

6.4.3 MBR Aeration Basin #5 Automatic Controls

The MBR aeration basin (AB#5) receives flow from the fine screen building and provides the environment for the MBR biomass to reduce the organics and nitrify the ammonia in the waste stream. The MBR aeration basin effluent goes to the MBR building for filtration.

MBR Aeration Basin #5 Control Screens

MBR Aeration Basin #5 is controlled through SCADA from the Aeration Basin #5 control screens. The access to these screens is discussed in the following sections.

MBR Aeration Basin #5 Main Screen

The automatic operation of the fine screens is controlled through the SCADA system on the MBR Aeration Basin Main Screen (**Figure 6.4.3-1**). The screen is accessed by clicking on the **MBR AER BASIN button <1>** on the top of the screen. The mixed liquor recycle pump setpoints are accessed by selecting the **MLR Pump icon <2>**. The process blowers can be operated by selecting the **blower icon <3>** and the dissolved oxygen setpoints can be accessed by selecting the **Zone DO icon <4>**.

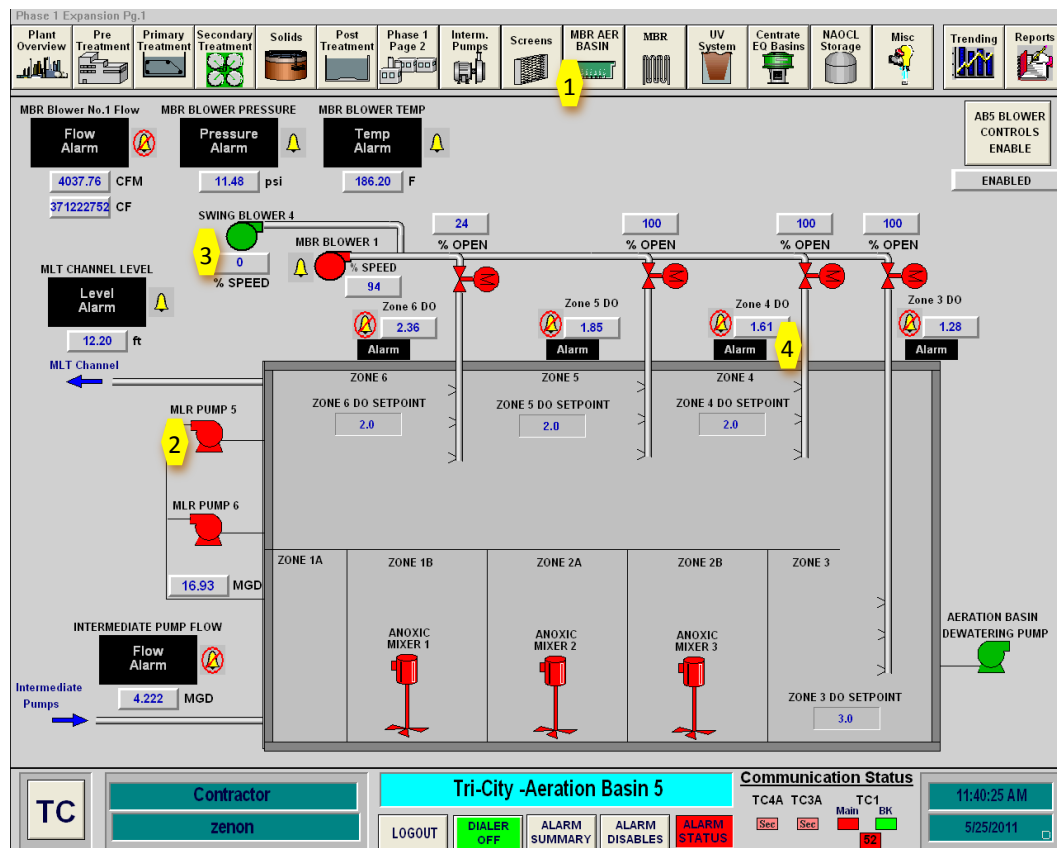


Figure 6.4.3-1 – Aeration Basin #5 Main Screen

The mixed liquor return control box (**Figure 6.4.3-2**) provides for control of both MLSS return pumps. To operate the pumps from SCADA, the pumps must be placed in REMOTE at the VFD for each of the pumps. The VFD is located in the MBR electrical room.



Anoxic Zone Mixer Controls

The anoxic zone mixer control box (**Figure 6.4.3-3**) provides for control of each of the anoxic zone mixers. To start or stop the mixers from SCADA, the mixers must be placed in REMOTE at the control station located by each mixer motor.

