Highland Tank®

# Emergency Water Service Tanks

HT-1157

Liquids Storage at Critical Facilities In some cases, emergency water storage is required when municipal water may not be available, like during natural disasters, pandemics and crisis situations. Most of these events come with no warning. Preparation, planning and implementation for an uninterruptible water supply is critical.

Standards of Joint Commission and the Centers for Medicare & Medicaid Services (CMS), Conditions for Participation/ Conditions for Coverage (42 CFR 482.41) require hospitals and acute care facilities to address the provision of water as part of the facility's Emergency Operations Plan (EOP) under Standard EM.02.02.09.

Highland Tank's EWSP systems can provide safe and secure water supplies for these facilities to maintain operations during emergencies.

These facilities are required to develop effective Emergency Water Supply Plans (EWSP). This standard outlines facilities need for:

- Water for consumption and essential care activities
- Water for equipment and sanitary purposes

There are many benefits to using storage tanks to meet on-site water storage needs, including emergency water storage. Highland Tank's potable and non-potable water storage tanks are an effective and economical way to store water for commercial, institutional, and industrial applications. Storage tanks allow for redundant, on-site water supplies to be located where needed using atmospheric pumps and/or pass-through pressurized ASME vessels for water delivery.

**Emergency Water Supply Planning Guide is available for download here**

An audit of the facility's water consumption will provide the data necessary to calculate the required water storage capacity.

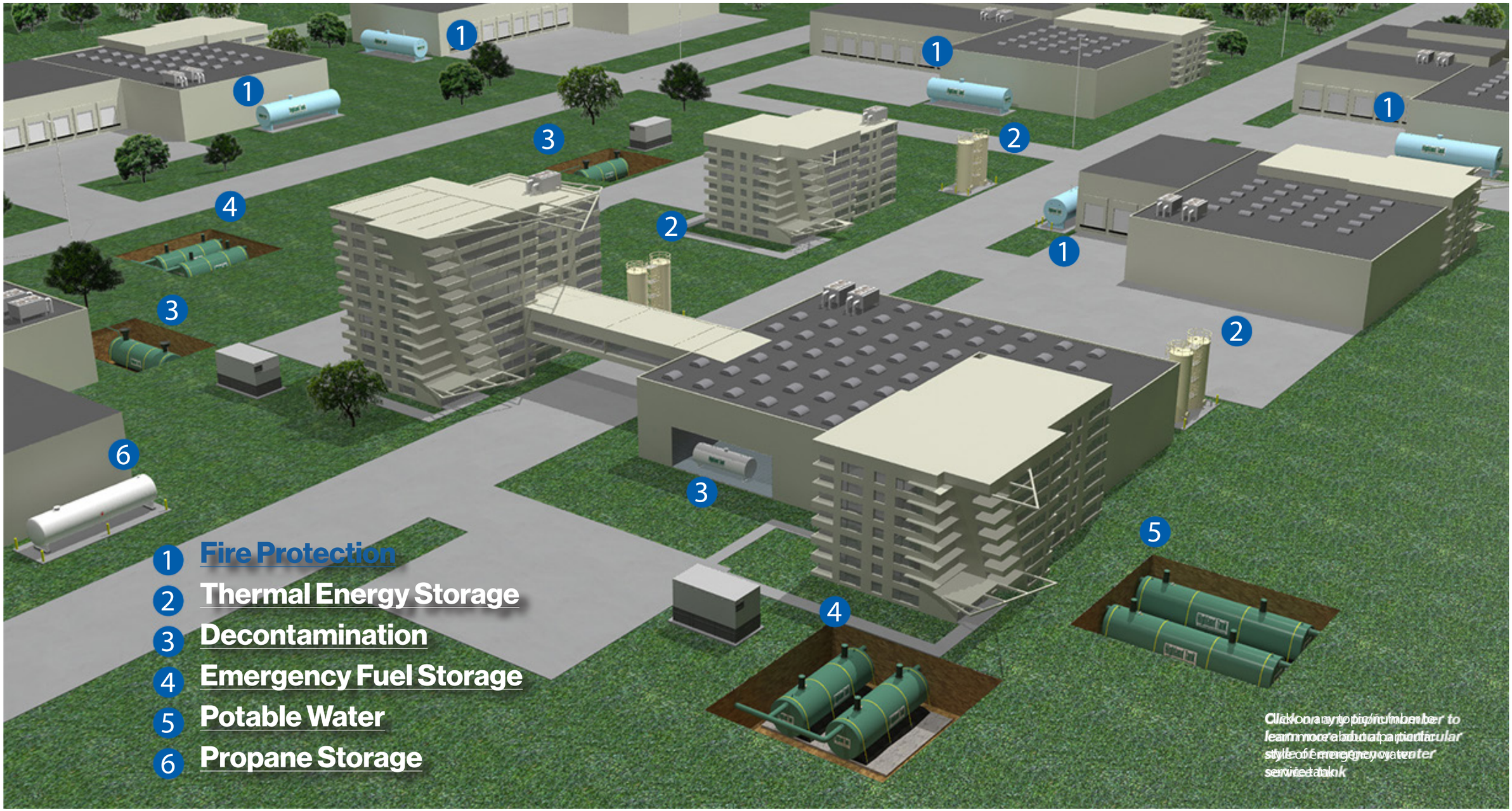
At a minimum the EWSP will require 96-hours of storage for HVAC, potable water and waste/black water. The audit will also provide potential fuel storage considerations as they relate to the heating and pumping of these emergency water supplies.

