

Direct Potable Water Reuse Standard Operating Procedure

Wichita Falls, Texas

2010 Filter Backwash SOP

This SOP supersedes any previous SOP on this topic.

INTRODUCTION

Filters must be backwashed on a regular schedule in order to clear the trapped particulates from within the filter. This procedure may be performed based on loss of head, filter run hours or (IFE) Individual filter effluent turbidity.

OBJECTIVE

To maintain: optimum filter performance, operational integrity, and turbidity compliance.

PROCEDURE

Filters backwashes may only be initiated at the filter panel for each individual filter in the 2010 filter building.

0.15
The filter backwash should be initiated when either the loss of head is greater than 6, or when the filter reaches 100 run hours. A filter backwash may also be initiated based on continued IFE turbidity greater than 0.200 NTU. IFE turbidity may also be in indication of clarifier performance, and it warrants further investigation into plant operation.

For Manual Backwashing

ok, but don't forget there is a 95% < 0.15 NTU std for enhanced removal credit
When backwash is triggered by head loss

The following steps must be performed from the 2010 filter building SCADA panel.

- 1) Turn off the 2010 Transfer Pump and Place it in manual.
- 2) Put the filter Influent gate and drain valves in manual and close them.
- 3) Close the Discharge isolation valve.
- 4) Put the filter effluent flow control valve in manual and set the open set point to 0%.
- 5) Go to the **hand valves at the transfer pumps**; open the valve going to the backwash line and close the valve going to the recovery well.
- 6) On the SCADA panel open:
 - o Air scour valve
 - o Backwash supply valve
 - o Backwash Gate
- 7) Turn on the air scour blower in the blower room.
 - o Start a 4 minute timer for air scour.
- 8) Go to the high service pump page on the SCADA panel and select the backwash flow control valve.

- o Open It in manual to 25%
- 9) Start the # 3 2010 VFD transfer pump at 25%
 - o Watch the flow at the backwash flow control valve, you should ramp up the VFD speed and open the backwash flow control valve until you get 3500 GPM
 - o The high flow backwash will run for 4 minutes.
- 10) Turn off the air scour blower after the 4 minute time period and close the air scour valve.
- 11) Once the 4 minute timer is up on the low flow backwash, ramp up the VFD and open the backwash flow control valve until you have 7500 GPM
 - o The high flow backwash will run for 4 minutes. (pump 75% valve 75%)
- 12) When the timer is up, reduce the VFD speed to lower the backwash flow to 3500 GPM.
 - o When the flow slows to 3500 GPM, stop the VFD.
 - o Close the backwash supply valve.
 - o Close the backwash waste gate.
 - o Set the backwash flow control valve back to 0%.
- 13) Go back to the **hand valves at the transfer pumps**; open the valve to the recovery well and close the valve to the backwash supply line.
- 14) Place the transfer pump back into Auto.
- 15) Place the filter influent gate back into Auto.
- 16) Place the filter effluent valve back into Level.

done
reference
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For Automatic Backwashing:

- 1) Check each of the following prior to initiating a backwash:
 - a) Verify that the 1987 and 1961 plants are not currently backwashing and no other filters are being backwashed at the 2010 plant.
 - b) Verify that a backwash pump is selected in Auto.
 - c) Verify the backwash supply control valve is in Auto.
 - d) Verify the Filter to Waste Pump Station is in Auto.
 - e) Verify all control valves are in Remote and Automatic.
 - f) Verify the air scour blowers are in Auto at the Blower Control Panel.
- 2) At the filter panel in the 2010 filter building for the filter to be washed, press Start Backwash on the touch screen.
- 3) From this point, the backwash procedure is performed automatically.
 - a) The filter influent will close, and the filter will filter down to approximately 2 ft.
 - b) The filter effluent will close, the filter backwash waste will open and the air scour will begin.
 - c) The backwash water will be supplied first at low flow.
 - d) The air scour will stop, and the backwash supply pump will ramp up to high flow after the allotted time.
 - e) The flow will ramp down to low flow.
 - f) Backwash flow will stop and the backwash waste valve will close.
 - g) The filter influent valve will open to fill.
 - h) The filter will begin filtering to waste until the turbidity is less than 0.3 NTU.
 - i) The filter will go into normal filtration mode.

Prepared by: [Signature] Date: 05/07/14
 Approved by: [Signature] Date: 5-9-14

*This SOP is considered effective on the date it is approved. SOP's are to be reviewed and/or updated annually or any time this process has changed.

Reviewed by: _____ Date: _____
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Sign below and date that you have received training on this SOP. By signing you are stating that you understand and will defer to this SOP when applicable.

Printed Name	Signature	Date	Printed Name	Signature	Date