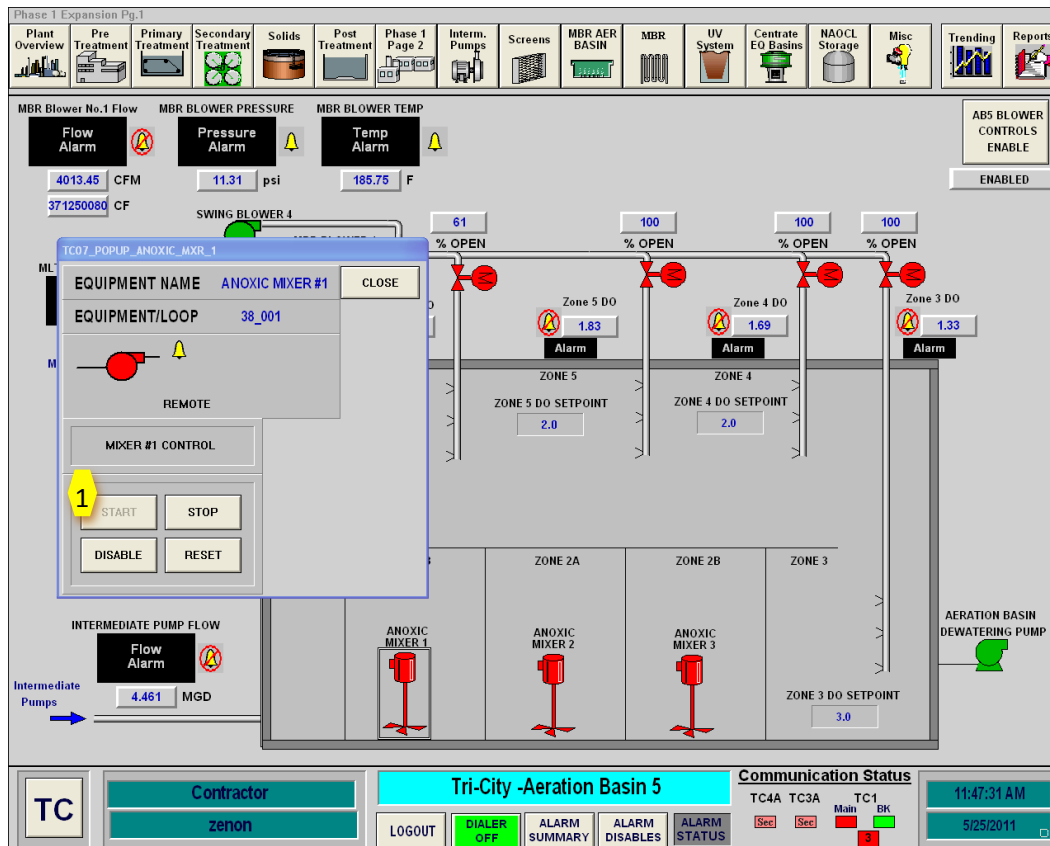


Figure 6.4.3-3 – Anoxic Zone Mixer Control Screen

Each of the anoxic zone mixers should be operating whenever the basin is being used. To start the mixers click on **START <1>** for each mixer in the popup box for each mixer. The mixer icon will be red when the mixer is operating.

Aerobic Zones DO Setpoints

There are four separate aerobic zones with separate dissolved oxygen (DO) control. There is a DO meter in each of the zones. The operator can set the desired DO and the air control valve on the air header to that zone will control to maintain the set-point DO. The valves are controlled in the Master Blower Panel located in the MBR electrical room. There are no controls for the valves available through SCADA. There is a minimum opening of each air control valve to protect the process blower from going into surge. If the actual DO is higher than the set-point, the valve opening can be observed on the Master Blower Panel.

Aeration Basin #5 Dewatering Pump Controls

The aeration basin #5 dewatering pump control box (**Figure 6.4.3-4**) provides for control of pump. To start or stop the pump from SCADA, the pump must be placed in REMOTE at the control station located by each pump.

