

Water Quality History Through 1970

1867 – Water pumphouse built on waterfront – intake laid 50' off of shore line

1867 North Reservoir built – 2.236 M gallons, 800k gallons less than intended – due to “limited amount of funds from sale of bonds”

1869 – construction of sewers began – along College and St. Paul – drained to bottom of College street (4 blocks south of water intake)

1873-1880 – major construction of network of sewers – parts of City east of ravine sewer, west of ravine – drained into College Street main

1873 – Ravine sewer built (?)

“catch basins were built at street corners about the sewers to carry water runoff during rain storms (first combined sewers) Linsley reported that the basins are” are of the latest and most improved form, and have thus far worked well. We have had many storms since they were finished, but none sufficiently violent to cause them to overflow.”

1869 – Fire department established – and transition from portable pumps to use of fire hoses directly connected to pressurized water from hydrants –

“Nearly every mayoral address in these years mentions the importance of the new waterworks in aiding the Fire Department in its work.” (Mayor Address in Annual Reports from 1868 to 1875)

(pic of portable steam pump)

As early as 1874 – health officers recommended extending drinking water intake pipe past breakwater – typhoid/cholera outbreaks in 1884, 1888

1878 – noted that needed additional high service capacity at nearly completed Mary Fletcher Hospital

- Built tank vs. reservoir because “Howard’s summit” was rocky and any reservoir built there would be shallow”
- Tank construction started in 1880 - 1883

After completion of high servicework in 1881, city official realized urgent need for additional water storage capacity at Main Street reservoir à lots of contentiousness due to perceived poor quality of lake water à 1888-1891 construction of south reservoir (almost 4 million gallons) and proper repair of the North reservoir

1882 – were thinking about extending the drinking water intake pipe – asked that opening be left in the cribbing so that could extend the pipe

1894 – drinking water intake extended.... After extension of outfall still epidemics

1904-1908: epidemic of 150 cases of typhoid, worst epidemic in City history – decided that source of pollution was Winooski – decided that needed to treat the water (see 1906 order from State Board of Health)

1905 – discussion of whether to purify sewage or filter the H₂O. There was no practical purification system for sewage – recommended PURIFY water and then do sewage treatment some ime later. There are also recommendations to cover the reservoir (Health dept had been testing since 1899 and WQ suspicious)

1908 – mechanical filtration of drinking water added, and use of aluminum sulphate to enhance filtration

1910 – began to use coagulation (aluminum sulphate) to enhance settling of solids and disinfection (hyperchloride of lime = bleach) for drinking water

1911 – City Engineer calls for WWTP – refusal of votes to authorize purchase of land

1914 – Street commissioner recommends sterilization plant (run only 32 week/year); recommends City buy land west of RR near outfall (not sure it was purchased at that time)

1919 add more filters for drinking water

1920 – gas chlorination for drinking water

1920 – intake clogged. Cut pipe 3/4 mile off shore, and put screen on it. Treatment process = coagulation with alum, then filter (4 at that time) (filters have backwash system). Each June, the algae comes in with the water and forms such an impervious “schmutzdecke” that all the beds are unable to filter continuously for more than 3-4 hours. Regular 3 hour washings are necessary. As enters the main, it is fed by solution of Cl gas.

1926 – drinking water filters expanded and another clearwell

1927 – first small Sewage Treatment Plant at Fletcher Place

1940-1942 – Mayor urges plan for Sewage treatment plant

1940s discussion of need for STP on the Winooski too.

1953 : Main Plant built

Also need to expand filter plant due to growth

1955 – considering second intake line for drinking water

1957 –second 24" intake laid

1961 – North Plant constructed

1964/665 – East Plant

1970 – doubled capacity of filters, discussion of Champlain Water District coming on line