

Map & Plan

For the

**North County Industrial Water District No. 1
Water Tower Rehabilitation**



**Chautauqua County
New York**

July 2022



ARCHITECTURE
ENGINEERING
PLANNING
CPLteam.com

Table of Contents:

Introduction	2
Project Background & History	2
Alternative	3
Smart Growth	4
Conclusion	4

APPENDIX A – Location Map

APPENDIX B – Hydrologic Soil Groups

APPENDIX C – National Wetlands

APPENDIX D – 2021 Annual Water Quality Report

APPENDIX E – Pittsburg Tower & Tower Co. Report

APPENDIX F – Preliminary Cost Estimate

APPENDIX G – Smart Growth Assessment Form

Introduction

The purpose of this Map & Plan is to facilitate proposed improvements to the North County Industrial Water District No. 1 (NCIWD) water storage tower. The existing water storage tower requires rehabilitation including the removal of the existing coating system from the interior and exterior surfaces, and repainting both interior and exterior surfaces. The improvements were selected to ensure a reliable, safe, and regulatory compliant water system.

This engineering report will describe the improvements in detail, review cost estimates, and project budget.

Project Background & History

1. Site Location

The location of the water storage tower is in the Town of Sheridan, just outside of the City of Dunkirk on Progress Drive. Project location mapping can be found in *Appendix A*.

The current soil type located in the project area is both Minoa fine sandy loam (Mn) and Niagara silt loam (NgA), 0 to 3 percent slopes, loamy substratum. There is no reported bedrock at the site. More information on the geologic conditions can be found in *Appendix B*.

Nearby the current water tower is Scott Creek, which is the only environmental resource that may be impacted by the project. This creek also is the only source of flooding nearby the project location. Additional information for environmental zones nearby can be found in *Appendix C*.

2. Ownership and Service Area

This water storage tower is owned and maintained by the NCIWD. The NCIWD receives water from the City of Dunkirk which draws water from Lake Erie. Information on the water supply is included in Appendix D.

The operation of the tower completed by the Chadwick Bay Intermunicipal (CBI) Water Works. The CBI is managed by the five elected leaders of the communities, which are the Town of Dunkirk, Village of Brocton, Town of Portland, Town of Sheridan, and the Town of Pomfret.

The water storage tower is located within an industrial park with multiple businesses nearby the tower, including Nestle Purina. The water storage tower also serves the Chautauqua County/Dunkirk Airport.

3. Existing Facilities

The location of the NCIWD water tower requiring improvements is shown on a location map located in *Appendix A* of this report. Refer to *Appendix E* for any photographs of the current existing facilities in the inspection completed by Pittsburg Tower & Tower Co. from 2011.

The existing 400,000-gallon water tower was constructed in the Town of Sheridan in 1977. The purpose of this water storage tower is to provide water to the nearby industries and airport. It was last inspected in 2011 by Pittsburg Tower & Tower Co. and their report of the current conditions is in *Appendix E*.

Presently the current condition of the water tower is still in working order to supply water to the surrounding area. There is no current history of failure or damages due to storms. However, as will be touched on below, much of the coating system has failed.

4. Need for Project

This storage tower is a critical system component to maintain safe and reliable drinking water to the NCIWD and the surrounding area. There have been several deficiencies noted that need to be repaired. These deficiencies were found by Pittsburg Tower & Tower Co. in the most recent inspection. The list of deficiencies can be found in *Appendix E*.

The rehabilitation of this tower, with the installation of a new coating system, will extend the life expectancy of the tower another 30-40 years.

Other needs for this project include installation of new flapper valve and screen to prevent contaminants from entering the water supply. OSHA required signs, handrails and locks around roof hatch openings should be installed to help protect safety. A new pressure vents to the top of the tower will help prevent any form of buckling in the tower. Installation of new interior lights as well as a new FCC approved LED light should be installed on top of the tower for the nearby airport. Installation of new grating over platform openings are needed also to help prevent falling hazards.

Alternative

NCIWD Tower Rehabilitation

The water tower rehabilitation will include the following:

1. Removal of existing surface coat system on interior and exterior.
2. New interior and exterior coating system by spot priming, full primer, and finish coats.
3. Concrete foundation repairs.
4. Installation of new flapper valve and screen.
5. Installation of FCC approved LED light.
6. Installation of interior lighting.

With this rehabilitation there would be no change to the existing water towers operational abilities, however it would provide many of the needed improvements to fulfill the required safety concerns. Rehabilitation of the current water tower would also improve the aesthetics of the water tower.

Estimated Capital Cost: \$863,000. The NCIWD anticipates using grant funding for the entire cost of this project.

Detailed Cost estimates are included in *Appendix F*.

Smart Growth

A copy of the required Smart Growth Assessment Form can be found in *Appendix H* of this report.

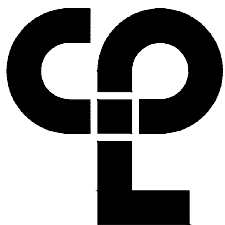
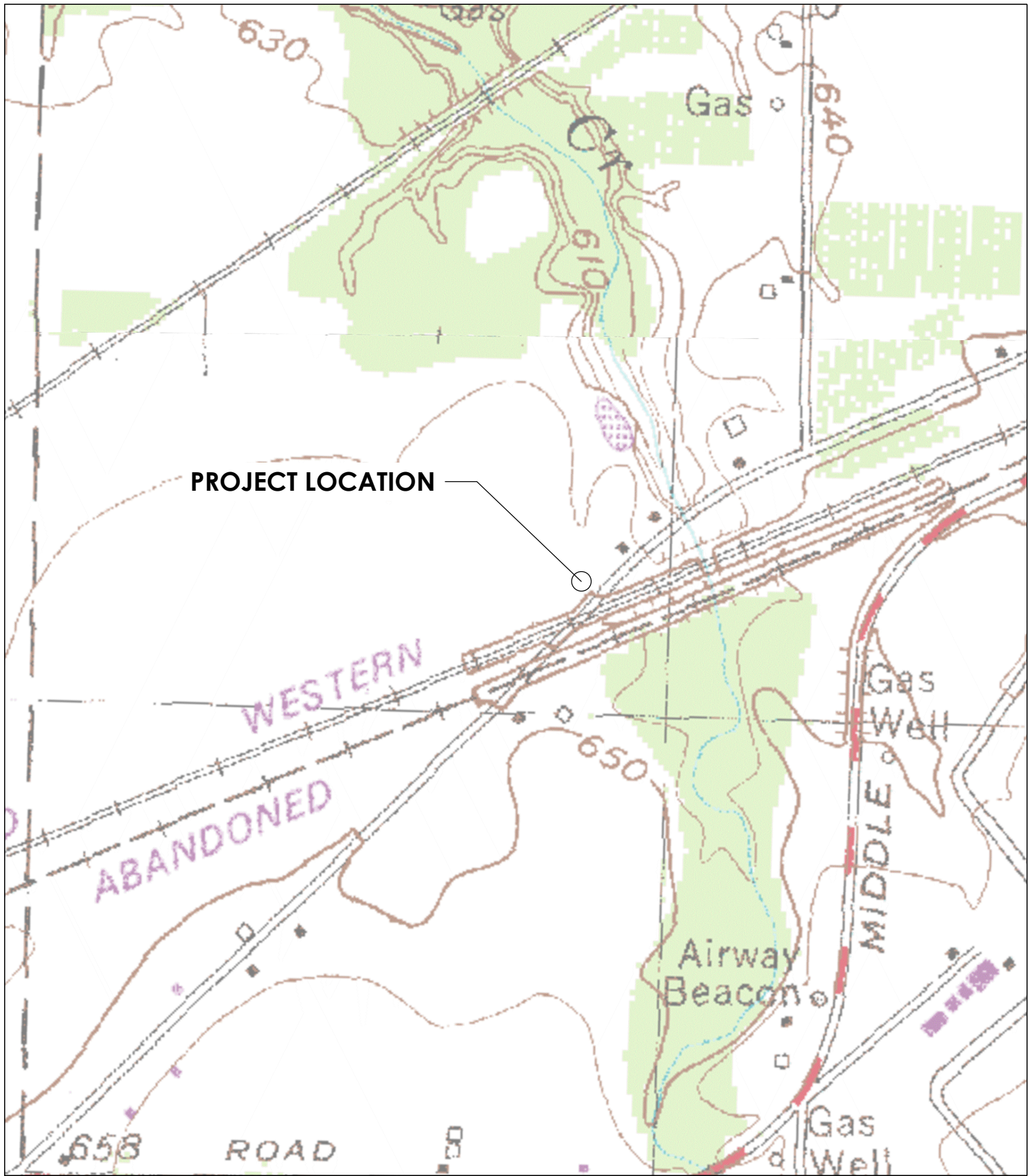
Conclusions