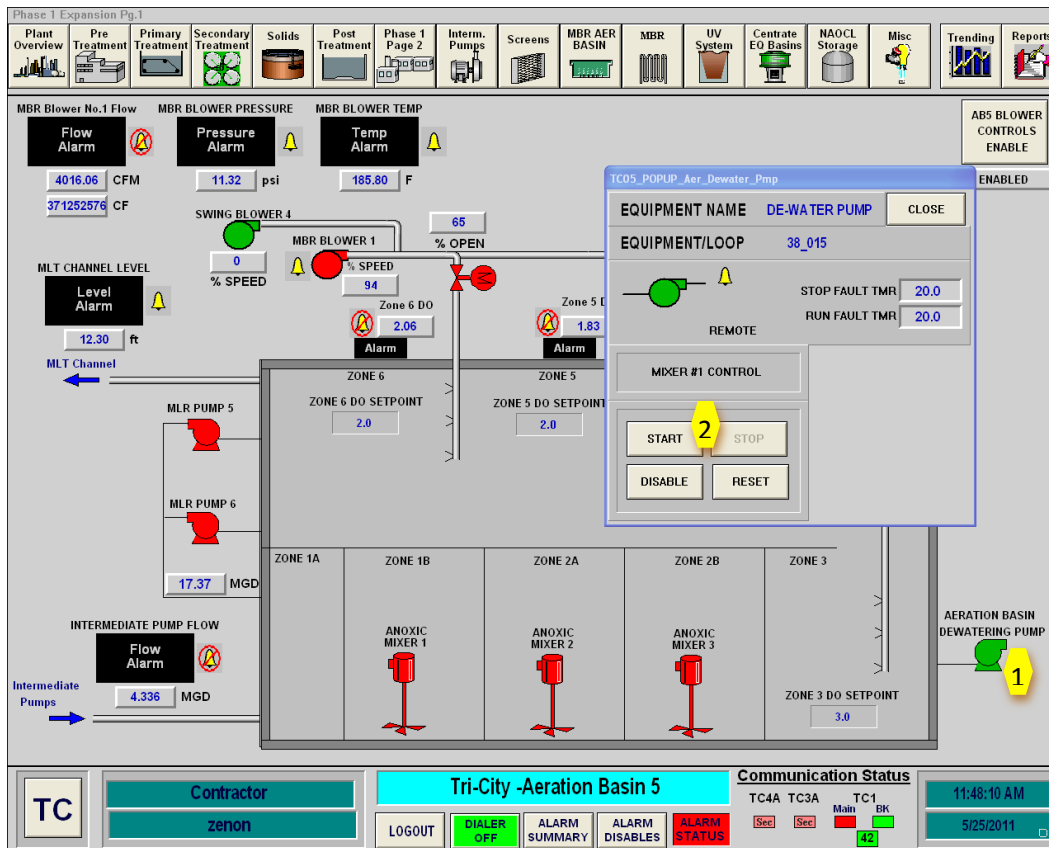


Figure 6.4.3-4 – Dewatering Pump Control Screen

The aeration basin dewatering pump is only operated when the basin is being dewatered. To start the pump, click on pump icon **<1>** to access the popup box for the pump. Click on **START <2>** to start the pump and **STOP <2>** shut the pump down.

MBR Aeration Blower Controls

The MBR aeration blowers are controlled through the Master Blower Panel located in the MBR electrical room. To enable the blower control for the Master Blower Panel to control the blowers, the blowers must be enabled through SCADA. This function is accessed on the MBR Aeration Basin screen as shown in **Figure 6.4.3-5**.

