

The Town of St. Paul's water supply was interrupted on Thursday, April 25th. The tank level dropped and was not replenished by operation of wells and the treatment facility. Upon discovery of the town being out of water, the plant operator came to site and started the wells and water treatment plant operations and restored to service. Over the next several hours water was restored. A boil order was required due to the system pressure dropping below 20 PSI. The boil order was in effect until bacteriological samples were collected and analyzed by the lab to verify the samples were negative for coliform.

#### History:

The event that occurred approximately 6 weeks ago that resulted in the water outage was a failure of obsolete system controls. The town was in the process of replacing the controls system when the failure occurred, and the contractor was able to expedite the equipment replacement and restore operations of the system. The plant operations continued to function properly since that time.

#### Details:

On Wednesday, April 24th at approximately 2:30 p.m., the vacuum switch on the water treatment plant failed. This switch had no known prior problems. The function of the switch is to prevent the pumps to the distribution system from running without water. An alarm of this failure was automatically communicated and documented in the controls system, and an email alarm was sent to the operator. Unfortunately the email alarm was not effectively delivered to the operator and was not responded to. The control system issued a second alarm at 7:30 p.m. on Wednesday, April 24th of a low water level in the elevated water storage tank. When the tank level gets to an established low level set point, a system alarm is triggered and an email alarm is automatically sent to the operator. Unfortunately, this second alarm email was not effectively delivered to the operator and there was no response to address the problem.

On Thursday, April 25th, the town lost water pressure at approximately 7:00 - 7:30 AM, and customers were out of service. The operator was on-site by approximately 8:30 A.M. and the wells and water treatment plant were returned to service. The controls contractor was able to perform remote investigation and also have personell on-site that day. The vacuum switch was

confirmed to have been the initial fail alarm, and it was able to be restored to operation temporarily. Later that day the Control contractor modified the monitoring and reporting point to a pressure transducer already installed, and modified programming and controls to utilize this information for plant operations. The vacuum switch has been removed from the controls monitoring and will ultimately be removed from the water treatment plant.

The communication of alarms from the water system controls has been established to ensure this does not happen again. All of the alarms were in place to prevent the situation; however, the email communication failed due to unrecognized spam filtering of the alarm email to the operator. The alarm system has now been changed to send text messages to the operators, with back-up alarm messages being sent to the town board and fire department. The upgrade to text alarms had been in process prior to this event, but was accelerated on April 26th to make every effort to prevent another water outage. The operator has been trained to perform alarm testing, and the controls contractor worked with the operator to make sure they are receiving both text and email alarm communications.

The Town Board is taking further action to perform repairs and upgrades to better secure the reliability of the water production and treatment facilities.

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Thanks,

Lori

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