



Pump Station Startup Checklist

February 25, 2009

The following checklist is designed to assist the Contractor and the Sacramento Area Sewer District (District) in the start up process. The District has divided the process into four phases, based upon the activities and personnel involved:

- **Phase 1** consists of the pre-demonstration items: to ensure that the contractor has installed the equipment correctly and that each manufacturer has field-verified their specific devices do indeed meet the criteria for warranty. This phase is completed by the contractor, observed by the inspector, and (except for the specific FAT items) confirmed by the design engineer. The District has some limited involvement.
- **Phase 2** demonstrates the equipment is installed correctly and works, and prepares for the 10-day run. This phase is primarily the responsibility of the contractor (and subs).
- **Phase 3** provides a test run, minimal break-in time for the equipment, and specified training to the District staff. This phase is performed and monitored by the contractor (and maybe the design engineer) and ends with the verification that the equipment has completed the break-in period and is in working order (pulling pumps, etc).
- **Phase 4** is mostly the internal and paperwork mop-up for the District.

Note that each phase must be completed and signed off prior to the start of the next phase. If the District staff arrive and find that the items on the checklist are not complete, they will leave the site and reschedule the event a minimum of one week later.

Also note that the checklist includes general items such as “all grounding systems installed,” meaning the District expects ALL associated items and equipment to be installed correctly (in working order) and per the plans. Please write any comments or additional items on the blank lines in the form.

Keep a binder on the project site, and include in it the following:

1. **The original checklist.**
2. **Original copies of all certifications, test results, etc.**

The Contractor, Design Engineer (or field representative), and CMID inspector need to initial as each item is completed. The appropriate representative from the M&O or Development Services sections will initial in the District block when confirmed. The District’s Project Manager will sign on the bottom line once the entire checklist has been completed, and the project will then move to the next phase.

Please complete each phase of the checklist, with appropriate signoff initials, and send to the District Project Manager.

Facilities Startup: Phase 1 (Pre-Demonstration) Checklist

Page 1 (To be completed prior to start of Phase 2)

Contractor

Design
Engineer

Inspector

District

Facility: _____

Design Engineer: _____

Inspector: _____

		Contractor	Design Engineer	Inspector	District	
Permits	Building Permit					
	Authority to construct					
	Permit to Operate					
	Easements submitted to the District					
Field Installed	All wiring installed, terminated, tagged					
	Protective devices coordinated per study					
	Permanent utility power					
	Permanent water service installed and pressure tested					
	All grounding systems installed					
	All conduits installed and tagged					
	All pneumatic lines installed					
	All equipment installed per approved seismic calculations					
	Generator and load bank					
	Site Lighting					
	Switchboard, MCC, ATS, PLC, bubbler					
	Building or canopy					
	All equipment labeled					
	Factory acceptance test: witnessed	Switchboard				
		Automatic or manual transfer switch				
		Motor control center				
		PLC cabinet				
		Bubbler cabinet				
	Factory acceptance test: non – witnessed:	Pumps				
		Standby generator and load bank				
	Site pump test by manufacturer					
	Site hoist system test by manufacturer					
	Bubbler leak test					
	Manufacturer's & NETA quality control on switchboard/MCC					
	Grounding system					
	Cable insulation					
	Site generator and load bank test by manufacturer					
	Building systems	HVAC				
		Plumbing				
		Electrical				
Lighting						
Storm drain						

Facilities Startup: Phase 1 (Pre-Demonstration) Checklist
Page 2 (To be completed prior to start of Phase 2)

Contractor

Design
Engineer

Inspector

District

Facility: _____

Design Engineer: _____

Inspector: _____

Elevation Verification	Elevation:		Plan	Actual				
	Wet well floor							
	Inflow inlet invert							
	Captive air bell							
	Bubbler tube / Pressure transducer							
	Pump inlet							
Approved Submittals	Manufacturers statement of installation							
	Current as-builds (matching existing conditions):	Loop drawings						
		Interconnect drawings						
	Instrument calibration certifications							
	Protective devices coordination study by professional electrical engineer							
	Wire pull sheets and conduit schedule							
	Certified cable insulation resistance test results by a NETA testing firm							
	Certified grounding system test results by a NETA testing firm							
	Switchboard and MCC testing results by a NETA testing firm							
	Witnessed factory acceptance test on all control & electrical equipment							
	Factory acceptance test results on pump							
	Factory acceptance test results on generator							
	Certified on-site generator test, including noise level: _____ dB							
	O & M manuals							
	Test procedures for Phase 2							