The North County Industrial Water District No. 1 is committed to providing safe and reliable potable water supply and fire protection to residents and customers. The proposed improvements will be instrumental in achieving that goal and preventing system wide emergencies from occurring. It is recommended that Chautauqua County, through the actions of their board and the submission of this report, seek funding for completion of this project.

Appendix A

Location Map

Drawing Name: J:\PROJECTS\Chautauqua City\Industrial Water\Design\Reports\DWSRF Report\Eng Report July 2022\Water Storage Tank Location Map.dwg Date last accessed: 7/18/2022 1:10 PM Date last plotted: 7/18/2022 1:13 PM



CPL | Architecture Engineering Planning
 255 Woodcliff Drive - Suite 200
 Fairport, NY 14450
 CPLteam.com

Project Number 16755.00	Drawn By AJC	Checked By ECW	Scale 1"=600'	Issued JULY 2022
----------------------------	-----------------	-------------------	------------------	---------------------

Client Name
CHAUTAUQUA COUNTY

Project Name
WATER TANK REHABILITATION

Drawing Title
LOCATION MAP

Drawing Number
FIG. 1

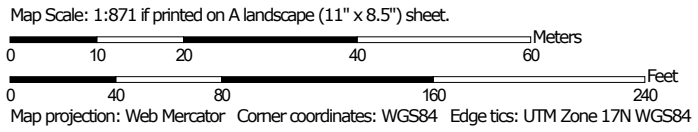
Appendix B

Hydrologic Soil Groups

































Hydrologic Soil Group—Chautauqua County, New York



Soil Map may not be valid at this scale.



MAP LEGEND

- Area of Interest (AOI)**
 -  Area of Interest (AOI)
- Soils**
 - Soil Rating Polygons**
 -  A
 -  A/D
 -  B
 -  B/D
 -  C
 -  C/D
 -  D
 -  Not rated or not available
 - Soil Rating Lines**
 -  A
 -  A/D
 -  B
 -  B/D
 -  C
 -  C/D
 -  D
 -  Not rated or not available
 - Soil Rating Points**
 -  A
 -  A/D
 -  B
 -  B/D
- Water Features**
 -  Streams and Canals
- Transportation**
 -  Rails
 -  Interstate Highways
 -  US Routes
 -  Major Roads
 -  Local Roads
- Background**
 -  Aerial Photography
- Other**
 -  C
 -  C/D
 -  D
 -  Not rated or not available

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.
 Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Chautauqua County, New York
 Survey Area Data: Version 19, Aug 29, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 17, 2020—Jul 5, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Mn	Minoa fine sandy loam	B/D	0.7	18.7%
NgA	Niagara silt loam, 0 to 3 percent slopes, loamy substratum	C/D	2.9	81.3%
Totals for Area of Interest			3.6	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix C
National Wetlands



June 8, 2022

Wetlands

- | | | | | | |
|---|--------------------------------|---|-----------------------------------|---|----------|
|  | Estuarine and Marine Deepwater |  | Freshwater Emergent Wetland |  | Lake |
|  | Estuarine and Marine Wetland |  | Freshwater Forested/Shrub Wetland |  | Other |
| | |  | Freshwater Pond |  | Riverine |

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Appendix D
2021 Annual Water Quality Report



ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2020

Presented By
City of Dunkirk

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo ó hable con alguien que lo entienda bien.

Ce rapport contient des informations importantes sur votre eau potable. Traduisez le ou parlez en avec quelqu'un qui le comprend bien.



Introduction

To comply with State regulations the City of Dunkirk will be annually issuing a report describing the quality of your drinking water. The purpose of this report is to raise your understanding of drinking water and awareness of the need to protect our drinking water sources. Last year, your tap water met all State drinking water health standards. We are proud to report that our system did not violate a maximum contaminant level or any other water quality standard. This report provides an overview of all of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to State standards.

If you have any questions about this report or concerning your drinking water, please contact Kyle Schuster, Laboratory Director, at (716) 366-2955. We want you to be informed about your drinking water. If you want to learn more, please attend any of our regularly scheduled City board meetings. The meetings are held the first and third Tuesday of each month, beginning at 5:30pm at City Hall, 342 Central Avenue, Dunkirk, New York.

Where Does Our Water Come From?

The City of Dunkirk's water customers are fortunate because we enjoy an abundant water supply from Lake Erie. Strict international laws ensure the lake will continue to be a source of high-quality water in Western New York. In general, the sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activities. Contaminants that may be present in source water include: microbial contaminants; inorganic contaminants; pesticides and herbicides; organic chemical contaminants; and radioactive contaminants. In order to ensure that tap water is safe to drink, the State and the EPA prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. The State Health Department's and the FDA's regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

The New York State Department of Health has evaluated Lake Erie's susceptibility to contamination under the Source Water Assessment Program (SWAP). Their findings are summarized in the paragraph below. It is important to stress that these assessments were created using available information and only estimate the potential for source water contamination. It does not indicate that any contamination has or will occur. This water supply provides treatment and regular monitoring to ensure that the water that is delivered to consumers meets all applicable standards. This assessment found an elevated susceptibility to contamination. The amount of pasture in the assessment area results in a high potential for protozoa contamination. There is also a high density of sanitary wastewater discharges in the watershed, which results in elevated susceptibility for nearly all contaminant categories. However, the total amount of wastewater discharged to surface water is not high enough to considerably raise the potential for contamination. There are no noteworthy contamination threats associated with other discrete contaminant sources.