The amount of water storage capacity required will vary depending on usage and any restrictions. For example, water used only for acute care (critical functions) and HVAC could last up to a week, whereas water used for all functions including acute care at the entire facility may be limited to 3-4 days.

Additionally, an HVAC system can utilize non-potable water and wouldn't require the interior lining suited for drinking water storage tanks.

Some factors to consider when sizing water storage tanks for emergency use include:

- Size of facility - how many acres, number of beds
- Other ancillary support buildings
- Average consumption
- Water used by entire facility
- Water used by acute care (critical and noncritical functions)
- Water used by HVAC units



# Atmospheric Fire Protection & Potable Water Storage

Highland Tank prides itself in engineering, manufacturing and delivering complete tank solutions. We work with our partners through the entire process from design to installation. Our turnkey emergency water storage tank systems come packaged with all the components needed to provide and maintain safe, reliable water supplies.

We manufacture potable water tanks for a wide range of applications:

- Schools
- Hospitals
- Prisons
- Resorts
- Rest Areas
- Campgrounds
- Rural Developments
- Livestock Feed Stations
- Emergency Water Supplies

**Fire Protection**

HighDRO® Fire Protection Tanks are atmospheric water storage tanks specifically designed for use in a residential, commercial or institutional building's fire protection system.

Fire protection tanks are often required by local fire codes to provide a dedicated source of firefighting water for rural, suburban and urban communities.

Properly sized fire protection tanks make valuable contributions during firefighting emergencies, especially when firefighting demands more water than the building's domestic water feed line can supply.

**Drinking Water**

HighDRO® Potable Water Tanks are an effective and economical way to store potable water for residential, commercial, institutional and industrial installations.

These factory-welded and coated carbon steel water tanks are pressure tested for tightness to ensure the quality and dependability of the water supply.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# Atmospheric Wastewater & Decontamination Storage

**Wastewater Storage**
Wastewater storage tanks are required for use in wastewater systems where individuals or companies are responsible for disposal of their own domestic, commercial, industrial, institutional or agricultural liquid wastes. HighDRO® Wastewater Tanks have become part of the infrastructure to meet critical storage for emergency services at hospitals, acute care, and mission critical facilities.