Revision Date: 02/13/08

District Project Manager Phase 1 Checklist Approval: _____

Facilities Startup: Phase 2 (Demonstration) Checklist (To be completed prior to start of Phase 3) All Phase 2 tests require two week notice to SASD				Contractor	District
Facility: _____ Design Engineer: _____ Inspector: _____					
Remote Telemetry Unit	Verify Installation and Hookup				
	Antenna Alignment (Contractor provides bucket truck)				
	Communications Test				
	I/O Test				
System Demo	Pumping Systems	Pull pumps and inspect			
		Guide rails			
		Crane			
		Clean water recirculated			
	Generator, load bank & fuel tank				
	Switchboard/MCC				
	Instrumentation				
	Crane				
	Security System/Fire Alarm				
General Walkthrough	CMID Punch list Completed	Inspector's Initials			
		District Asset Management Initials			
Approved Submittals	Test Plans for Phase 3 (mimicking operational conditions)				
	Final O&M manuals (with one copy at station)				
	Final as-builts				

Revision Date: 02/13/08

District Project Manager Phase 2 Checklist Approval: _____

Facilities Startup: Phase 3 (Operational Testing & Startup) Checklist (To be completed prior to start of Phase 4)			Contractor	Inspector	District
Facility: _____ Design Engineer: _____			Inspector: _____		
1. Contractor Provided Training	Pumping Systems				
	Generator, load bank & fuel tank				
	Switchboard/MCC				
	Instrumentation				
	Crane				
	Security System				
	Fire Alarm				
2. 10 day fresh water test	Level change				
	Pump cycling				
	Daily checks				
	Holding tank				
	Pull pumps and check oil (at start and completion of test)				
	Run pumps off of generator power				
	Site specific:				
	District Phase III Punchlist Generated				
	District Phase III Punchlist Completed				
	3. Station Cleanup	Remove re-circulation system after fresh water test			
Remove all contractor equipment					
District Operations and Maintenance Letter Issued (cc: M&O)					
4. Connect to sewer	Verify downstream systems operational and connected	Plugs removed & allow sewage into facility			
		Valves open			
		Force main operational, tested, signed off			
	Final Station cleanup				
5. Make facility operational	Replace contractor lock with District Locks				
	SCADA turned on				
	District M&O ready to accept maintenance & operations of station				
	Notify District M&O				
	Notify USA				

Revision Date: 02/13/08

District Project Manager Phase 3 Checklist Approval: _____

Facilities Startup: Phase 4 (Acceptance) Checklist (To be completed prior to final District acceptance of facility)			Contractor	Inspector	District
Facility: _____ Design Engineer: _____			Inspector: _____		
Final Signoff	All completed punch lists recorded		[X]	[X]	[X]
	Phase 1,2 & 3 checklists recorded				
	CMID Acceptance Letter	Force Main			
		Pump Station			
Paperwork	Transfer power bill to the District		[X]	[X]	[X]
	Transfer water bill to the District				
	Grant Deed / Easements recorded				
	Copies of all Permits to the District	Building Permit			
		Authority to construct			
		Permit to Operate			
HMP (if applicable)					
Warranty Paperwork Submitted by Contractor					
Final Acceptance	Acceptance letter by the District filed		[X]	[X]	[X]
	Copy to Sacramento Area Sewer District:	Accounting			
		Asset Management			
		Documentation			
		M&O			
		Modeling			
		Regulatory Compliance			
		MAXIMO			
		USA			

Revision Date: 02/13/08

District Project Manager Phase 4 Checklist Approval: _____