Water Treatment Process

The treatment process consists of a series of steps. First, raw water flows by gravity through a 36-inch pipe located approximately one mile out in the lake. Second, low lift pumps move the water through a pre-chlorination process and to our chemical building, where a coagulant, polyaluminum chloride, is added at the rapid mix. The coagulant causes dirt, clay, bacteria and organic material in the water to adhere together into floc. From the rapid mix, the water moves to flocculation chambers, where large paddles slowly mix the water, allowing the floc particles to grow bigger. The water then flows to the sedimentation basins, where the majority of the floc settles to the bottom to be removed later. From here, water flows into the filter beds, where it passes through layers of media to trap the remaining floc particles. The filtered water travels to the clear well, where the water is given final chlorination to maintain chlorine residual in the distribution system. Finally, high-lift pumps move the water from the clear well out into the distribution system to storage tanks and our customers.

Is Our Water System Meeting Other Rules That Govern Operations?

During 2020, our system was in compliance with applicable State drinking water operating, monitoring and reporting requirements.

Facts and Figures

Our water system serves approximately 11,848 customers through approximately 4,360 service connections. The total amount of water produced in 2020 was 1,117,699,000 gallons. The daily average of water treated and pumped into the distribution system was 3.05-million gallons per day. Approximately 76.2 % of the total was billed directly to consumers.

The balance or unaccounted water was used for firefighting purposes, street sweeping, sewer cleaning, hydrant flushing and distribution system leaks. Effective March 2020 water customers in the City of Dunkirk will pay on average \$689 annually for their water (based on EPA's average family of four quarterly usage of 36,000 gallons). The average customer outside the City pays \$1,206 for the same amount of water.

Improvements and Modifications

During 2020, the City of Dunkirk made the following improvements and modifications:

- Electrical and SCADA upgrades at Main Street Booster Station.
- #1 Booster pump upgraded at Main Street Booster Station.
- Improvements to data acquisition from Booster stations and Storage tanks.
- Started landscape and paving improvements at Main Street Booster station.

Proposed for 2021:

- Continuation of electrical improvements at Main Street Booster Station.
- Continuation of SCADA implementation at Water Treatment Plant and Booster Stations.
- Continuation of water line replacement throughout the City's distribution system.



Closing

Thank you for allowing us to continue to provide your family with quality drinking water this year. We ask that all our customers help us protect our water sources, which are the heart of our community. Please call our office if you have questions.

Do I Need to Take Special Precautions?

Some people may be more vulnerable to disease-causing microorganisms or pathogens in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice from their health care provider about their drinking water. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium*, *Giardia* and other microbial pathogens are available from the Safe Drinking Water Hotline (800-426-4791).

Are There Contaminants in Our Drinking Water

As the State regulations require, we routinely test your drinking water for numerous contaminants. These contaminants include: Haloacetic acids, total coliform, turbidity, inorganic compounds, nitrate, nitrite, lead and copper, volatile organic compounds, total trihalomethanes, and synthetic organic compounds including pesticides and herbicides. The table presented below depicts which compounds were detected in your drinking water. The State allows us to test for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

It should be noted that all drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791) or the Chautauqua County Health Department at 716-753-4481.

On August 26, 2020, Public Water Supplies in New York State were required to begin monitoring for Per- and polyfluoroalkyl substances (PFAS). These substances include Perfluorooctanoic acid (PFOA), Perfluorooctane sulfonate (PFOS), and 1,4-Dioxane. To this date, we have not had any detection of these contaminants and will continue to monitor for them in 2021 and beyond.



Why Save Water and How to Avoid Wasting It

Although our system has an adequate amount of water to meet present and future demands, there are a number of reasons why it is important to conserve water:

- Saving water saves energy and some of the costs associated with both of these necessities of life;
- Saving water reduces the cost of energy required to pump water and the need to construct costly new wells, pumping systems and water towers; and
- Saving water lessens the strain on the water system during a dry spell or drought, helping to avoid severe water use restrictions so that essential firefighting needs are met.



You can play a role in conserving water by becoming conscious of the amount of water your household is using, and by looking for ways to use less whenever you can. It is not hard to conserve water. Conservation tips include:

- Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- Turn off the tap when brushing your teeth.
- Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- Check your toilets for leaks by putting a few drops of food coloring in the tank, watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from one of these otherwise invisible toilet leaks. Fix it and you save more than 30,000 gallons a year.
- Use your water meter to detect hidden leaks. Simply turn off all taps and water using appliances, then check the meter after 15 minutes. If it moved, you have a leak.

What Does This Information Mean?

As you can see by the table, our system had no violations. We have learned through our testing that some contaminants have been detected; however, these contaminants were detected below the level allowed by the State. Lead and copper were detected within the system and two of the 30 samples collected were found exceeding the action levels. We are required to present the following information on Lead in drinking water:

If present, elevated levels of lead can cause serious health problems, especially for pregnant women, infants, and young children. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. The City of Dunkirk is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (1-800-426-4791) or at <http://www.epa.gov/safewater/lead>.

The NYSDOH has a free lead testing program – for more information go to: https://www.health.ny.gov/environmental/water/drinking/lead/free_lead_testing_pilot_program



