

# CASE STUDY

## ICE PIGGING SERVICES

# CITY OF KEENE, NH



### Project Summary

#### Customer:

City of Keene, NH

#### Type of Project:

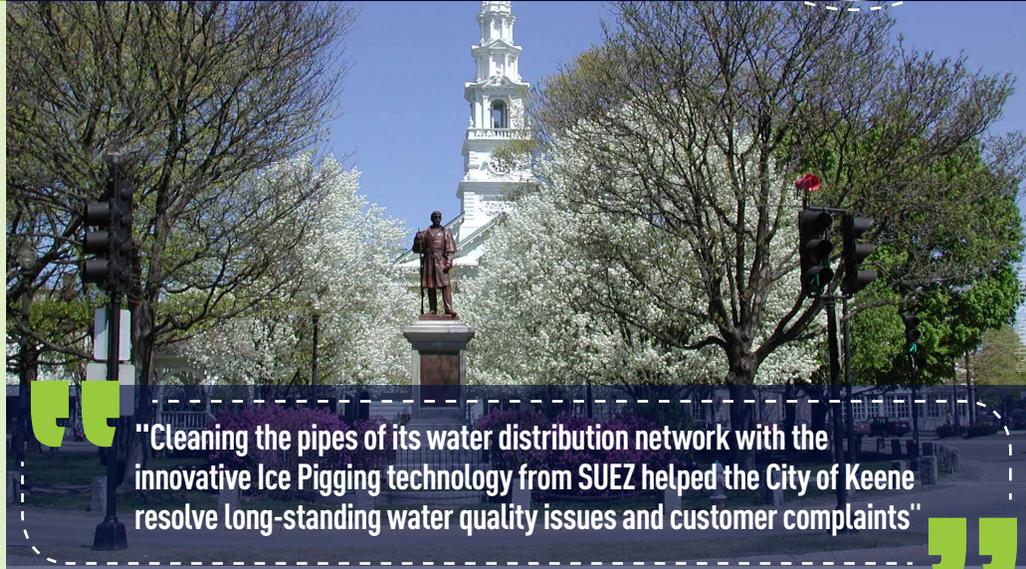
Ice Pigging pipe cleaning

#### Date:

2012

#### Results:

- 2,377 lbs. of sediments removed without ever interrupting water supply more than 2 hours
- No excavation was needed
- Technology worked regardless of pipe diameter changes (6", 8" and 12")



"Cleaning the pipes of its water distribution network with the innovative Ice Pigging technology from SUEZ helped the City of Keene resolve long-standing water quality issues and customer complaints"

Founded in 1769, Keene is a quaint city of approximately 23,000 inhabitants located in the southwestern corner of the state of New Hampshire. The City of Keene delivers both surface and groundwater to its customers. Most of the water comes from reservoirs located in the town of Roxbury and from four gravel-packed wells located in Keene on Court and West Streets. Although the water comes from more than one source, it all goes into the same distribution system.

For years, when using their well pumps or their hydrants, the city experienced discolored water issues which triggered customer complaints. These water quality issues were caused by a black film inside the pipes of the distribution system.

In 2012, Keene conducted two engineering water quality studies which eventually determined that ice pigging may be the solution to fix the problem. An initial 63,000 ft. distribution network was identified as the area in need of cleaning and a two-phase project was negotiated with SUEZ.

A 3-day test phase was completed on the three most problematic runs to estimate the efficiency of the ice pigging cleaning technology. A second phase would be conducted on the remaining length of the 63,000 ft. distribution system if the results proved positive.



More than 2,000lbs. of sediments were removed from the distribution system without ever interrupting water supply for more than 2 hours"



## Up to 27lbs of sediments removed in 3 days

Conducted in July 2012, the test phase was carried out using a 2.2 ton ice delivery rig capable of providing 600 gallons of ice per day. In just three days the results were impressive with approximately 27lbs of sediments removed from 3,989 ft. of 6" and 8" cast iron mains. Ice slurry was injected into the distribution network through existing fittings and flowed through the pressurized system, removing sediments and biofilm before being pumped out at the end of the run. No excavation was needed and the disruption to supply was kept to a minimum with the longest run completed in just over an hour. Sample analysis conducted at the end of each run confirmed the amount of sediments removed and provided backup to the visual results witnessed on site.

## 60,000 ft. of water mains cleaned without ever interrupting water supply for more than two hours

Following the success of the initial test phase, the cleaning of the remaining water mains took place in October of 2012. 25 loads of ice slurry provided by a 10 ton rig were used to clean 62,277 ft. of 6", 8" and 12" of ductile iron and cast iron pipes. Once again results were staggering with 2,377 lbs. of sediments removed while keeping disruption to supply at a minimum. At no time was the water supply interrupted for more than 2 hours.

The City of Keene was so pleased with the end results that a similar project is already planned in future years to keep the distribution network clean in order to extend its service life and ensure the best water quality for its customers.



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