowa Administrative Code 567--135.6. This emergency guidance further assumes that damage may have occurred such that inspection, product removal and repairs may be needed. All submerged and flood affected USTs must be evaluated as follows 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 for more information about removing water and 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 undergo tank and line tightness testing (0.1 gph leak rate). Tightness testing may be conducted using an Automatic Tank Gauging (ATG) system or a precision tightness test. Tanks with confirmed "Fail" results must be emptied and evaluated by an Iowa licensed installer.
3) Double-walled tanks with dry secondary containment must be pressure or vacuum tested to verify integrity of the tank and line interstice before use. Tanks or interstices with confirmed "Fail" results must be emptied and evaluated by an Iowa licensed installer. 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. Check sump lid gaskets; repair if necessary.

   If there is no petroleum sheen on the water found in the sumps you should be able to empty the water onto the concrete where it can evaporate. Water with a petroleum sheen or floating product in a containment sump may indicate a release and must be investigated. The water and petroleum must be removed and properly disposed of by a hazardous waste management company. 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) After initial cleaning and drying make sure sumps, under dispenser containment (UDC) and spill buckets are liquid tight and prevent water ingress.
7) Check the deflection of fiberglass tanks to make sure they meet the manufacturer's specification.
8) 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.
9) Check vents for movement, cracking, blockage and proper operation. This is a common area for water ingress and damage from flooding.
10) Check dispenser filters and submersible check-valve screens for plugging with dirt or mud.
11) Check critical safety devices. Shear valves may be salvaged if they can be cleaned and lubricated with corrosion preventative. Some may still have to be replaced.
12) Sump sensors may need to be replaced after emergency conditions cease.
13) 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.

14) After flooding has abated, submerged CP systems must be assessed by an Iowa licensed cathodic protection tester. 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.
15) Make sure the electrical system for the ATG, fueling and corrosion prevention systems are checked for shorts and continuity before restoring power.
16) All electrical junction boxes and conduit should be inspected for the presence of water and dried or vacuumed. They should be checked for the presence of electrical shorts or opens. Open all dispenser panels to inspect and dry out.
17) Make sure tank management tags are present on the fill port. If missing contact USTOperations@dnr.iowa.gov.

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. Report suspected or actual releases to the Environmental Emergency Reporting Hotline at 515-725-8694.
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 the DNR 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.

FLOOD DAMAGE CERTIFICATION FORM

This evaluation form must be signed by an Iowa licensed installer, installation inspector or compliance inspector before placing the system back into services. The completed form and all supporting documentation must be submitted to the DNR. These items may be submitted by email, fax, or postal mail.

Fax: 515-725-8201
Email: USTOperations@dnr.iowa.gov
Postal Mail: Iowa DNR UST Section, 6200 Park Ave Ste 200, Des Moines IA 50321.

UST Facility

Registration No: _____ LUST No: _____

Site Name: _____ Owner Name: _____

Contact Name (if different from owner): _____

Contact Email: _____

Site Address: _____

Site Phone: _____

UST Insurance Provider: _____

I, the undersigned, evaluated this facility according to DNR policy and procedures listed above.

The UST system I evaluated is safe and suitable for startup ☐ Yes ☐ No

The following components have been repaired/replaced or need to be repaired or replaced:

☐ Installer ☐ Installation Inspector ☐ Compliance Inspector

Print Name: _____ IA UST Professional License #: _____

Signature: _____ Date: _____