



Wave™, IntegraClean™ Post-Start up Checklist

A complete review of installation and startup requirements may be found in the applicable IOM.

Equipment Installation Photographs		Y	N	N/A
A.	Wave Panel: close up of panel showing no field penetrations have been made to enclosure.			
B.	Reaction Chamber: Show location to verify pipe supports & no metal within 5" of Chamber center			
C.	CleanSweep Skid: show overview of skid and installation area			
D.	Blowdown Controller & InstAlert: Show local installation area			
E.	Overview photos of entire installation			

Wave				
A.	Wave Panel: Power and treatment lights illuminated			
B.	Signal Cable Extensions (if applicable): Shrink tube applied over extension connectors			
C.	<i>Perform Troubleshooting if alarm tones are present or Treatment light is not illuminated</i>			

CleanSweep Balancing				
A.	Pump strainer: Open strainer and inspect for debris			
B.	Adjust tower sump bypass valve (when present) until pressure in sweeper reaches 2 – 5-psi in all cooling tower cells.			
C.	Pressure across separator vessel (psi, as applicable)	Differential:	Inlet:	Outlet:
D.	Pressure at each tower cell (2 – 5 psi desired),	#1:	#2:	#3:
E.	Perform troubleshooting for pressures not meeting desired range			

InstAlert				
A.	SIM card installed in USC1 cellular units (not applicable to model USP1, pager units)			
B.	Verified Power Restored and Alert emails with GWS			
C.	Provide GWS with emails for Owner and any other contacts needing reports			
D.	InstAlert Contact emails:			
E.	<i>Perform Troubleshooting if emails are not received or for multiple Alert messages</i>			

Conductivity Controller (Menu descriptions are applicable to MicroVision)				
A.	Verify Flow-switch and Probe are hand tight. Close sample valve; Open service valves to initiate flow. Supply power to unit.			
B.	Go to HOME SCREEN/ SETTINGS/ CONDUCTIVITY Program GWS supplied control SET POINT and DIFFERENTIAL to "30". Program ALARM SETPOINT/ TRACK SETPOINT to "300" (note: this setting is for local alarm only.). Set 4-20mA OUTPUT/ LOW RANGE to "0"/ HIGH RANGE to "5000". Note: If supplied Set Point is > 4500, set HIGH RANGE to "9999".			
C.	Open service valve to Automatic Blowdown Valve (No water should discharge without power). Plug Auto-Blowdown Valve to BLEED output relay cord (if not hard-wired). Go to HOME SCREEN/ CONFIGURE/ H-O-A OUTPUTS Select BLEED/ ON 5-MINUTES (relay will reset to AUTO after 5-min. or select BLEED/ AUTO to return to normal service. Selecting OFF will permanently prevent valve actuation).			
D.	Water Analysis, record the following (Always use a calibrated handheld meter): Handheld Conductivity Meter Display: <input type="text"/> mmhos Cond. Controller Display: <input type="text"/> Values should be close. If not remove and clean probe, replace and re-check. If values are still not close to each other see Controller manual for recalibration procedure.			

Water Treatment	
Name of Certified Service Provider:	
Service Partner notified of impending startup	Completed: <input type="checkbox"/>
CAUTION, AVOID WARRANTY LOSS: Never startup system without complete installation of the WAVE, Automatic Blowdown Equipment, InstAlert, and Filtration Systems (if applicable).	

A.	Water for Hydrostatic Testing (Red-Water Avoidance).	N/A:	<input type="checkbox"/>
	Some makeup water types will cause a rapid oxidation of iron pipe. It is the responsibility of the Contractor to delay filling the system; periodically circulate; or add corrosion inhibitors to avoid flash-corrosion and “red-water”. Coordinate preventative actions with the Griswold designated Certified Service Provider to avoid an unsightly situation and a subsequent cleanup.		
	Contractor refuses: <input type="checkbox"/>	Plan in place: <input type="checkbox"/>	Water has been added: <input type="checkbox"/>
	Water has not been added: <input type="checkbox"/>		If added, water has been chemically treated: <input type="checkbox"/>

B.	Initial Flush and Chemical Cleaning.
	All systems should be flushed with clean water to remove dirt and debris. A chemical cleaning of the <u>entire system</u> will be required to further remove sediment, oxides, and oils. When a written procedure is not included in the project specification, the Griswold Certified Service Provider will supply a procedure.
	Contractor refuses: <input type="checkbox"/> Plan in place: <input type="checkbox"/> System has been cleaned: <input type="checkbox"/>

C.	Full Startup and System Load. Plan in place:
	It is important to establish a system load immediately following the Chemical Cleaning to enable the Wave corrosion inhibition and biological control mechanisms. If a load is not available, the filling and system cleaning should be delayed – Or, a temporary chemical based treatment program must be employed.
	Contractor refuses: <input type="checkbox"/> Plan in place: <input type="checkbox"/> System is operating: <input type="checkbox"/>

D.	Galvanized Metal Conditioning/ Passivation Plan.	N/A:	<input type="checkbox"/>
	All galvanized cooling tower sumps, hot decks, and submersed components are susceptible to a “white rust” condition. A Galvanized Metal Conditioning/ Passivation Plan must be pre-arranged with the Certified Service Provider prior to adding any water to the system. Failure to establish a Conditioning Plan can cause irreversible damage and/ or result in an expensive remediation.		
	Contractor refuses: <input type="checkbox"/>	Plan in place: <input type="checkbox"/>	System is operating: <input type="checkbox"/>
	Raw/ City water & Low conductivity is in Plan: <input type="checkbox"/>		Conditioning Plan requires acid feed <input type="checkbox"/>

E.	Low-Load Operation.	N/A:	<input type="checkbox"/>
	At no time should wet equipment be allowed to remain idle without flow for longer than three-days. Circulate WAVE treated system water into all standby chillers and heat exchangers at least one-hour per day or at least three-hours every three days.		
	Contractor refuses: <input type="checkbox"/>	Plan in place: <input type="checkbox"/>	System is operating: <input type="checkbox"/>
	If operating, rotation is manual (by operator): <input type="checkbox"/>		If operating, rotation is automatic (BMS control) <input type="checkbox"/>

Make notes of any deficiencies and make comments here:	
Completed by:	Date:

Return Form To: GWS Project Service Manager, Mike Jakubowski, mike@griswoldwatersystems.com, 386.663.3384
If all items are complete, take photos of the Wave, CleanSweep and all equipment panels for project records.