GEORGIA ADOPT-A-STREAM
BACTERIA MONITORING QA/QC TEST KEY

Georgia Adopt-A-Stream
www.GeorgiaAdoptAStream.org

A total of 80 points is required for QA/QC Certification.

1. What are the goals of Adopt-A-Stream? (5 points)
   - *Increase public **A**wareness of the state's nonpoint source pollution and water quality issues*
   - *Collect quality baseline water quality **D**ata*
   - *Gather visual **O**bservations of the volunteer's waterway*
   - *Encourage **P**artnerships between citizens and their local government*
   - *Provide citizens with the **T**ools and **T**raining to evaluate and protect their local waterways*

2. What are bacteria? (6 points)
   Bacteria are single-celled, living microorganisms that are the most abundant life forms on earth, and are found in many different types of environments.

3. Why is it important to test for *E. coli* in our waterways? (6 points)
   The purpose of bacteria monitoring is to quickly assess health risks due to bacterial contamination of surface waters.

4. Name three sources of *E. coli* in our waterways: (6 points)
   Any of the following: animal wastes, livestock, urban storm runoff, leaking pipes, and sewage runoff.

5. A rain event may cause a spike in bacterial results. (True) / False (6 points)

6. Describe the relationship between surface water temperature and *E. coli* levels. (6 points)
   Warmer surface water temperatures tend to have higher E. coli levels compared to cooler surface water temperatures that tend to have lower E. coli levels.

7. How often does AAS Suggest you should monitor *E. coli*? (6 points)
   Once a month

8. What is the purpose of the blank? (6 points)
   The purpose of the blank is to check to see if sampling methods allow for contamination.

9. Describe how you should handle your sample right after collection. (6 points)
   Samples that have been collected must be placed in a cooler with ice immediately after collection.

10. Exposure to UV light will reduce the bacteria levels in your water sample. True / False
6 points)

11. What is the maximum holding time after the sample is collected? (6 points)
All samples must be plated preferably as soon as possible, but no more than 24 hours after collection.

12. How many plates should you run per site (including the field blank)? (6 points)
4 plates (3 sample + 1 blank)

13. *E. coli* must be incubated at 40 degrees Celsius +/- 1 degree for 24 hours +/- 1 hour.
True / False (6 points)

14. When reading the plates, visually what are the signals to identify and count *E. coli* colonies? (6 points)
    a. Colonies are blue, no gas bubbles
    b. Colonies are red with gas bubbles
    c. Colonies are blue with gas bubbles
    d. Colonies are red, no gas bubbles

15. What are the standard reporting units that bacteria are measured in? (6 points)
Cfu (colony forming units)/100mL

16. What is the proper disposal method for used plates? (6 points)
Add appropriate disinfectant (10% solution of bleach, Lysol spray, rubbing alcohol etc.) to the plates. Place the plates in a re-sealable plastic bag. Allow the contents to mix for 5 minutes. Finally, dispose of the bag in the trash.

17. What level of *E. coli* should warrant action for Georgia Adopt-a-Stream volunteers?
(5 points) *Counts that exceed the 1000 cfu /100 ml threshold should warrant special action.*

Identification portion (count the number of *E. coli* colonies): Final count must be within accepted ranges.

18.

3M Petrifilm	**Plate**			**Find AVG # of colonies x 100 to get cfu/100 ml**
	1	**2**	**3**	
E. coli	18-20	16-18	11-13	***1500-1700***

19.

3M Petrifilm	**Plate**			**Find AVG # of colonies x 100 to get cfu/100 ml**
	1	**2**	**3**	
E. coli				***TNTC***

20.

3M Petrifilm	**Plate**			**Find AVG # of colonies x 100 to get cfu/100 ml**
	1	**2**	**3**	
E. coli	3	6-7	4	***433.33-466.66***

21. Plate 1 is the only plate acceptable as a blank.

Note to Trainer: Images are more difficult to read than actual Petrifilm plates. The numbers given above for numbers 18 and 20 are acceptable ranges.