Community Spotlight:

CITY OF AINSWORTH, IOWA

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On April 17th, 2018, the City of Ainsworth, Iowa experienced what no small town hopes to experience - the malfunction of their one and only well. And while we clearly knew there was a problem on that day, we did not know to what extent. We were hoping for something simple like an issue with the local power utility or a faulty pump or motor. Unfortunately, it wasn't that simple. In fact, it turned into the least simple option – the drilling of a new well.

First, a little background. The City of Ainsworth is a town of 567 people and is situated 30 miles straight south of Iowa City. It has an average flow around 30,000 gallons per day. My company, Ion Environmental Solutions, has been operating Ainsworth since October of 2015.

It started when I received an alarm from the water plant at 8:30 am on April 17th. Once I was onsite, I was able to determine that something wasn't working right with the well. After doing some calculations, I discovered the well was producing less than 20 gallons per minute instead of its usual 120.

I called Marie Electric in Washington, IA to verify that there were no power issues at the well. They were able to confirm that the three-phase power was intact and running at the proper voltage. With that information, the obvious next step was to call a well company and to pull the pump. The city has had a long-standing relationship with Gingerich Well and Pump out of Kalona, so I called their office and they were onsite later that day.

Once Dennis Chittick and his crew from Gingerich arrived, the first thought that we all had was that it had to be related to the pump or motor. After verifying that the pump, motor, and check valve were all working properly, they reinstalled everything and fired up the well. No water. Not only were we getting no water but you could tell just by the sound that something was different. While it seemed like a crazy idea, Dennis was the first to suggest that the pump wasn't submersed in water. But how could that be? How could the water level drop that far so quickly? How could everything be running fine one day and the next day the pump not even be submersed in water? None of us had heard of such a thing.

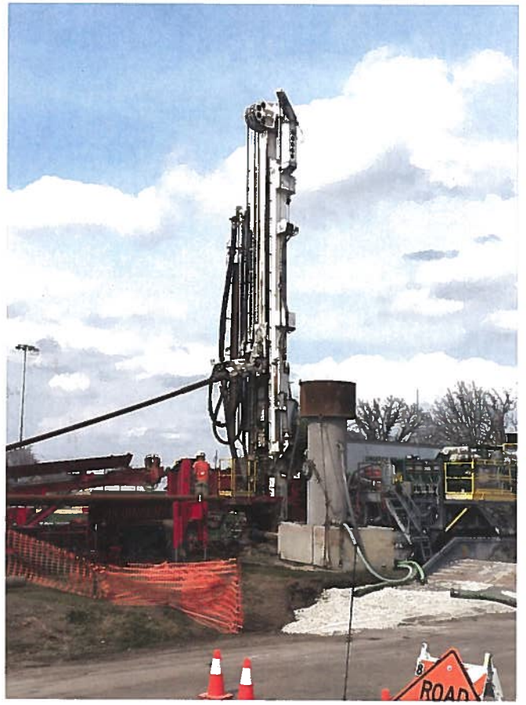
In order to verify the water level, a sonar unit was used to check the static water level. It came back at 300 ft. which was right around the depth at which the pump was set. Our normal static water levels previously had been 270 ft. At this point, things had gotten quite late in the day and having lost a day of water production we felt that the best course of action was to add 60 feet of pipe, chlorinate the well, take samples, put it back into service and schedule a televising for a later date. This did work and we were able to put the well back online.

Gingerich came the following week to televise the well. For the first several hundred feet nothing of note was found but once the camera hit 1150 ft. or so, they ran into a lot of rough, broken pieces of metal. The further down they went, they began to realize that they were no longer seeing any casing. Considering that this well should have been cased to 1320 ft., it was obvious that we had experienced a collapse of the bottom 200 ft. of casing. We knew right then that this well wasn't going to be salvageable.

The reason that the well was unsalvageable was because recasing the well was not an option since it was an 8 in. diameter well. To go down to a 6 in. casing would have required us to use a smaller pump and motor and we would not have been able to produce enough water to keep up with demand. While some communities are served by a rural water source, the closest rural water system was 8 miles away and it would have cost substantially more money to run that many miles of water main than to drill a new well. Our only option was to drill a new well. Drilling a Jordan Well is typically not something that is done without significant planning and engineering, however, we were in a real bind and needed to move quickly.

While we were trying to figure out what our next steps should be, our most pressing need was to figure out how we were going to get water to the city in the short term. Since we had been getting water from the well after we had installed the extra pipe, we determined that it would be best to put the well back online and use it until we were able to make a plan. Additionally, the City of Washington was extremely gracious in allowing us to truck water from their system to ours on a few occasions.

Once it was established that we were going to need a new well, I called DNR Field Office 6 for guidance on what steps we needed to take. Aaron Pickens was extremely helpful in getting us on the right track and in touch with the right people. Taroon Bidar, a DNR state engineer, was the one who provided the city with the steps that were needed in order to drill a new well. He was also the person to grant the city approval to drill once the city met our obligations.



French-Reneker has long been the city's engineering firm so we turned to them for oversight of the project. Within a week of the televising, work began on a new well. The project took about two weeks and the city was able to rely on the compromised well to provide water during this time. Once the well drilling was concluded, the new well had to be flushed and there were substantial sampling requirements. After the bacteria samples passed, we were able to put the new well online. When the new well was up and running for a few weeks with no issues, the old well was capped.

In summary, while this issue was unexpected, the overall process of dealing with the well failure was quite smooth thanks to the support of multiple parties. Through the assistance of the Ainsworth City Council, Gingerich Well and Pump, French-Reneker, and the Iowa DNR, the city was up and running on a new well within a matter of weeks. The city's residents were very supportive through the process, complying with a conservation order and reducing the daily water usage. While we hope that no community experiences a similar situation, it's good to know that the resources exist in Iowa to work through such an event.