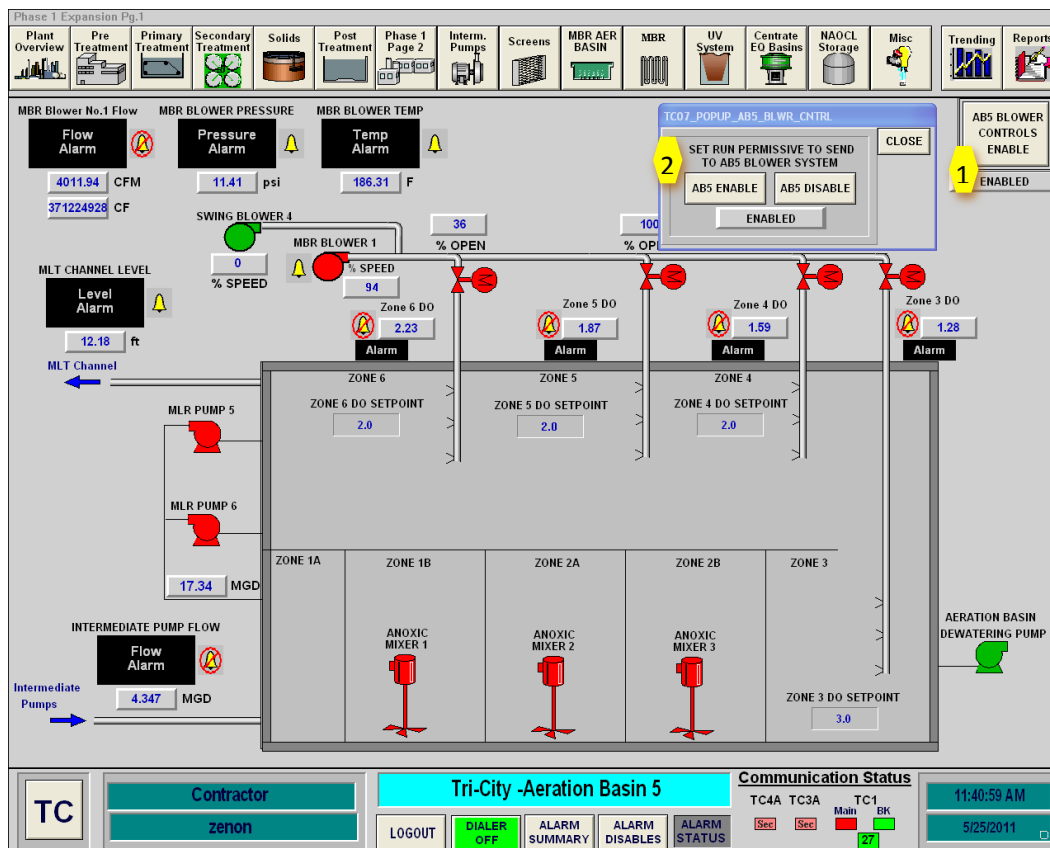


Figure 6.4.3-5 – MBR Aeration Blower Enable Control Screen

The blowers are enabled by clicking on the **AB5 Blower Controls Enable button <1>**. When this button is pushed, a popup box comes up that provides two buttons. Press the **AB5 ENABLE button <2>** to enable control of the blowers at the Master Blower Panel.

The blowers cannot be controlled through SCADA, but various blower operating variables can be monitored in the blower popup box. These variables are: % speed, flow, discharge pressure, discharge temperature, runtime and power. These variables are monitored at each blower and displayed on this screen. These functions are accessed on the MBR Aeration Basin screen as shown in **Figure 6.4.3-6**.

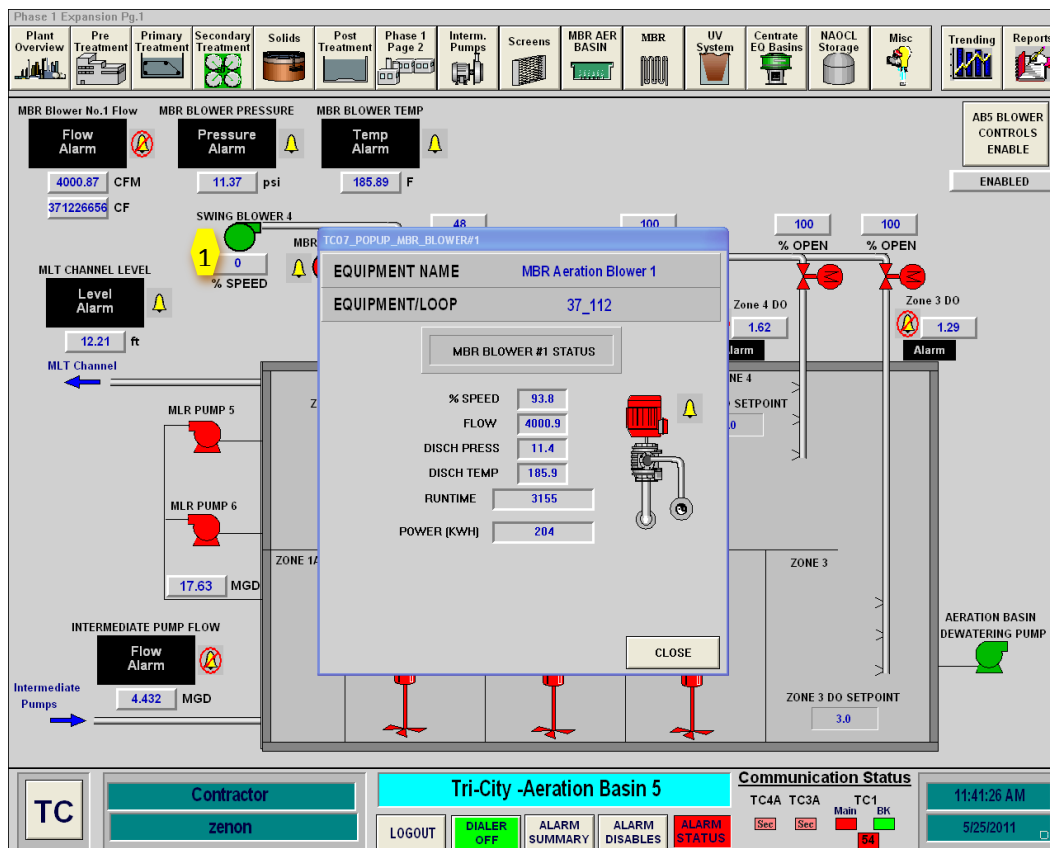


Figure 6.4.3-6 – MBR Aeration Blower Monitoring Control Screen

Manual Control Through SCADA

The only equipment in Aeration Basin #5 that can be controlled manually through SCADA is the Mixed Liquor Return Pumps. These pumps can be operated in manual, if desired, but the preferred operation of these pumps is in AUTO so they will pace with the MBR plant flow.