2009 CROSS CONNECTION INCIDENTS IN EAGLE, IDAHO

Lessons Learned and One Utility's Response

What Happened?

In June of 2009 United Water Idaho was involved in two cross connection incidents within a 10 day period, which resulted in approximately 18 people being infected with E-coli or Giardia.

On June 3, 2009 United Water Idaho started to receive water quality complaints in a subdivision called Henry's North Forty in Eagle Idaho.

The complaint was described as foul water smell and taste.

There are homes built on 17 of the 21 lots in the subdivision The subdivision is on the end of a long run of 12"main line.

Henry's North 40 Subdivision

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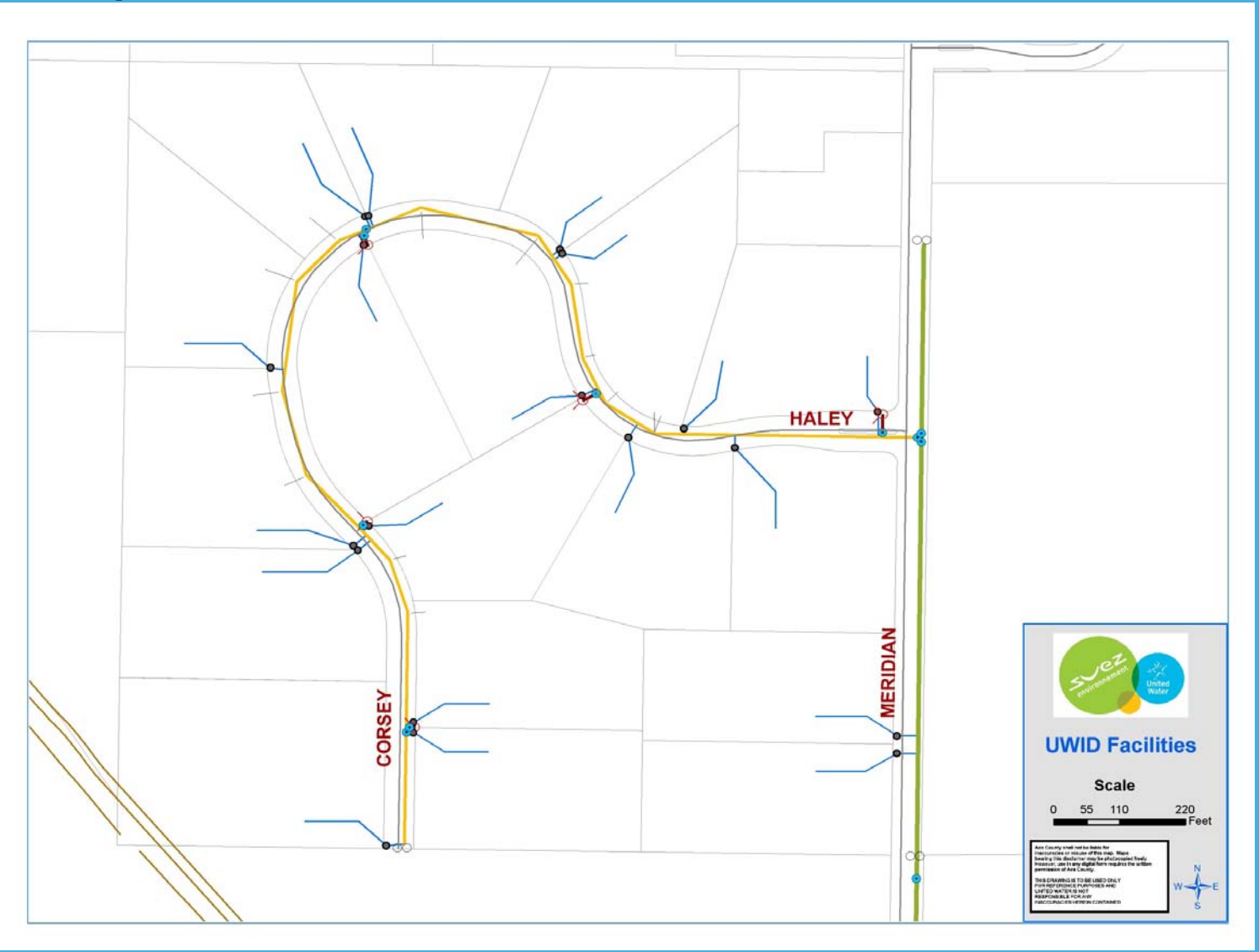


Diagnosis – what do we have?