Some applications include:

- Emergency Services
- Greywater
- Industrial Chemically Contaminated Wastewater
- Blackwater or Septage


**DECON Tanks**
Decontamination wastewater storage is required at most medical facilities to store wastewater generated as a result of decontamination activities performed to remove chemical, biological, radiological, and nuclear (CBRN) residue or hazardous materials (HazMat) from equipment or personnel.

HighDRO® Decontamination tanks are available in carbon steel construction with the convenient choices of tough, chemical-resistant epoxy or high-solids polyurethane internal linings, depending on the project and liquids stored.

Tanks made of resilient stainless steel construction are also available to withstand the wider range of temperature, CBRN agents, and neutralizing chemicals encountered in decontamination applications.

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# Atmospheric Tank Fabricating Capability

Highland Tank's water storage tanks can be installed aboveground, inside the facility, or underground to accommodate potential seismic activity, among other factors. The strength and flexibility of steel provide secure and long-lasting water storage.

Our tanks range in size from 185 gallons to 60,000 gallons. Large capacity tanks offer effective storage for healthcare facilities. Highland Tank's water storage tanks are constructed to the highest standards to help ensure a safe, contamination-free environment.

**Head Design:**
Flat, flanged - standard, Flanged and dished, or coned (vertical only) are also available

**Penetrations:**
- NPT full couplings up to 4" diameter
- Flanged fittings - 1/2" and up
- Manways - 24" to 48" diameter and custom rectangular manways
- All appurtenances per AWWA D100 and NFPA 22

**Surface Preparation:**
SSPC SP-6 standard, SP-10 & SP-5 available

Factory-applied NSF, UL, and AWWA compliant protective linings and coatings form a barrier for both the interior and exterior surfaces of the tank providing corrosion protection and water integrity.

**Internal Linings:**
- Epoxy Phenolic
- High-solids Epoxy
- High-solids Polyurethane
- Zinc-Epoxy
- Vinyl Ester
- Rubber, PVC and other sheet linings

**Aboveground External Coatings:**
Aboveground tanks can be protected with a wide selection of primers and top-coats, even those complying with ANSI/AWWA D102, "Coating Steel Water-Storage Tanks."

**Underground External Coatings:**
HighGuard Corrosion Protection System with others available. To ensure maximum longevity and optimum use, our corrosion protection systems for underground water tanks comply with UL-1746.

**Testing:**
Standard 5-psi factory air test and seam inspection

**Tank Support Systems:**
- Horizontal - UL Saddles
- Vertical - Tank Skirts & Angle Legs

**Tank Accessories:**
- Interior ladders
- Waterstops
- Vents
- OSHA-compliant ladders, stairs, platforms and walkways
- Water/wastewater pumps and controls
- Gauges


# Pressurized Emergency Water Service

Highland Tank's unique abilities and expertise with water storage and processing provide a valuable service to our customers. Providing solutions to the water supply/demands for large industrial, municipal and institutional facilities is what we do best.Analyzing needs, manufacturing and delivering complete emergency water service solutions is our focus.

## Fire Protection

Fire protection vessels are hydropneumatic water storage tanks specifically designed for use in private fire protection systems.

These ASME pressure vessels are required by fire codes in many commercial, industrial and institutional buildings for use with automatic sprinkler systems for fire suppression. During normal operation, this ASME pressure vessel is filled with water to 2/3 the volume of the tank and then pressurized with air to 125 psi. FPT can be located underground with all of the fittings located on one head that protrudes into the basement or a vault.


## Thermal Energy Storage

Planning for a potential loss of cooling system capacity, although rare, is essential in maintaining the integrity of information storage at data centers and hospitals around the world. Thermal Energy Storage is a key element in delaying the effects of cooling failure due to power loss or catastrophic failure.

These systems are engineered process tanks or vessels that add heat or remove heat from a storage medium such as water. TES is a form of storage that can be either a pressurized ASME vessel or atmospheric storage tank.

Water is cooled by chillers during off-peak hours and stored in insulated tanks, then used for space conditioning during times of primary chiller down time due to temporary power loss.