DETECTED CONTAMINANTS

CONTAMINANT	VIOLATION	DATE OF SAMPLE	LEVEL DETECTED	UNIT MEASUREMENT	REGULATORY LIMIT (MCL/AL)	MCLG	LIKELY SOURCE OF CONTAMINATION
MICROBIOLOGICAL CONTAMINANTS							
Turbidity¹	No	5/16/20	0.155 NTU	NTU	TT=<1.0 NTU	N/A	Soil Run-off
Turbidity¹	No	May (2020)	100% <0.3	NTU	TT=95% of samples <0.3 NTU	N/A	Soil Run-off
Distribution Turbidity²	No	Jan (2020)	0.40	NTU	MCL>5 NTU	N/A	Soil Run-off
INORGANIC CONTAMINANTS							
Nickel	No	7/01/20	0.9	ug/l	N/A	N/A	Nickel enters groundwater and surface water by dissolution of rocks and soils, from atmospheric fallout, from biological decays and from waste disposal.
Lead³	No	7/1/19-8/20/19	8.2; Range=ND-50.6	ug/l	15 (AL)	0	Corrosion of household plumbing systems; Erosion of natural Deposits
Copper⁴	No	7/1/19-8/20/19	0.0633; Range=0.0035-0.0976	mg/l	1.3(AL)	1.3	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Barium	No	7/01/20	0.0207	mg/l	2.0(MCL)	2	Discharge of drilling wastes; discharge from metal refineries; erosion or natural deposits
Fluoride	No	8/1/18	0.12	mg/l	2.2(MCL)		
Nitrate	No	7/01/20	0.212	mg/l	10(MCL)	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Sulfate	No	7/01/20	22.9	mg/l	250(MCL)	N/A	Naturally occurring.
STAGE 2 DISINFECTION BYPRODUCTS (17 LAFAYETTE STREET)							
CONTAMINANT	VIOLATION	DATE OF SAMPLE	LEVEL DETECTED	UNIT MEASUREMENT	REGULATORY LIMIT (MCL/AL)	MCLG	LIKELY SOURCE OF CONTAMINATION
Haloacetic Acids	No	Quarterly (2020)	Avg.=5.43 Range=ND-10.9	ug/l	60(MCL)	N/A	By-products of drinking water chlorination.
Trihalomethanes	No	Quarterly (2020)	Avg.=33.13 Range=25.1-50.3	ug/l	80(MCL)	N/A	By-products of drinking water chlorination. TTHM's are formed when source water contains large amounts of organic matter.
STAGE 2 DISINFECTION BYPRODUCTS (344 HOYT STREET)							
CONTAMINANT	VIOLATION	DATE OF SAMPLE	LEVEL DETECTED	UNIT MEASUREMENT	REGULATORY LIMIT (MCL/AL)	MCLG	LIKELY SOURCE OF CONTAMINATION
Haloacetic Acids	No	Quarterly (2020)	Avg.=5.75 Range=3.7-8.4	ug/l	60(MCL)	N/A	By-products of drinking water chlorination.
Trihalomethanes	No	Quarterly (2020)	Avg.=23.6 Range=16.7-38.0	ug/l	80(MCL)	N/A	By-products of drinking water chlorination. TTHM's are formed when source water contains large amounts of organic matter.
STAGE 2 DISINFECTION BYPRODUCTS (DEC FISHERY)							
CONTAMINANT	VIOLATION	DATE OF SAMPLE	LEVEL DETECTED	UNIT MEASUREMENT	REGULATORY LIMIT (MCL/AL)	MCLG	LIKELY SOURCE OF CONTAMINATION
Haloacetic Acids	No	Quarterly (2020)	Avg. =0.3 Range=ND-1.2	ug/l	60(MCL)	N/A	By-products of drinking water chlorination.
Trihalomethanes	No	Quarterly (2020)	Avg.=31.35 Range=27.1-40.3	ug/l	80(MCL)	N/A	By-products of drinking water chlorination. TTHM's are formed when source water contains large amounts of organic matter.

STAGE 2 DISINFECTION BYPRODUCTS (DUNKIRK SENIOR CENTER)

CONTAMINANT	VIOLATION	DATE OF SAMPLE	LEVEL DETECTED	UNIT MEASUREMENT	REGULATORY LIMIT (MCL/AL)	MCLG	LIKELY SOURCE OF CONTAMINATION
Haloacetic Acids	No	Quarterly (2020)	Avg. =8.45 Range=7.8–9.3	ug/l	60(MCL)	N/A	By-products of drinking water chlorination.
Trihalomethanes	No	Quarterly (2020)	Avg. =33.63 Range=26.4–44.0	ug/l	80(MCL)	N/A	By-products of drinking water chlorination. TTHM's are formed when source water contains large amounts of organic matter.

DISINFECTANT

CONTAMINANT	VIOLATION	DATE OF SAMPLE	LEVEL DETECTED	UNIT MEASUREMENT	REGULATORY LIMIT (MCL/AL)	MCLG	LIKELY SOURCE OF CONTAMINATION
Chlorine residual	No	Daily (2020)	Avg. =0.99 Range=0.98–1.00	mg/l	4.0(MCL)	N/A	Water additive used to control microbes.

UNREGULATED CONTAMINANT MONITORING RULE UCMR4 2018-2019

CONTAMINANT	VIOLATION	DATE OF SAMPLE	LEVEL DETECTED	UNIT MEASUREMENT	REGULATORY LIMIT (MCL/AL)	MCLG	LIKELY SOURCE OF CONTAMINATION
Total Organic Carbon (TOC)	Not Regulated	10/17/18-7/24/19	Avg. =2.65 Range=2.50–2.80	mg/l	N/A	N/A	Likely source is naturally occurring.
Bromide	Not Regulated	11/30/18-4/24/19	Avg. =36.9 Range=36.1–36.3	ug/l	N/A	N/A	Likely source is naturally occurring.
Manganese	Not Regulated	10/17/18-7/24/19	Avg. =1.13 Range=0.92–1.2	ug/l	N/A	N/A	Likely source is naturally occurring.
HAA5 Group (St. Columban's)	Not Regulated	10/17/18-7/24/19	Avg. =9.04 Range=1.0–18.96	ug/l	N/A	N/A	Byproduct of drinking water chlorination.
HAA6Br Group (St. Columban's)	Not Regulated	10/17/18-7/24/19	Avg. =5.32 Range=0.7–9.66	ug/l	N/A	N/A	Byproduct of drinking water chlorination.
HAA9 Group (St. Columban's)	Not Regulated	10/17/18-7/24/19	Avg. =14.09 Range=1.7–27.96	ug/l	N/A	N/A	Byproduct of drinking water chlorination.
HAA5 Group (17 Lafayette St.)	Not Regulated	10/17/18-7/24/19	Avg. =8.08 Range=4.8–11.63	ug/l	N/A	N/A	Byproduct of drinking water chlorination.
HAA6Br Group (17 Lafayette St.)	Not Regulated	10/17/18-7/24/19	Avg. =4.94 Range=3.0–7.2	ug/l	N/A	N/A	Byproduct of drinking water chlorination.
HAA9 Group (17 Lafayette St.)	Not Regulated	10/17/18-7/24/19	Avg. =12.74 Range=7.9–17.6	ug/l	N/A	N/A	Byproduct of drinking water chlorination.
HAA5 Group (344 Hoyt St.)	Not Regulated	10/17/18-7/24/19	Avg. =3.07 Range=0.28–6.4	ug/l	N/A	N/A	Byproduct of drinking water chlorination.
HAA6Br Group (344 Hoyt St.)	Not Regulated	10/17/18-7/24/19	Avg. =2.19 Range=0–5.1	ug/l	N/A	N/A	Byproduct of drinking water chlorination.
HAA9 Group (344 Hoyt St.)	Not Regulated	10/17/18-7/24/19	Avg. =5.09 Range=0.6–11.1	ug/l	N/A	N/A	Byproduct of drinking water chlorination.
HAA5 Group (JN Adams)	Not Regulated	10/17/18-7/24/19	Avg. =7.78 Range=4.6–10.6	ug/l	N/A	N/A	Byproduct of drinking water chlorination.
HAA6Br Group (JN Adams)	Not Regulated	10/17/18-7/24/19	Avg. =6.82 Range=3.6–11.0	ug/l	N/A	N/A	Byproduct of drinking water chlorination.
HAA9 Group (JN Adams)	Not Regulated	10/17/18-7/24/19	Avg. =13.99 Range=7.8–17.8	ug/l	N/A	N/A	Byproduct of drinking water chlorination.