As with most water quality complaints we contacted the customer and verified the complaint.

We proceeded to take action to resolve the problem. The responding employee flushed the service and main. He found a stale water odor and no chlorine residual. After flushing the odor disappeared and the chlorine residual returned to normal.

We assumed the problem was from a lack of circulation and chlorine dissipation.

Problem solved, right?

On Friday June 4, 2009 we started receiving more water quality calls in the same subdivision. We returned and found the chlorine residual depleted again.

We determined we had not flushed long enough the previous day to turn over the water in the main supplying the subdivision. We flush for several hours, obtained a good and constant residual.

We thought we had resolved the problem!

Not again!

On Monday, June 5, 2009, customers started calling again early in the afternoon.

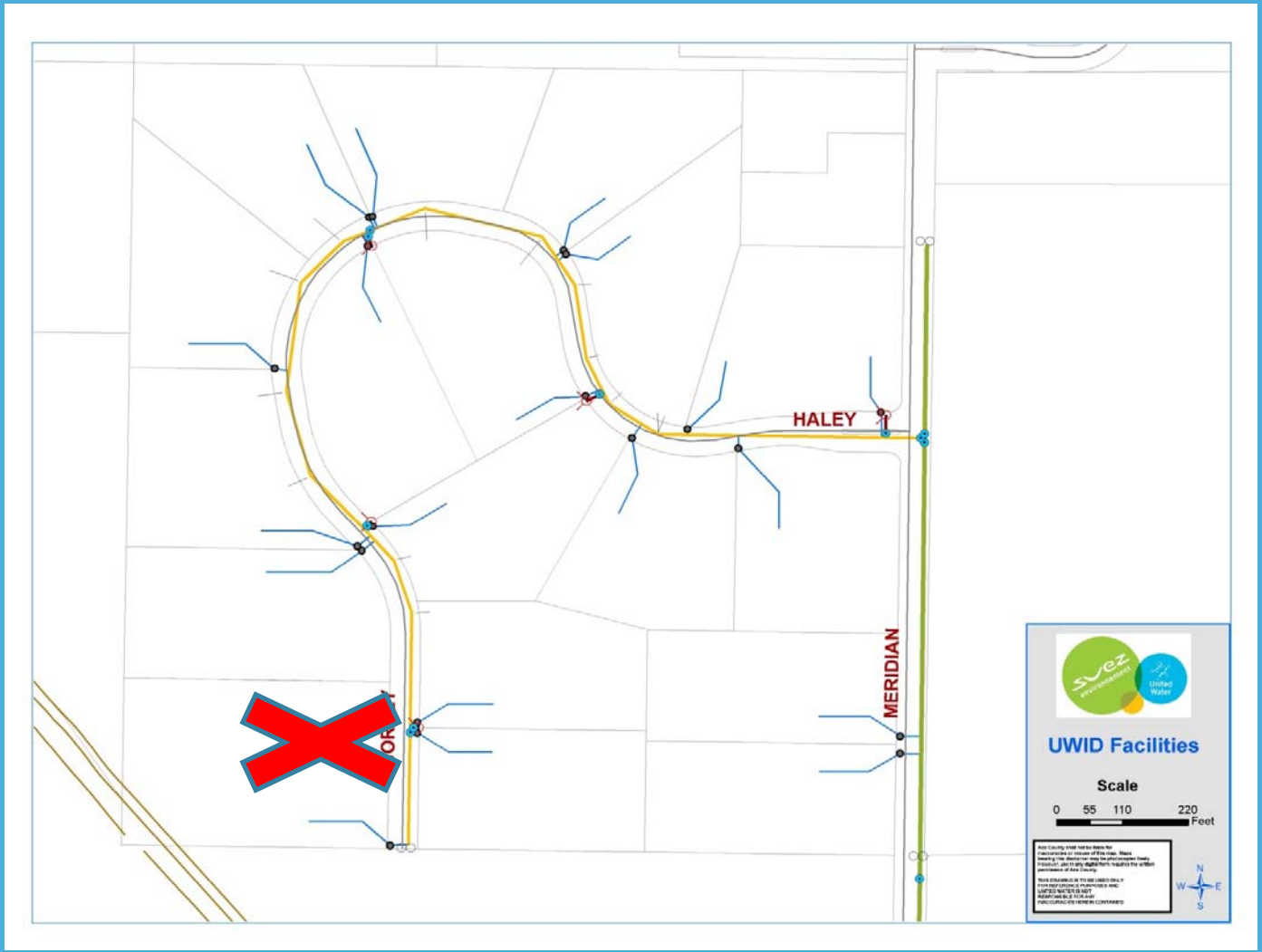
The technician on site requested assistance. He explained the history of the call and was concerned that something else was going on and that the problem should not be recurring.