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# Pressure Vessel Fabricating Capability

Highland Tank's water storage pressure vessels can be installed aboveground, inside the facility, or underground to meet the space and location demands, among other factors.

Pressurized vessels range in size from 300 to 60,000 gallons. Large capacity vessels offer effective storage for healthcare facilities. Highland Tank's water storage vessels are constructed and labeled to ASME codes. Additional codes that may apply as needed are: AWS, ASTM, ASHRAE and NSF.

**Fabrication Capabilities**

**Orientation:** Vertical or Horizontal

**Installation:** Aboveground or Underground

**Diameter:** 6" to 14'-0"

**Length:** Up to 90'-0"

**Maximum Weight :** 80 Tons

**Material:**
- Carbon Steel
- Stainless Steel: Type 304, 304L, 316 and 316L

**Maximum Size:** 1-1/4" thick x 120" wide

**Finishes:**
- No. 1 - Hot rolled, annealed and passivated – 3/8" and thicker
- No. 2B - Cold rolled, annealed, pickled & passivated with additional polished rollers pass

**Penetrations :**
- NPT full couplings up to 4" diameter
- Flanged fittings - 1/2" and up
- Manways - 12" x 16" elliptical manway typical for an inspection opening

**Surface Preparation:**
SSPC SP-6 standard, SP-10 & SP-5 available

Factory-applied NSF, UL, and AWWA compliant protective linings and coatings form a barrier for both the interior and exterior surfaces of the tank providing corrosion protection and water integrity.

**Internal Linings:**
- Epoxy Phenolic
- High-solids Epoxy
- High-solids Polyurethane
- Zinc-Epoxy
- Vinyl Ester
- Calcium Aluminate Cement
- Rubber, PVC and other sheet linings

**Aboveground External Coatings:**
Aboveground tanks can be protected with a wide selection of primers and top-coats, even those complying with ANSI/AWWA D102, "Coating Steel Water-Storage Tanks."

**Underground External Coatings:**
HighGuard Corrosion Protection System with others available. To ensure maximum longevity and optimum use, our corrosion protection systems for underground water tanks comply with UL-1746.

**Testing:** Hydrostatic and radiographic testing at factory

**Tank Support Systems:**
- Horizontal - UL Saddles
- Vertical - Tank Skirts & Angle Legs

**Tank Accessories:**
- Interior ladders
- Waterstops
- Vents
- OSHA-compliant ladders, stairs, platforms and walkways
- Water/wastewater pumps and controls
- Gauges


# Highlandtank.com - your complete tank information source

**Emergency Water Storage**

**Tank Installations**

Tanks installations vary widely by location and site or system needs. In the case illustrated here, ample potable storage is provided with multiple tanks, valves and pumps to supply water to a building or facility when domestic water service is interrupted. Contact Highland Tank for assistance on design, regulationsand code requirements

Some fabrication and access options to consider are: interior ladders, water stops, vents, exterior ladders, stairs, walkways, catwalks, valves, pumps, programmable logic controllers (PLC), and level monitoring equipment.

Highland Tank provides many tools and services to assist with design, site planning, installation and maintenance of water tanks and systems. We've provided links to many of these accessories, options and tools.

In addition, **High-LINK® Integrated Systems** products are a smart choice for your emergency water service to measure, monitor and manage the entire system from liquid levels to temperature and much more.These links provide the most up-to-date information, specifications and drawings to help you develop an effective Emergency Water Supply Plan.

Click here for more information from the CDC, EPA & HHS
Other Highland Tank products to consider for emergency planning:

- Emergency Fuel Storage
- Propane Storage
- Wastewater/Stormwater Treatment
- Elevator Oil Interceptors

Many accessories are available to customize your installation:

- Hold-Down straps
- Insulation Systems
- Tanks Saddles
- Vertical Tank Stabilizers
- Grade Level Manways
- Concrete Deadman Anchors
- Ladders, Platforms & Walkways
- Deadman Anchoring System

Please feel free to contact our water systems specialist for immediate assistance.

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