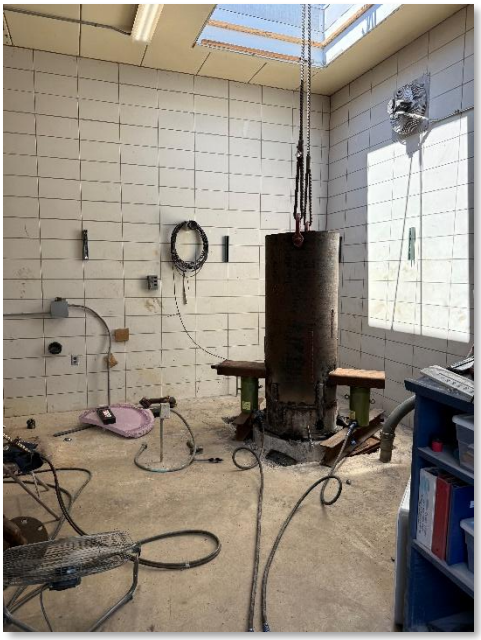
AirBurst Technology Case Study: AirXtraction

Client: Municipal Drinking Water Utility in Wisconsin
Formation: Unconsolidated sand and gravel
Date of Service: July 2025
Well Casing: Inner Casing – 26″, Outer Casing - 36″ (Sch. 80 Steel - 0.500″ thick)
Well Type: Screened with gravel pack
Depth: Approx. 90 feet

Executive Summary

In 2025, a municipal customer of Water Well Solutions (WWS), a licensed AirBurst partner, sought options to complete abandonment of a drinking water well. Per the Wisconsin Department of Natural Resources (DNR) regulations, the well owner and contractor must attempt to remove the casings completely before trying methods such as perforating and grouting. When all other methods were exhausted to try to remove or perforate the casings, WWS turned to AirBurst to enable the casing extraction, allowing WWS to complete the abandonment per DNR code.

The Problem: No good options for casing extraction



WWS initially mobilized with their R15 pump rig with 55k pounds of lifting capacity to remove the 26″ inner casing from the 36″ outer casing so they could proceed with abandonment. After demolishing the cement pedestal, separating the inner and outer casings at all points, and forming an I-Beam connection in the casing for the pump rig, the team ran into issues. Six decades of mineral scale and bacteriological buildup between the inner and outer casings had formed extremely strong bonds, effectively cementing the two together. The bonds were so strong that the 60k pounds of lift from the rig were not enough to remove the inner casing.

The WWS team quickly brainstormed additional options. They did not have timely access to any perforating methods that could penetrate the 0.5″ thick Schedule 80 steel casing, and explosives were not permitted on this site. The team would have to try additional methods to extract the casing. The team then improvised a way to significantly multiply the amount of lifting force they could bring to bear by

employing two external jacks to use in concert with the rig. However, even with a combined 240k pounds of lift capacity, the casing would not budge.

The Solution: Set the right conditions with AirBurst

With the word “no” not part of their vocabulary, the WWS team called in some air support. AirBurst Well Services Chief of Operations, Mike Yakich, proposed hitting the casing with a limited set of 2,000 PSI bursts, starting where the screen and casing meet. Mike employed one of our largest airgun sets, the 1900LL airgun tool with 200 cubic inch chamber, to deliver maximum energy. The theory was that the AirBurst shock waves could first break up the mineral scale and biological growth that had accumulated in between the casings, enabling the team to then lift the casing out.

The Results: Abandonment Complete

After only five bursts the casing moved in response to pulling a quarter of an inch, the first upward progress the team was able to make. On the sixth shot, the team was finally able to lift the casing completely using only the original R15, no supplementary jacks needed. Proceeding in 10-foot increments of casing, the WWS team was then able to complete the extraction and proceed to finish the abandonment scope per DNR code.

Key Takeaways for Well and Pump Contractors

- Problem Solving: The WWS and AirBurst teams took a “first principles” approach to understand why the traditional methods for casing extraction were not working. With a clear understanding of the root cause of the problem, they were then able to successfully improvise on the fly.
- More than just rehabs: AirBurst is a flexible technology that can be applied to more than just simple mechanical well rehabilitation jobs. Find out about our entire family of services here

Contact AirBurst Technology today to learn how we can restore your well's performance or help in those tricky situations.