 <b>EMS</b> Albemarle County Public Schools			<b>Subject: Water Well Sampling and Maintenance Procedures SOP</b>		
Document No.: SOP-WAT-01	Issue Date: 4/3/2009	Last Revised: 3/9/2009	Page: 1 of 3	Prepared By: LCS	Approved By: CH, JPL, GS, JCL

## 1.0 PURPOSE

This Standard Operating Procedure (SOP) outlines the work instructions for **maintaining well systems, testing well water, and mixing treatment chemicals** for the Albemarle County Public Schools on a well system.

This SOP is applicable to the following schools:

Well System Location	PWSID	Override Location
Stony Point Elementary	2003810	Plug pump into "Override" outlet
Broadus Wood Elementary	2003170	Flip switch
Murray Elementary	2003885	Flip switch located on left side of system
Red Hill Elementary	2003660	Turn knob to "Hand"
Walton Middle	2003880	Put pump in plug labeled "Override"
Yancey Elementary	2003162	Flip switch
Scottsville Elementary	2003680	Turn knob to "Hand"

## 2.0 PROCEDURE


### **Responsibility: ENVIRONMENTAL COMPLIANCE MANAGER & WELL TECHNICIAN**

The Environmental Compliance Manager must hold an active Class VI Waterworks Operator License issued by the Department of Professional and Occupational Regulation. The license must be renewed every 2 years and continuing education units must be completed for renewal. The Class VI Waterworks Operator is responsible for maintaining compliance with the Class VI Waterworks Permits for Albemarle County Public Schools. The Environmental Compliance Manager must also prepare and host the Virginia Department of Health during the annual inspections.

### **Testing**

#### **1. WEEKLY**

- A) The well technician must test the water from the kitchen tap for chlorine and phosphate levels using the Chlorine and Phosphate Pocket Colorimeter Test Kits. Follow the Directions for Using Water Testing Kits in F-SOP-WAT-01.
- B) The intern is to record the pH of the kitchen tap water. The Environmental Compliance Manager must calibrate the pH meter weekly.

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- C) The levels of the chlorine and phosphate (ZPP-9000) tanks must be recorded. If the level is below 50%, follow the chemical mixing guidelines in F-SOP-WAT-02.
- D) Results of the sampling must be recorded on F-SOP-WAT-03.
- E) The well technician must ensure the OVERRIDE switch is turned OFF before leaving well house.

## 2. MONTHLY

- A) The well technician is responsible for collecting bacteriological samples from each well school at the beginning of each month.
- B) The well technician is responsible for collecting the water meter readings at towards the end of each month. The Environmental Compliance Manager is responsible for gathering the weekly and monthly data and submitting a report to the Virginia Department of Health (VDH) before the 10<sup>th</sup> of each month. The Environmental Compliance Manager must also confirm that VDH has received bacteriological results from the laboratory.
- C) The Environmental Compliance Manager is responsible for maintaining all water quality reports and sampling results.

## 3. SAMPLING SCHEDULE

The Environmental Manager is responsible for maintaining the sampling schedule for each school.

## Responsibility: **BUILDING SERVICES MAINTENANCE CREW**


### 1. **MAINTENANCE TO BE PERFORMED EVERY 6 MONTHS**

- A) Replace check valve in phosphate and chlorine feed tanks at each well system.
- B) Replace tubing in phosphate and chlorine tanks (tubing from check valve to pump and from pump to piping).
- C) Ensure all pump connections to water storage tank are in tact.
- D) Verify pumps are operating correctly and properly mounted.
- E) Bring any expired chemicals (e.g. hardened or liquefied ZPP-9000) to Building Services to be properly disposed of by the Environmental Compliance Manager.

### 2. **MAINTENANCE TO BE PERFORMED ANNUALLY**

Clean out chlorine and Virchem tanks.

- Coordinate with Environmental Compliance Manager to bring tank levels to minimal levels.
- Environmental Manager will coordinate disposal of unspent chemicals and addition of new chemicals after tank cleaning.

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**3. CHEMICAL DELIVERY**

- A) If ZPP-9000 (used for phosphate feed tank) is delivered by Building Services, the chemical MUST be tightly sealed in a 5-gallon drum.
- B) If chlorine is delivered by Building Services, leave it in the original containers in the well house.
- C) Anyone who may come in contact with chlorine or Virchem in the well houses must use the PPE provided in each well house. The PPE includes goggles and an apron.



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**Subject: Water Well Sampling and  
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**Directions for Using Water Testing Kits**

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***DIRECTIONS FOR USING WATER TESTING KITS***

**USE KITCHEN SINK IN SCHOOL**

**FOR CHLORINE:**

1. Fill vial to 10 mL mark
2. Turn kit "on"
3. Place vial in kit with diamond facing towards inside/screen
4. Zero kit out
5. Remove vial, add packet of chlorine reagent
6. Shake for a few seconds
7. Place vial back in kit with diamond facing inside
8. Press "Read"
9. Record number on form F-SOP-WAT-03

**FOR PHOSPHATE:**


1. Fill vial to 10 mL mark
2. Turn kit "on"
3. Place vial in kit with diamond facing towards inside/screen
4. Zero (blue button) kit out
5. Remove vial, add packet of phosphate reagent
6. Shake for a few seconds
7. Wait 2 minutes
8. Place vial back in kit with diamond facing inside
9. Press green check mark
10. Record number on form F-SOP-WAT-03

**Reorder information**

HACH Permachem Reagents

Phosphate – PhosVer 3 Phosphate Reagent for 10 mL sample (Cat. 21060-69)

Chlorine – DPD Total Chlorine Reagent for 10 mL sample (Cat. 21056-69)

 <b>Albemarle County Public Schools</b>			<b>Subject: Water Well Sampling and Maintenance Procedures</b>  <b>Filling Chemical Feed Tanks in Well Houses</b>		
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***FILLING CHEMICAL TANKS IN WELL HOUSES:***

Note: Chemical tanks should always be filled 50% or more

**Filling Chlorine Feed Tank**

- Full chlorine feed tank takes 4 “scoops” of A-1 Austin’s Bleach and 3 scoops of soda ash
- Fill the rest of the container with water from the hose
- Stir tank thoroughly
- If override switch was used, make sure the switch is turned off before leaving the well house

**Filling Phosphate Feed Tank**

- Add 1 “scoop” of phosphate (ZPP-9000)
- Fill the rest of the container with water from the hose
- Stir tank thoroughly
- Ensure override is turned off

**Subject: Water Well Sampling and Maintenance Procedures**  
**Well Sampling Results Form**

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**Weekly Chemical Testing / Monitoring - 2009**

Sampling Date(s):

Tester Name:

Parameter	Stony Point	Broadus Wood	Murray	Red Hill	Walton	Yancey	Scottsville
Chlorine							
Phosphate							
pH							
Tank Level - Chlorine/Soda Ash							
Tank Level - Phosphate							
Meter Reading (Weekly)							
Notes							
<b>PM Checklist</b>							
Sight Level Normal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check Valves Normal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tubing Clear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chlorine Needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Virchem Needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soda Ash Needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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