¹Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. Our highest single turbidity measurement for the year occurred on 5/16/20 (0.155 NTU). State regulations require that turbidity must always be less than or equal to 1.0 NTU. The regulations require that 95% of the turbidity samples collected have measurements below 0.3 NTU. The regulations require that 95% of the turbidity samples collected have measurements below 0.3 NTU. Although in the month of May 2020 we recorded our highest combined turbidity readings, at no time within the calendar year did we exceed the 0.3 NTU turbidity limit, all readings recorded were in the acceptable range allowed and did not constitute a treatment technique violation.

²Distribution Turbidity is a measurement of the cloudiness of the water found in the distribution system. We monitor it because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants. Our highest monthly distribution turbidity measurement detected during the year (0.40 NTU) occurred in January 2020. This value is below the State's maximum contaminant level (5 NTU).

³The level presented represents the 90th percentile of the 30 sites tested. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. The 90th percentile is equal to or greater than 90% of the Lead values detected in your water system. In this case, 30 samples were collected at your water system and the 90th percentile value was calculated to be the 27th value and that value equaled 8.2ug/l.

⁴The level presented represents the 90th percentile of the 30 sites tested. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. The 90th percentile is equal to or greater than 90% of the Copper values detected in your water system. In this case, 30 samples were collected at your water system and the 90th percentile value was calculated to be the 27th value and that value equaled 0.0633mg/l. The action level for Copper was not exceeded at any of the 30 sampling locations.

Definitions

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Non-Detects (ND): Laboratory analysis indicates that the constituent is not present.

Nephelometric Turbidity Unit (NTU): A measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Milligrams per liter (mg/l): Corresponds to one part of liquid in one million parts of liquid (parts per million - ppm).

Micrograms per liter (ug/l): Corresponds to one part of liquid in one billion parts of liquid (parts per billion - ppb).

Appendix E
Pittsburg Tank & Tower Co. Report

PITTSBURG TANK & TOWER CO., INC.®

P.O. Box 913 Henderson, KY 42419-0913 * TEL (270) 826-9000 * FAX (270) 827 4417
PAINT*REPAIR*DISMANTLE*INSPECT*TANKS RAISED, LOWERED AND MOVED*NEW & USED



**County of Chautauqua
3 North Erie Street
Mayville, NY 14757
RE: City of Dunkirk
400,000 Gallon Watersphere
June 3, 2011
Brian Purol (716) 753-4804
George Carlson (716) 679-8788
Job No. 311203**

If you would like to speak with Patrick Heltsley concerning this report, call (270) 826-9000, Ext. 253.
For additional copies of this report call (270) 826-9000 Ext. 253.



Photo shows the condition of the foundation. We recommend clearing any dirt, debris and other loose gravel away from the tank foundation, down to a minimum 6" below top of foundation as required by AWWA D100-05, Section 12.6.1: Foundations for flat bottom tanks. This should be done by a local excavating company.

We further recommend removing all grout from the baseplate to the foundation connection and regrouting with a commercial nonshrinking grout.

Electrically ground the tank for lightning protection.



Photo shows the condition of the anchor bolts. The structural integrity of the anchor bolts should be maintained to withstand 100 m.p.h. winds blowing from any direction as required by AWWA D100-05, Section 3.8: We recommend cleaning the area around the anchor bolts, then welding around the circumference of the bolt-to-nut and nut-to-base plate connections to reinforce.



Photos show the condition of the 6" diameter overflow pipe and screen. The overflow pipe is not equipped with a flapper valve, in accordance with AWWA D100-05, Section 7.3: Overflow and TSS. We recommend installing a flapper valve and new screen to prevent the ingress of contaminants into the water supply in accordance with TSS.



County of Chautauqua, NY 400,000 Gallon Watersphere



Photo shows the tank name plate. We recommend removing the tank name plate, cleaning the face of the plate, cleaning and repainting the area behind the plate, then remounting it.



Photo shows the condition basecone door. We recommend posting a **Confined Space Entry** sign as required by OSHA.



Base cone ladder in above photo is equipped with non-skid rungs and a cable type ladder safety device. All appear to be in good condition. We recommend posting a **Fall Protection Required** sign.



Photo shows the condensate platform, which appears to be in good condition. We recommend installing a drain tied into the overflow pipe and a hinged grating over the opening to prevent a falling hazard.



Photo shows the piping insulation which appears to be in adequate condition to prevent pipes from freezing.



Stem access ladder in above photo is equipped with non-skid rungs and appears to be in good condition.



Photos show the painters hatch which appears to be in good condition.

