

LBA Liquid Chelating Agent & DPA Mineral Scale Remover Reconditions Municipal Water Supply Well



PROJECT DETAILS

Suffolk County Water Authority Town
Line Road Pumping Station Well No.2

LOCATION

Minneapolis, Minnesota

PRODUCTS USED

SHORE PAC®
Drilling Slurry and Additives
Slurry Engineering
Services

Smithtown, NY – The Suffolk County Water Authority on Long Island, NY understands the importance of maintaining a productive well filed and knows that no well field should be taken for granted. A common problem in water supply wells is a gradual decrease in output, requiring restoration of the well's capacity or the development of other water supplies. In order to provide a consistent supply of drinking water to the population, Suffolk County Water Authority implemented a reconditioning program to keep their high capacity municipal water supply wells running efficiently.

Suffolk County Water Authority Town Line Road Pumping Station Well No.2 housed within a subsurface vault, has a depth of 723 feet with a diameter of 20 inches. At the wells installation in October 1975 the output was 37.9 gpm/ft, but due to soil, debris, related deposits and mineral encrustation it diminished over the years to 19.4 gpm/ft. The well draws water from the Lloyd Magothy Formation Aquifer on Long Island, which is known to have indigenous iron bacteria. Actively pumping this well delivers nutrients top the active biofilm zone where precipitation of materials occur and restricts the entrance velocity of the screen thus reducing throughput capacity of the well.

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The job of reconditioning Well No. 2 began with R&L Drilling of Islip, NY, who mobilized a cable tool drilling rig to the job site. The vertical turbine pump motor was removed and a throughput capacity test was conducted to verify the yield of the well prior to beginning the well rehabilitation. It was verified the specific capacity was 19.4 gpm/ft. After the pump assembly was removed, the inside of the 20 inch casing was scrubbed with a wire brush attached to a drill rod. The scrubbing generated 11 feet of encrusted shavings at the bottom of the well. Next a steel bailer with a centralizer attached to the top was lowered into the well which recovered the shavings from the floor. The bailer with its rubber flap on the bottom allowed the encrusted shavings to enter the bailer for removal from the well.

Upon preparing the well for reconditioning, R&L Drilling tremied CETCO's LBA – Liquid Chelating Agent into the intake area of the well at 700 feet. R&L Drilling selected LBA over the traditional well rehabilitation chemicals such as chlorine and muriatic acid, because of its superior ability to remove iron bacteria.

Tom Zackman, co-partner of the 43 year old R&L Drilling Company admits, "LBA was not as corrosive as other acids we have used, it did a better job at removing iron bacteria and kept the particles in suspension so they wouldn't settle back down the well, this allowed us to pump them out and get the job done faster." Zackmann also adds, "For jobs we do for Suffolk County Water Authority, we must be able to justify the use of a product like LBA that may be more expensive, R&L can show that once a well is reconditioned using LBA, the well will not require another treatment for 10-15 years, thus justifying the cost completely. LBA generates no volatile gasses when applied to a water well, it is safer for my employees to handle and easier on my equipment."

After LBA was placed in the well the tremie pipe was removed. Using a surge block rod to agitate the well, the concentrated LBA was forced out into the gravel pack with downward motion and drawn back in across the intake zone with an upward motion. This surging agitation continued for 16 hours over two days. After two days of surge agitation with LBA in the well, R&L Drilling pulled the surge block and added CETCO's DPA (Dry Penetrating Agent). DPA, a granular product, dissolves carbonates, manganese, and iron deposits. The granular DPA was premixed in a 55 gallon drum and tremied into the well at a 700 foot depth imitating the method in which the LBA was added. After two additional days of surging the well with LBA and DPA, the reconditioning was complete.

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At this point the well was pumped until the pH and turbidity levels reached acceptable readings. Water samples were taken periodically for analysis at a certified laboratory. The laboratory indicated that the well was free of residual chemicals and was ready to be put back in service.

Town Line Road Well No. 2 now fully reconditioned, is producing at 31.57 gpm/ft specific capacity. LBA and DPA are safe to use and non volatile. They are approved for use in drinking water systems under the National Sanitation Foundation (NSF) NSF/ANSI Standard 60, Drinking Water Treatment Chemicals - Health Effects.



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