

Suffolk County
Department of Health Services

Division of Environmental Quality

LEAK DETECTION ALARM SYSTEM GUIDELINES
FOR
TOXIC HAZARDOUS/MATERIALS STORAGE

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Suffolk County Department of Health Services'  
Leak Detection Alarm System Guidelines  
For  
Toxic/Hazardous Materials Storage

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1.0 General

- 1.1 Article 12 of the Suffolk County Sanitary Code requires that toxic/hazardous materials' storage facilities be equipped with a positive means of detecting leakage. This system must detect leakage from the tank, piping, or as a result of spill during material transfer. The detection system must include, but is not limited to, both audible and visual alarms.
- 1.2 Exemptions - storage facilities which meet the following criteria shall be exempt from the provisions of this guideline:
- storage facilities located on a residential parcel with total on-site capacity less than 1,100 gallons, storing #2, #4 or #6 fuel oil, diesel oil or kerosene used solely for on-site heating or intermittent power production.
 - aboveground tanks with a containment area approved by the commissioner where any leakage would be clearly visible to the owner/operator or other person responsible for the storage facility.
 - aboveground piping whose containment system drains to an aboveground containment structure, approved by the commissioner, where any leakage would be clearly visible to the owner/operator or other person responsible for the storage facility.
- 1.3 Retrofit of existing single-walled, noncorrodible tanks, must include a tank leak detection system utilizing either monitoring wells or U-tube(s) as specified by the Standards for the Administration of Article 12, "Single Walled Underground Tank Design Standards," or other system acceptable to the commissioner.
- 1.4 Replacement of existing single-walled underground piping, with double-walled piping and leak detection, must conform with the time frame set forth by Article 12.
- 1.5 Submittals must include manufacturer and model number of the proposed alarm systems and must be approved by the commissioner.

2.0 Definitions

- 2.1 Aboveground - when referring to tanks, means more than 90 percent exposed above the final ground or finished floor elevation.

- 2.2 Commissioner - Commissioner of Suffolk County Department of Health Services.
- 2.3 Double-walled - constructed with more than one containment layer with space between the layers sufficient to allow monitoring of any leakage into or out of the space.
- 2.4 Residential Parcel - a single body of land or single building plot zoned for single-family residential use.
- 2.5 Single-walled - constructed with walls made of but one thickness of material. Laminated, coated or clad materials shall be considered as single-walled.
- 2.6 Storage Facility - tanks, pipes, vaults, buildings, yards, pavements, or fixed containers used, or designed to be used, either singly or in any combination thereof, for the storage and/or transmission of toxic/hazardous materials.
- 2.7 Toxic or Hazardous Materials - any substance, solution or mixture which, because of its quality, quantity, concentration, physical, chemical or infectious characteristics, or any combination of the foregoing, presents, or may present, an actual or potential hazard to human health, or to the drinking water supply, if such substance, solution, mixture or combination thereof is discharged to the land or waters of the County of Suffolk. Toxic or hazardous materials shall include:
- a. each and every substance, material, waste found listed in either or both Part 116 and Part 261, Title 40 of the Codes of Federal Regulations; or Title 6, Part 371 of the New York State Codes, Rules and Regulations.
 - b. acid and alkalies beyond the pH range of 4 to 10.
 - c. heavy metal sludges, mixtures and solutions in excess of the allowable concentrations listed in Title 6, Part 703.6 of the New York State Codes, Rules and Regulations.
 - d. petroleum products, including fuels and waste oils.
 - e. organic solvents, including petroleum solvents, halogenated and nonhalogenated hydrocarbons.
 - f. any material listed in Schedule I, Part 703.6 of the Official Compilation of New York Codes, Rules and Regulations, in excess of the concentration standards thereof, except of iron, manganese, foaming agents and pH, unless otherwise provided in Article 12 of the Suffolk County Sanitary Code.
 - g. any substance not included within subdivisions *a through f* above, subsequently declared to be a toxic or hazardous material by the commissioner.

h. any solid or semi-solid material which, if left to stand, or if exposed to water, will leach out, or wholly or partially dissolve, forming a toxic or hazardous material as defined in subdivisions ***a through g*** above.

2.8 Underground - when referring to tanks, means 10 percent or more below the final ground or finished floor elevation.

3.0 Components

3.1 The leak alarm system shall consist of, but not be limited to, a sensing unit and alarm panel.

3.2 Sensing unit.

3.2.1. The sensing probe may be of any type, i.e., mechanical, float, optical, ultrasonic, capacitance, or conductance, which is compatible with the material being stored, and is easily testable.

3.2.2 The sensing unit may operate on the principal of either liquid, vapor, positive pressure or loss of vacuum sensing.

3.2.3 The sensing unit must be capable of differentiating water from the material store or conveyed, except for positive pressure and vacuum systems which monitor both walls of a double-walled storage facility.

3.3 Alarm Panel

3.3.1 The alarm panel must be equipped with both audible and visual warning devices.

3.3.2 The audible element must be a horn or bell which can be heard by the storage facility operator, or other person responsible for the storage facility.

3.3.3 The visual element must be a steady burning light which is visible to the storage facility operator or other person responsible for the storage facility.

3.3.4 The alarm panel must visually annunciate each sensing unit separately, i.e., an individual set of lights for each sensing unit.

3.3.5 The alarm panel must be equipped with a manual reset button which will silence the audible alarm after annunciation. The visual alarm must remain on until the alarm condition is properly addressed. Subsequent alarm conditions must activate both the audible and visual alarms.

3.3.6 The alarm panel must be equipped with a self-checking system capable of monitoring the circuitry, as well as the working condition of the audible/visual alarms and the sensing unit. This self-checking feature may be either an automatic or manual operation. Should malfunction be detected by this check system, the alarm panel must clearly indicate the failure.

3.3.7 The alarm panel must be located where it will be seen and heard by the storage facility operator, or other person responsible for the storage facility.

3.3.8 The alarm panel must have differentiating lights to distinguish water from the material being stored or conveyed.

4.0 Electrical

4.1 All electrical wiring and components must conform to all applicable building and electrical codes.

4.2 All wiring must be run within conduit.

4.3 Electrical enclosures mounted at the tank must be explosion proof where dictated by the tank contents.

4.4 Outdoor electrical enclosures must be weather proof.

4.5 Power on/off switches on the sensing unit, alarm panel, or any other component of the leak detection system is prohibited.

4.6 All components must be hardwired; plug-in type cords are not acceptable.

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