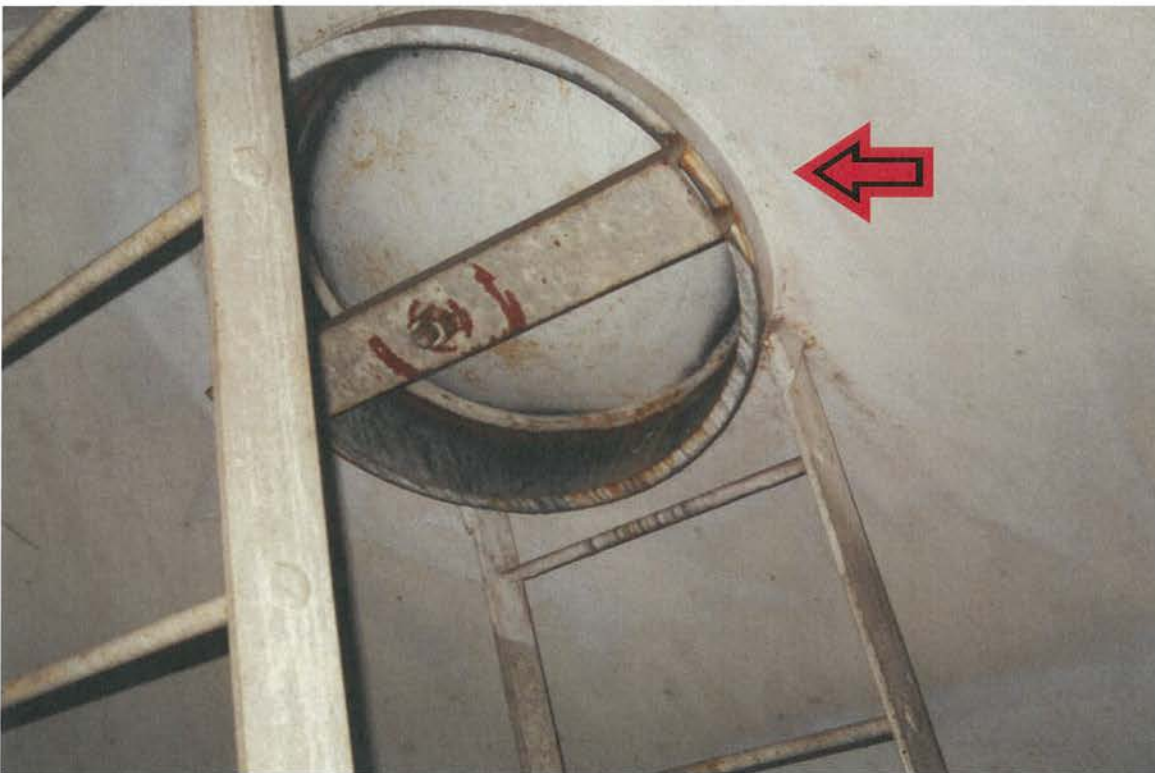
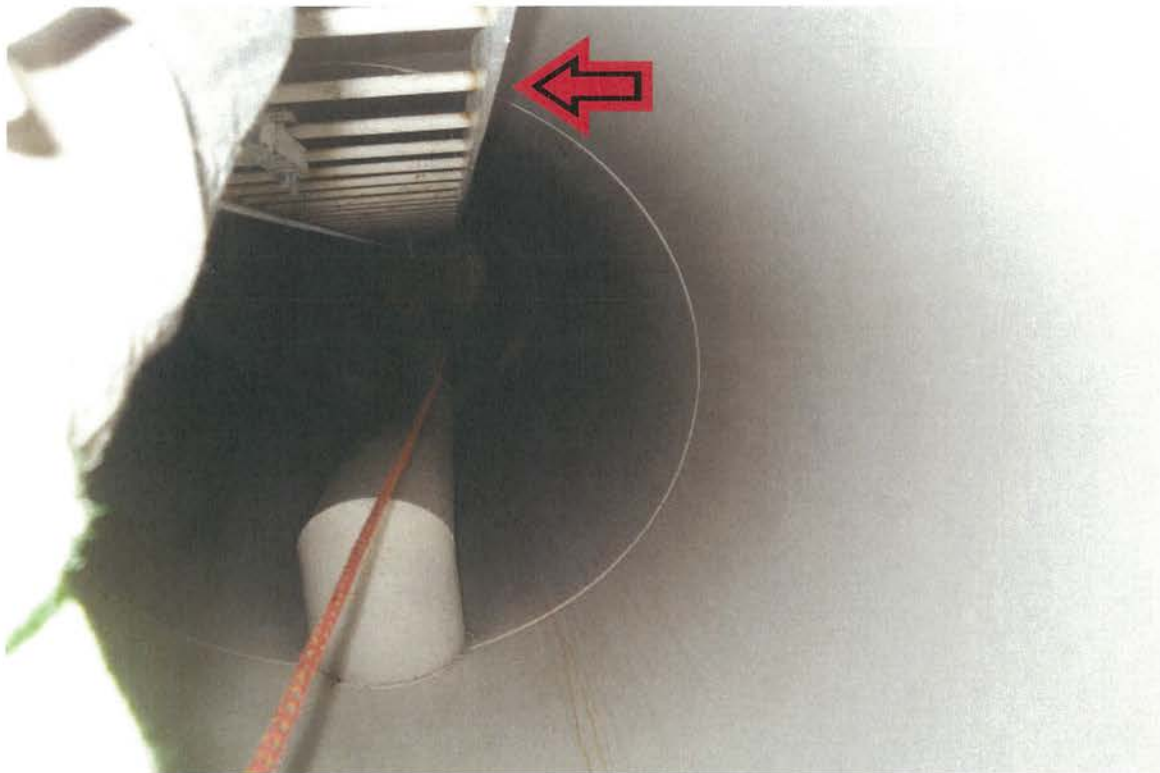


Photo shows the cleanout hatch, which appears to be in good condition.



Access tube ladder in above photo is equipped with non-skid rungs and appears to be in good condition.



Photos show the tank interior dry area coating system. We recommend pressure washing the tank interior dry area with TSP detergent injection (minimum 3,500 psi at 3.0 gpm) then remove all loose rust and scale with wire brushes and hand scrapers in accordance with SSPC#2 (hand tool cleaning), spot prime and apply one (1) finish coat of alkyd enamel.

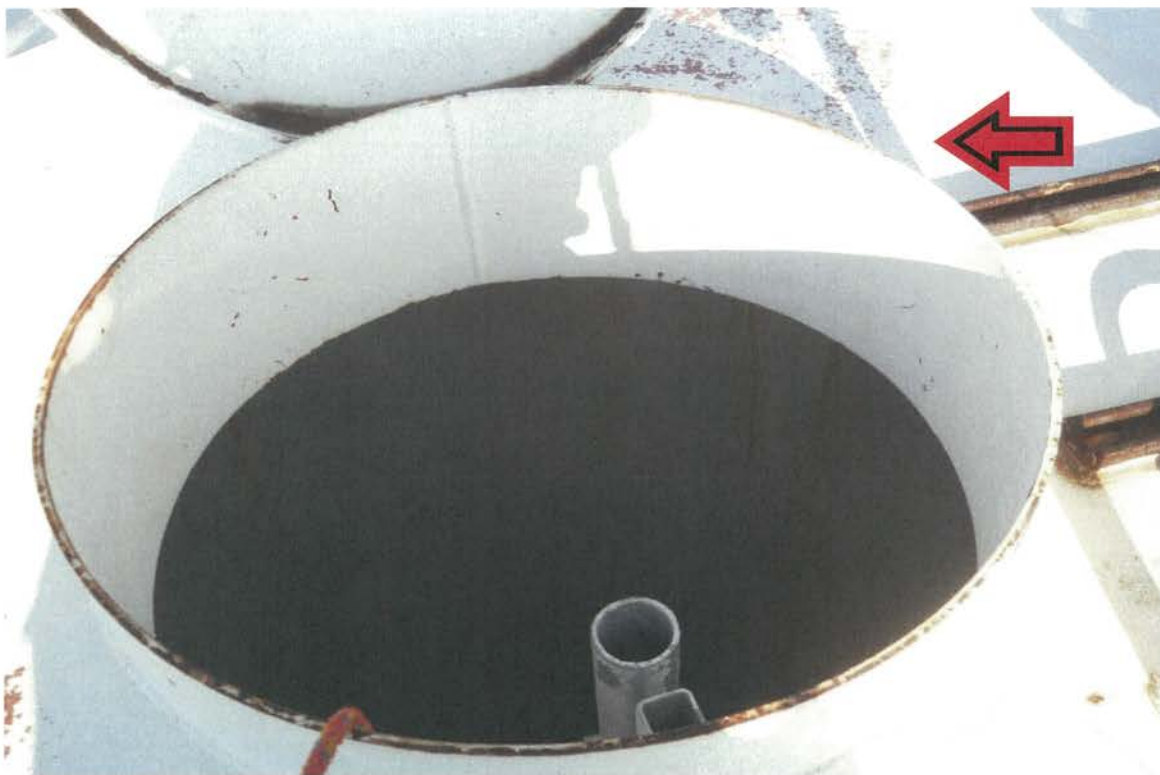


Photo shows the dry riser manway, which appears to be in good condition.



