Troubleshooting Guide for Water Systems

Secondary Water Systems

Problem	Possible Causes	Possible Solutions
High supply temperature.	Wrong setpoint.	Adjust setpoint.
	High primary water supply temperature.	Contact PFS Utility building.
	Insufficient bridge flow.	Check position of temperature control valve. If it is at "100% cooling" adjust flow through the bridge by opening throttle valve in the return primary leg of the bridge.
	Damaged supply temperature sensor/transmitter.	Override cooling valve position until satisfactory temperature is obtained. Replace sensor during machine down time.
	Malfunctioning Allen-Bradley control card	Disconnect signal wire and compressed air from cooling valve actuator. Manually adjust valve position until satisfactory temperature is maintained. Replace Allen-Bradley component during machine down time.
	Automatic isolation valve in the return line is closed.	Disconnect compressed air tubing from the valve actuator. Manually open valve. Troubleshoot Johnson Controls system during machine downtime.
	Air line leak to temperature control valve actuator.	Repair leak.
	Temperature control valve positioner malfunction.	Check and replace if necessary power supply unit. Replace positioner.
Oscillating supply water temperature.	PID loop not properly tuned.	Override cooling valve position until satisfactory temperature is obtained. Tune PID loop during machine studies.
Low differential pressure.	Bypass valve not closed 100%	Check setpoint. Adjust if necessary.
	Bypass valve commanded to be closed but water is flowing through the valve.	Disconnect compressed air tubing from the valve actuator. Manually close bypass valve. Troubleshoot Johnson Controls system during machine downtime. Possibly replace valve positioner and/or actuator during machine down time.

	Gear operated valve in the supply line near the filter housing excessively throttled.	Open valve sufficiently to maintain required system differential pressure.
	Excessive flow to user water systems.	Throttle flow to user systems. Check for open bypasses inside and outside the user hutches.
	Excessive pressure drop across filters.	Adjust gear operated valve in the supply line near the filter housing by opening it if possible. Replace filters.
	Air line leak to Bypass control valve actuator	Repair leak.
	Malfunctioning Johnson Control module	Replace module.
Low flow through power supplies, magnets.	Low differential pressure.	See "**Problem**" – Low differential pressure.
System automatically shutdown.	High flow event. (difference between supply and return flow rates exceeded allowable setpoint)	There is an excessive leak in the system. Verify and repair.
		Supply or return flowmeter is malfunctioning. Disable "High Flow Even" via Johnson Controls. Troubleshoot flowmeters during machine down time.
	High pressure switch shut down the system.	Verify that high pressure switch setpoint is set correctly. Verify operation of bypass valve. Reset at MCC.
	MCC malfunction.	Replace fuse. Check for loose connections at motor disconnect. In case of "sams" unit problems contact PFS.
	Power loss.	Reset MCC. Restart system.
System automatically switched over to standby pump.	Running pump motor failure.	Replace motor.
	Pump differential pressure switch failure.	Replace switch.
	Broken pump/motor coupling	Replace coupling
Leaking water seal.	Worn out pump water seal	Switch over to standby pump. Replace seal.
Leaking oil seal.	Worn out pump oil seal.	Switch over to standby pump. Replace seal.