Standard Operating Procedures (S.O.P's)

What is the primary purpose of an SOP?

- Provide the policies, processes, and standards for the organization to succeed
- Reduce errors
- Provide step by step instructions to supporting staff
- Increase efficiencies and profitability
- Create a safe work environment
- Produce guidelines for how to resolve issues and overcome obstacles

Start of each day….

The first thing you should do on arrival to the water treatment plant in the morning is walk around the plant. Use your senses (sight, hearing, smell, touch) to notice anything that may be out of the ordinary. Feel your pumps and other motors to see if they are excessively hot. Does any of the equipment sound different than it normally does? Look around for unusual sights such as water that has leaked onto the floor.

Daily SOP routines

- Review log sheets and data recording
  - In-plant
  - Field measurements
- Check the control panel and/or VT SCADA for alarms.
- Inventory practices for consumables
- Equipment & instrument maintenance & schedules
- Incident response protocols (including near misses, etc)

Daily SOP routines continued

- Operator training - initial and continual – reporting and recording
- Communications paths for questions or concerns
- Conduct sampling, as needed in communities
- Record meter and pump readings
- Record all chemical tank levels (chlorine, alum, soda ash, post-soda ash, process). Verify that sufficient chemical supply is available, and where necessary, mix chemicals according to proper mixing instructions (attached).

Daily SOP routines continued

- Record chemical feeder settings (speed setpoint on BCA PLC and stroke setpoint on chemical feeder)
- Review log book entries. Make record of any process changes, abnormal operating conditions in the daily log book for future reference.
- Record important information in the daily log book (ie. chlorine residuals, turbidities, visual observations of water quality, etc…)

Daily SOP routines continued

- Analyze water quality from the locations and with the frequency required in the Standard Operating Procedures. Analyze water quality following QA/QC Procedures. Compare bench test results with analyzer readings.
- Lastly…….before you leave at the end of the day take another walk around the plant making the same observations that you did when you first arrived. Once again, you should check alarm history and autodialer status on the SCADA computer, verifying that the SCADA system is prepared to accept and transmit any alarms which may occur overnight (ie. verify that past alarms are acknowledged and alarms are enabled).

Compliance Sampling

Review of Sampling Programs

- Confirm sampling and monitoring is being done in a timely fashion
- Review data for water quality concerns and anomalies
  - Set control points and action limits for in-plant monitoring
  - Bridge distribution system results with SCADA data and plant performance
- Initiate corrective actions
- Review SCADA data daily for indication of leaks, depressurization or other events that may intersect with compliance standards

DAILY WATER SAMPLING				
When	What	Where	How	SOP
Every day	Flow	Plant Inlet	SCADA or Grab	
	Turbidity	Source	SCADA or Grab	
	Free Chlorine	Chlorine Contact	SCADA or Grab	
	Temperature	Chlorine Contact	SCADA or Grab	
	pH	Chlorine Contact	SCADA or Grab	
	Free Chlorine	Storage Outlet	SCADA or Grab	
WEEKLY WATER SAMPLING				
When	What	Where	How	SOP
Every Monday	Turbidity	Distribution System	Grab	
	Free Chlorine	Distribution System	Grab	
	Total Coliforms	Distribution System	Grab	
	E. Coli	Distribution System	Grab	
QUARTERLY WATER SAMPLING				
When	What	Where	How	SOP
30-Jan 24-Apr 24-Jul 30-Oct	Free Chlorine	Distribution System	Grab	
	Alkalinity	Distribution System	Grab	
	Conductivity	Distribution System	Grab	
	Temperature	Distribution System	Grab	
	pH	Distribution System	Grab	
	Manganese	Storage Outlet	Grab	
	Manganese	Distribution System	Grab	
	THMs	Distribution System	Grab	
	HAAs	Distribution System	Grab	
	Chlorate	Storage Outlet	Grab	
	Bromate	Storage Outlet	Grab	
SPECIAL SAMPLING EVENTS				
When	What	Where	How	SOP
TBD	Annual Compliance	Source & Treated	Grab	
29-May 27-Nov	Bi-Annual Manganese	Source	Grab	
28-Aug	Lead & Copper	Distribution System	Grab	

Additional SOP'S….examples.

- Adverse Water Quality
- Chemical Spill
- Hydrant Failure
- Power Failure
- Isolation of Water Reservoirs
- Low Distribution Pressure
- Watermain Breaks
- Water Supply Shortage

Discussion or Questions?

End.