After conferring with our supervisors we isolated the subdivision.

Ah-ha!

Once we isolated the subdivision we found that the potable water system was still pressurized. At this point we started checking each meter for movement.

We found a meter running backwards. We had a "CROSS CONNECTION"



We took action

We promptly terminated the service to the property and started an extensive flushing and sampling response.

The property had an interconnection with a pressure irrigation system separated with a reduced pressure backflow assembly. The assembly had been tested.

So, what really happened?

Up on interviewing the property owner, it was discovered the 4 years before they had hired a sprinkler contractor to make a connection to the pressure irrigation system to supply water to a yard hydrant in the horse corral.

They also wanted a connection made so water would be available in the winter when the pressure irrigation system was turned off.

03/08/2010

Do the math…

The homeowners association had also just replaced the pump on the pressure irrigation system to a variable frequency pump.

The old pump had a discharge pressure of 60 to 65 psi. Our system consistently runs around 72 psi.

The new pump is set to maintain 80 psi.

03/08/2010

What did we do next?

We requested the property owner to contact the installer and have him meet us on site.

We continued to flush and take samples. We also stayed in contact with Idaho DEQ and also notified the other residents of the subdivision, informing them of the problem.

The homeowners were told they'd be without water until further notice and were given bottled water.

The test results came in…

On the morning of June 7th we received the results of the first samples. E-coli was present.

We sprung into action…

After receiving the test results, we initiated a public notice. Our General Manager, Water Quality specialist, Production Manager and Public Affairs Manager collaborated on the language of the public notice.

In the field, crews started more flushing and sampling.

It was “All hands on deck” as the notices were folded, put into hanging bags and delivered to each front door.

Assembling Public Notices for homes

Getting closer…

That same afternoon, June 7th, we were able to meet with the irrigation contractor that made the suspected underground connection.

The contractor agreed to dig up the connection.

Here is what we found!

WILKINS
WILKINS
PALMER BACKFLOW

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Taking responsibility…

After discovering that the reduced pressure backflow assembly had been bypassed, the contractor stepped up and offered to pay for all costs incurred by the property owner and any other property owners in the subdivision, including any medical costs.

Problem solved

Once we had isolated the cross connection, we were able to obtain clean samples.

After confirming samples, we restored water to the subdivision.

The property owner at the location of the incident remained without water for approximately a week. As soon as the cross connection was corrected and we received a clean sample from the house we were able to restore service.

Not Again!

Just as we were resolving the Henry's North 40 cross connection problem, we started getting calls on June 10th from customers in another subdivision in Eagle.

These water quality calls sure sounded familiar.

Did we have another cross connection?

Rivers End Subdivision

ASPEN RIVER

What did we do?

Because of the experience we had just gained earlier in the week we shut down the main and found we still had pressure in the system.

We started looking for meters turning backwards.

Looking for clues…

In the process of investigating meters, one of our field personal found children in a yard playing in a hose connected to the house that still had water.