Photo shows the condition of the roof hatch. Roof openings on this tank require the following to be in compliance with OSHA, AWWA D100-05, Section 7.6: Roof openings.

We recommend:

- Post **Confined Space Entry** signs
- Install handrails around all roof openings
- Install new lock on existing roof manway



Photo shows the condition of the existing roof vent. **An improperly vented tank may cause external pressure to act on the tank which can cause buckling even at low pressure differential.** We recommend replacing the existing roof vent with a vacuum-pressure, frost proof vent and screen in compliance with AWWA, and TSS.



County of Chautauqua, NY 400,000 Gallon Watersphere



Photos show the tank exterior coating system. We recommend pressure washing the tank exterior with biodegradable detergent injection (minimum 3,500 psi at 3.0 gpm) then remove all loose rust and scale with wire brushes and hand scrapers in accordance with SSPC#2 (hand tool cleaning), spot prime and apply one (1) finish coat of alkyd enamel.



County of Chautauqua, NY 400,000 Gallon Watersphere



Photo shows the interior ladder is unsafe and in a deteriorated condition. Notice the bent and deteriorated rungs. Use of this ladder may result in injury or death and it should be tagged out of use immediately until it can be replaced. We recommend installing an OSHA approved interior ladder complete with standoffs every 10' on center and a cable type ladder safety device.

These are NFPA/OSHA regulation deficiencies.

For adequate fall protection we have recommended a new cable type fall arrest system.



County of Chautauqua, NY 400,000 Gallon Watersphere



Photo shows the condition of the interior roof. Notice the rust forming at the roof lap seams. We recommend seam sealing using Sika-Flex #1A on all unwelded interior roof lap seams to prevent failure of a new interior liner.



County of Chautauqua, NY 400,000 Gallon Watersphere



Photos show the tank interior during the cleanout process.

County of Chautauqua, NY 400,000 Gallon Watersphere



Photos show the condition of the interior liner. We recommend sandblasting all rusted and abraded areas of the tank interior to an SSPC #10 (near white blast) condition, brushblast all remaining areas, stripe coating all seams and welds, then applying an epoxy liner to achieve 8-10 mils of dry film thickness.

PITTSBURG TANK & TOWER CO., INC.®

P.O. Box 913 Henderson, KY 42419-0913 * TEL (270) 826-9000 * FAX (270) 827 4417

PAINT*REPAIR*DISMANTLE*INSPECT*TANKS RAISED, LOWERED AND MOVED*NEW & USED



WATERSPHERE INSPECTION REPORT

JOB NO: 311203 INSPECTOR: Doug Harrington
TANK OWNER: County of Chautauqua
OWNER'S REPRESENTATIVE: Brian Purol & George Carlson
E-MAIL ADDRESS: brpurol113@hotmail.com
MAILING ADDRESS: 3 North Erie Street, Mayville, NY 14757
PHYSICAL ADDRESS: 3 North Erie Street, Mayville, NY 14757
CITY/STATE: Mayville, NY ZIP: 14757
COUNTY TANK IS LOCATED IN: Chautauqua
TELEPHONE: (716) 753-4804 FAX: _____
LOCATION OF TANK: In Chautauqua County

**County of Chautauqua
3 North Erie Street
Mayville, NY 14757
June 3, 2011
Brian Purol (716) 753-4804
George Carlson (716) 679-8788**

ORIGINAL CONTRACT NO: 170141 YEAR BUILT: 1977
ORIGINAL MANUFACTURER: PDM CAPACITY: 400,000 Gallon
DATE OF LAST INSPECTION: unavailable TYPE: Potable
DIAMETER: 51'-6" HEIGHT: _____ LOW WATER LVL: _____
OVERFLOW DIAMETER: 6" INLET PIPE: _____
ACCOUNT EXECUTIVE: Patrick Heltsley



PITTSBURG TANK & TOWER CO., INC.®

P.O. Box 913 Henderson, KY 42419-0913 * TEL (270) 826-9000 * FAX (270) 827 4417

PAINT*REPAIR*DISMANTLE*INSPECT*TANKS RAISED, LOWERED AND MOVED*NEW & USED

RECOMMENDATIONS

NUMBERS REFER TO REPORT PAGES

00. INDICATES THERE WAS NO PHOTOGRAPH AVAILABLE TO DEMONSTRATE

2. Remove all grout from the baseplate to the foundation connection and regrout with a commercial nonshrinking grout

Electrically ground the tank for lightning protection
3. Clean the area around the anchor bolts, weld around the circumference of the bolt-to-nut and nut-to-anchor bolt connections to reinforce
4. Install a flapper valve and new screen
5. Remove the tank name plate, clean the face of the plate, clean and repaint the area behind the plate, then remount it
6. Post **Confined Space Entry** sign on base cone door as required by OSHA
7. Post **Fall Protection Required** sign on base cone ladder as required by OSHA
8. Install a drain tied into the overflow pipe and a hinged grating over the condensate platform opening to prevent a falling hazard.
16. Post **Confined Space Entry** signs
Install handrails around all roof openings
Install new lock on existing manway
17. Install a vacuum/pressure, frost proof vent and screen
19. Replace the existing deteriorated interior ladder with an AWWA and OSHA approved interior ladder
Install a new stainless steel ladder safety climb device
20. Seam seal all unwelded interior roof lap seams



PITTSBURG TANK & TOWER CO., INC.®

P.O. Box 913 Henderson, KY 42419-0913 * TEL (270) 826-9000 * FAX (270) 827 4417

PAINT*REPAIR*DISMANTLE*INSPECT*TANKS RAISED, LOWERED AND MOVED*NEW & USED

RECOMMENDATIONS CONTINUED

NUMBERS REFER TO REPORT PAGES

14. INTERIOR DRY AREA: Pressure wash the tank interior dry area with (minimum 3,500 psi at 3.0 gpm) then remove all loose rust and scale with wire brushes and hand scrapers in accordance with SSPC#2 (hand tool cleaning), spot prime and apply one (1) finish coat of alkyd enamel

18. EXTERIOR COATING SYSTEM: Pressure wash the tank exterior with bio degradable detergent injection (minimum 3,500 psi at 3.0 gpm) then remove all loose rust and scale with wire brushes and hand scrapers in accordance with SSPC#2 (hand tool cleaning), spot prime and apply one (1) finish coat of alkyd enamel

22. INTERIOR COATING SYSTEM: Sandblast all rusted and abraded areas of the tank interior to an SSPC #10 (near white blast) condition, brushblast all remaining areas, stripe coating all seams and welds, then applying an epoxy liner to achieve 8-10 mils of dry film thickness.

Pittsburg Tank & Tower can perform all the recommended work on this tank.

BASED ON THE NUMBER OF ITEMS ACCEPTED, PRICES MAY VARY.

All prices are in USD

If union labor or prevailing wage is required please advise.

For additional copies of this inspection report call (270) 826-9000 Ext. 253.