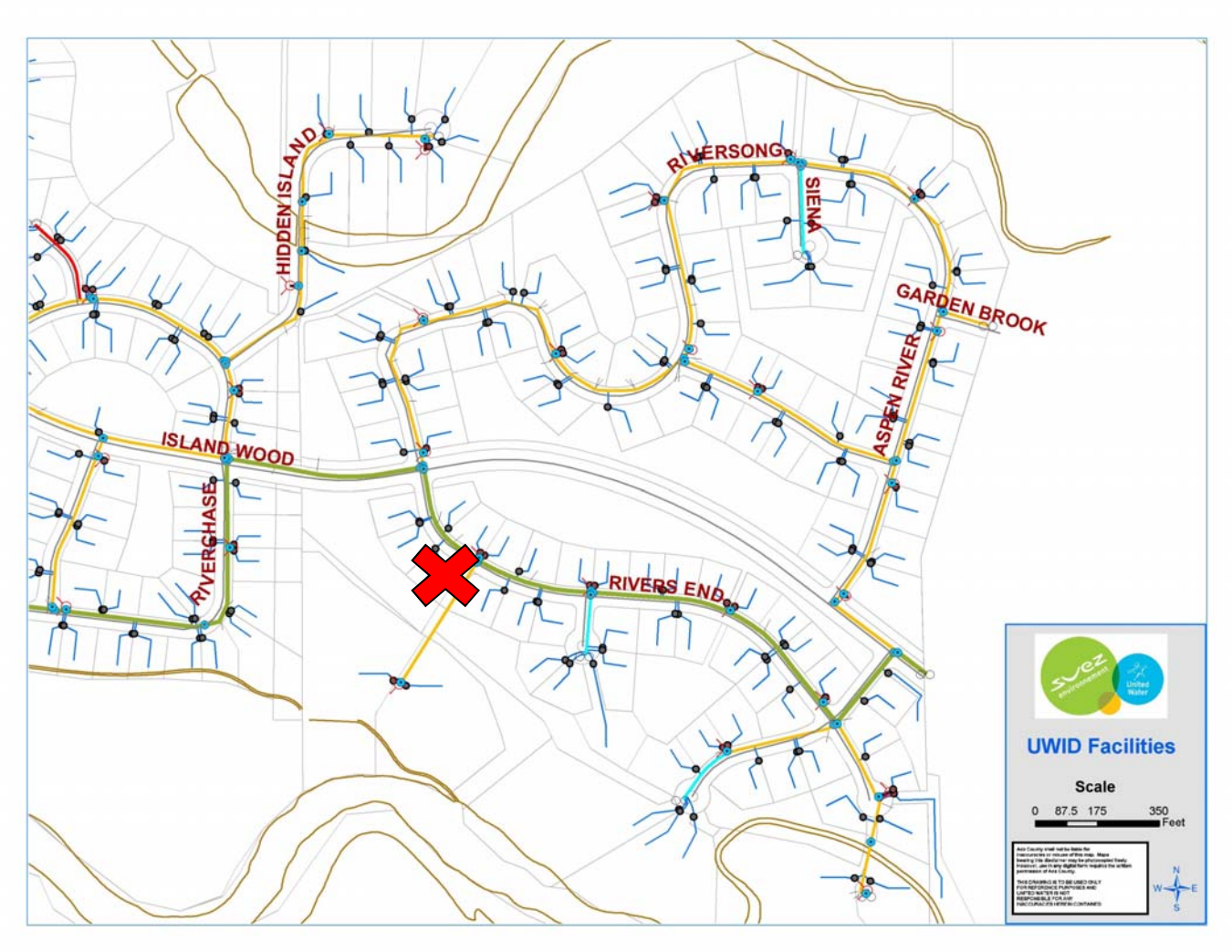
A clue!

Remember, we had shut off the main serving the subdivision.

Ta-dah!

We found the meter running backwards.

Rivers End Subdivision



Found the problem!

We isolated the meter and began an investigation and found the reduced pressure backflow assembly had been installed backwards!

We knew what to do…

We immediately started flushing and taking samples.

We notified the homeowners in the affected area of the problem and advised them not to use the water until we could verify the water was safe to drink.

The sleuthing begins…

We interviewed the property owners, and learned that her backflow assembly had frozen during the winter and broke.

She had an individual from an internet barter website to repair the assembly.

He was not licensed or trained to do any of the work and did not have it tested after the repairs.

He could not be located.

We never did find out what she bartered for.

This is not a drill…

Because of the similar situation ongoing in the other subdivision, we knew just what to do.

We started the sampling and notification process all over again.

Once the samples were clear, water was restored and the property owners were advised to flush their homes and could resume water use.

QUESTIONS?

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