The inspection report and comments reflect the general condition of the tank. However, we can not guarantee that additional deficiencies may not become apparent during the cleaning, repair or paint process of the tank.

The handling, removal and/or disposal of hazardous or contaminated materials such as asbestos, lead, chemical or any like substance that requires special handling is not included in the price submitted for work herein. Paint prices do not include lead abatement or containment work herein. Paint prices do not include lead abatement or containment.

Appendix F
Preliminary Cost Estimates

**North County Industrial Water District No. 1
Water Storage Tank Improvements**

Interior and Exterior Painting with Lead Removal
Cost Estimate

ITEM	DESCRIPTION	UNIT	ESTIMATED QUANTITY	ESTIMATED UNIT PRICE	ESTIMATED TOTAL
1	Interior Painting Including Paint Removal of Existing Coating with Leaden Materials	SF	7,700	\$18	\$138,600
2	Exterior Painting Including Paint Removal of Existing Coating with Leaden Materials	SF	16,100	\$24	\$386,400
3	Application of Seam Sealer Material	Gal	25	\$250	\$6,250
4	Repairs of Pits Over 1/8-Inch Deep	SF	500	\$25	\$12,500
5	New Tank Vent	LS	1	\$25,000	\$25,000
6	Overflow Modifications	LS	1	\$5,000	\$5,000
7	Ladder Repairs and Modification	LS	1	\$20,000	\$20,000
8	Foundation Repairs	LS	1	\$15,000	\$15,000
9	Mobilization	LS	1	\$30,000	\$30,000

SUBTOTAL = \$638,750

CONTINGENCY (15%) = \$95,813

LEGAL, ENGINEERING, ADMINISTRATION (20%) = \$127,750

TOTAL = \$862,313

TOTAL ESTIMATED CAPITAL COST = \$863,000

Appendix G
Smart Growth Assessment Form



Smart Growth Assessment Form

This form should be completed by an authorized representative of the applicant, preferably the project engineer or other design professional.¹

Section 1 – General Applicant and Project Information

Applicant:

Project No.:

Project Name:

Is project construction complete? Yes, date:

No

Please provide a brief project summary in plain language including the location of the area the project serves:

Section 2 – Screening Questions

A. Prior Approvals

1. Has the project been previously approved for Environmental Facilities Corporation (EFC) financial assistance? Yes No
2. If yes to A(1), what is the project number(s) for the prior approval(s)? Project No.:
3. If yes to A(1), is the scope of the previously-approved project substantially the same as the current project? Yes No

If your responses to A(1) and A(3) are both yes, please proceed to Section 5, Signature.

B. New or Expanded Infrastructure

1. Does the project involve the construction or reconstruction of new or expanded infrastructure? Yes No

Examples of new or expanded infrastructure include, but are not limited to:

- (i) The addition of new wastewater collection/new water mains or a new wastewater treatment system/water treatment plant where none existed previously;
- (ii) An increase of the State Pollutant Discharge Elimination System (SPDES) permitted flow capacity for an existing wastewater treatment system; and OR

¹ If project construction is complete and the project was not previously financed through EFC, an authorized municipal representative may complete and sign this assessment.

- (iii) An increase of the permitted water withdrawal or the permitted flow capacity for the water treatment system such that a Department of Environmental Conservation (DEC) water withdrawal permit will need to be obtained or modified, or result in the Department of Health (DOH) approving an increase in the capacity of the water treatment plant.

If your response to B(1) is no, please proceed to Section 5, Signature.

Section 3 –Smart Growth Criteria

Your project must be consistent with all relevant Smart Growth criteria. For each question below please provide a response and explanation.

1. Does the project use, maintain, or improve existing infrastructure?
 Yes No

Explain your response:

2. Is the project located in a (1) municipal center, (2) area adjacent to a municipal center, or (3) area designated as a future municipal center, as such terms are defined herein (please select one response)?

Yes, my project is located in a municipal center, which is an area of concentrated and mixed land uses that serves as a center for various activities, including but not limited to: central business districts, main streets, downtown areas, brownfield opportunity areas (see www.dos.ny.gov for more information), downtown areas of local waterfront revitalization program areas (see www.dos.ny.gov for more information), areas of transit-oriented development, environmental justice areas (see www.dec.ny.gov/public/899.html for more information), and hardship areas (projects that primarily serve census tracts or block numbering areas with a poverty rate of at least twenty percent according to the latest census data).

Yes, my project is located in an area adjacent to a municipal center which has clearly defined borders, is designated for concentrated development in the future in a municipal or regional comprehensive plan, and exhibits strong land use, transportation, infrastructure, and economic connections to an existing municipal center.

Yes, my project is located in an area designated as a future municipal center in a municipal or comprehensive plan and is appropriately zoned in a municipal zoning ordinance

No, my project is not located in a (1) municipal center, (2) area adjacent to a municipal center, or (3) area designated as a future municipal center.

Explain your response and reference any applicable plans:

3. Is the project located in a developed area or an area designated for concentrated infill development in a municipally-approved comprehensive land use plan, local waterfront revitalization plan, and/or brownfield opportunity area plan?

Yes No

Explain your response and reference any applicable plans:

4. Does the project protect, preserve, and enhance the State's resources, including surface and groundwater, agricultural land, forests, air quality, recreation and open space, scenic areas, and significant historic and archaeological resources?

Yes No

Explain your response:

5. Does the project foster mixed land uses and compact development, downtown revitalization, brownfield redevelopment, the enhancement of beauty in public spaces, the diversity and affordability of housing in proximity to places of employment, recreation and commercial development, and the integration of all income and age groups?

Yes No

Explain your response:

6. Does the project provide mobility through transportation choices including improved public transportation and reduced automobile dependency?

Yes No N/A

Explain your response:

7. Does the project involve coordination between State and local government, intermunicipal planning, or regional planning?

Yes No

Explain your response and reference any applicable plans:

8. Does the project involve community-based planning and collaboration?

Yes No

Explain your response and reference any applicable plans:

9. Does the project support predictability in building and land use codes?

Yes No N/A

Explain your response:

10. Does the project promote sustainability by adopting measures such as green infrastructure techniques, decentralized infrastructure techniques, or energy efficiency measures?

Yes No

Explain your response and reference any applicable plans:

11. Does the project mitigate future physical climate risk due to sea-level rise, storm surges, and/or flooding, based on available data predicting the likelihood of future extreme weather events, including hazard risk analysis data, if applicable?

Yes No

Explain your response and reference any applicable plans:

Section 4 – Miscellaneous

1. Is the project expressly required by a court or administrative consent order? Yes No

If yes, and you have not previously provided the applicable order to EFC/DOH, please submit it with this form.

Section 5 – Signature

By signing below, you agree that you are authorized to act on behalf of the applicant and that the information contained in this Smart Growth Assessment is true, correct and complete to the best of your knowledge and belief.

Applicant:	Phone Number:
Name and Title of Signatory:	
Signature:	Date: