



# Table of Contents

Equipment Checklists.....	2
Water Quality Monitoring.....	2
EASI Hach Test Kit Inventory.....	3
Benthic Macroinvertebrate Survey.....	6
Equipment Maintenance Needs.....	7
Safety & Health Checklist.....	8
Criteria for Site Selection.....	11
Sample Permission Form.....	12
Contact List/Resource List.....	13
Emergency Protocol.....	18
Chemical Waste Disposal.....	21
Care and Cleaning of Test Kits.....	22
Site Map(s) Master Form.....	23
Pennsylvania's 104 Watersheds.....	24
River Mile Index.....	29
Site Identification Number.....	29



# Water Quality Monitoring Equipment Checklist

(not including equipment for benthic macroinvertebrate survey)

- EASI Hach Test Kit
  - Separate inventory sheet checked
  - Disposable vinyl gloves (non-latex)
  - Waterproof boots/shoes
  - Windbreaker (and pants if available)
  - Orange safety vests
  - Towel (for drying equipment and to sit on)
  - Change of clothes and shoes
  - Clipboard
  - Field manual data sheets
  - Painter's masks
  - Pencils/waterproof pens
  - Notebook paper
  - Small towels (hand drying, etc.)
  - Plastic trash bags
  - Camera with film
  - Stopwatch
  - 25 meter rope or tape measure
  - Plastic spoon
  - Small glass jar
  - Flow-measuring bobber/20 meter nylon line
  - Wastewater disposal container (hazardous)
    - Nitrate Test (cadmium)
    - Sulfate Test (barium)
  - Wastewater disposal container (nonhazardous)
  - First aid kit
  - Eyewash bottle
  - Matches
  - Waterless hand wash or hand wipes
  - Meter stick (for depth measurements)
  - Duffle bag
  - Camp table
  - Calculator
  - Extension water sampler/bottle
  - Scissors
  - Matches
- Standard Solutions
    - pH-pH7 Buffer Solution
    - Conductivity - Sodium
    - Chloride Standard Solution
    - Other (List below.)

**Please send suggestions and good ideas to:**

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# EASI Hach Test Kit Inventory

## GENERAL EQUIPMENT

Description	Quantity
Goggles, Safety Clear	4
Thermometer, Pocket	1
Screwdriver, Jeweler's	1
Demineralizer Bottle	1
Rinse Bottle	1

Part #	Description	Quantity
<b>14161-33</b>	<b>NITRATE TEST KIT</b>	
1732-00	Color Comparator Box, Hach Logo	1
14078-99	NitriVer 3 Pwd Plws 5ml (pkg 100)	1
14120-99	NitraVer 6 Pwd Plws 5 ml (pkg 100)	1
14161-88	Instructions, NI-14 Test Kit	1
14171-00	Color Disc, Nitrate Low Range	1
14197-00	Dropper, Glass	1
46600-00	Plastic Color Viewing Tube	2
46600-88	Instructions, Color Viewing Tube	1
46600-10	Color Viewing Tube, cap	1
46601-00	Blue Carrying Case, HC-1	1
26853-00	Instructions, Safety & Disposal	1
	Material Safety Data Sheets	1

<b>24443-33</b>	<b>ALKALINITY TEST KIT</b>	
438-00	Tube, Measuring Plastic 5.83ml	1
942-99	Phenolphthalein Pwd Plws (pkg 100)	1
943-99	Bromocresol Gr-Meth Red Pwd Plws (pkg 100)	1
2327-06	Bottle, MXG Marked	1
23497-32	Sulfuric Acid, 0.035N 100ml MDB	1
24443-89	Instructions, AL-AP MG/L	1
26853-00	Instructions, Safety & Disposal	1
44401-00	Blue Carrying Case, HC-1	1
	Material Safety Data Sheets	1



## EASI Hach Test Kit Inventory *(Continued)*

Part #	Description	Quantity
<b>1469-33</b>	<b>DISSOLVED OXYGEN TEST KIT</b>	
438-00	Tube, Measuring Plastic 5.83ml	1
439-06	Bottle, Sq Glass 29ml	1
968-00	Clippers for medium powder pillows	1
981-99	Dissolved Oxygen 1 Pwd Plws (pkg 100)	1
982-99	Dissolved Oxygen 2 Pwd Plws (pkg 100)	1
987-99	Dissolved Oxygen 3 Pwd Plws (pkg 100)	1
1469-88	Instructions, OX-2P Test Kit	1
1909-02	Bottle, BOD 60ml w/30ml Line	1
5994-35	Plastic Molded Insert	1
24089-32	Sodium Thiosulfate Std, 0.0109N	1
26853-00	Instructions, Safety & Disposal Ea	1
	Blue Carrying Case, HC-3	1
	Material Safety Data Sheets	1
<b>2250-01</b>	<b>TOTAL PHOSPHATE TEST KIT, PO-24</b>	
272-42	Water, Deionized (Demineralized)	2
439-00	Bottle, Sq Glass 29ml	1
505-01	Flask, Erlenmeyer 50ml	1
634-00	Clamp, Test Tube	1
1046-33	Filtration Aid Soln 29ml DB	1
1083-67	Funnel, Analytical pp 65mm	1
1730-00	Glass Tube, Color Viewing 5ml Mark	2
1731-00	Stopper, Blue	2
1732-00	Color Comparator Box, Hach Logo	1
1894-57	Filter Paper, Fold 12.5cm (pkg 100)	1
2125-49	Phosver 3 Phosphate Rgt Pwd Plws (pkg 50)	1
2250-35	Plastic Molded Insert	1
2250-38	Instructions, PO-24 Test Kit	1
2327-00	Bottle, MXG Marked	1
2414-00	Cylinder, holder for dropper	1
2449-32	Sulfuric Acid 5.25N 100ml MDB	1
2450-32	Sodium Hydroxide 5.0N 100ml MDB	1
2451-99	Potassium Persulfate Pwd Plws (pkg 100)	1
14197-00	Dropper, Glass	1
24122-01	Long Path Viewing Adaptor	1
46605-00	Blue Carrying Case	1
	Material Safety Data Sheets	1



## EASI Hach Test Kit Inventory *(Continued)*

Part #	Description	Quantity
<b>2251-0</b>	<b>SULFATE TEST KIT</b>	
12065-66	SulfaVer 4 Pwd Plws (pkg 50)	1
46814-00	Dipstick, Sulfate Measure	1
24102-01	Sample Cell	1
24102-02	Sample Cell Cover	1
2172-40	Cylinder, Graduated, Polymethylpentene	1
	Instructions, SF-1 Test Kit	1
	Material Safety Data Sheets	1
<b>44400-00</b>	<b>CONDUCTIVITY METER</b>	
26866-01	Pocket Pal Conductivity Tester	1
14400-53	Calibration Standard (Sodium Chloride, 1.0L)	1
	Material Safety Data Sheets	1
<b>44350-33</b>	<b>pH METER</b>	
44350-01	Pocket Pal pH Tester	1
22270-66	Buffer Pwd Plws (pH 7.00)	1
	Material Safety Data Sheets	1



# **Benthic Macroinvertebrate Survey Equipment Checklist**

For Semi-annual Monitoring - use with Water Quality Monitoring Equipment Checklist

- All Equipment on Water Quality Monitoring Checklist
- Kick Net
- White dishpan or other shallow white tray
- Containers for sorting (i.e. ice cube trays)
- Tweezers, soft paint brush, and/or turkey baster
- Magnifying lens or box
- Fishing License
- Soft bristle brush (to scrub macroinvertebrates off rocks)
- BioSurvey Field Data Sheets and ID sheets



# Equipment Maintenance Needs

(Submit to your PaSEC equipment manager.)

Equipment Name \_\_\_\_\_

What's wrong with it? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Replacement? \_\_\_\_\_

Volunteer Name \_\_\_\_\_

Volunteer ID # \_\_\_\_\_ Date \_\_\_\_\_

(Master Sheet - make duplicates for submission)



## Safety and Health Checklist

EASI is pleased that you have decided to be a member of the Pennsylvania Senior Environment Corps and a volunteer water quality monitor. Your safety and health are of number-one importance, particularly when you are working outside. There are several important things to remember when you are monitoring at a stream or other body of water. If you follow these “rules of the river,” you will have a fun, enjoyable and accident-free experience!

### BEFORE VISITING YOUR SITE:

- Always monitor with at least one partner. Teams of three or four are preferred.
- Always let someone else know where you are, when you intend to return, and what to do if you don't come back at the appointed time.
- Carry the phone number and location of the nearest medical center to your monitoring site and the location of a pay phone should you need to call for help.
- Carry the phone number of your program coordinator and others you may need to contact.
- Listen to weather reports. **DO NOT** go sampling if severe weather is predicted (lightning, flooding, ice, etc.); stop monitoring if a storm occurs while you are at the site.
- Carry a list of any important medical conditions of team members (*e.g.*, heart conditions or allergic reactions to bee stings) and emergency responses needed.
- Carry a First Aid Kit and be sure to check the contents before leaving to monitor.
- Some of the chemicals in the test kits are poisonous if ingested. Carry the number of the local poison control center.
- Carry a booklet or laminated card with emergency phone numbers.

### RULES TO MONITOR BY:

- Never wade in swift or high water.
- DO NOT** monitor if the stream is at flood stage.
- If you drive, park in a safe location. Be sure your car doesn't pose a hazard to other drivers and that you don't block traffic.
- Put your wallet and keys in a safe place. If wading in the stream place them in a watertight bag you keep strapped to your waist or they might end up downstream.
- Never cross private property without the permission of the landowner.
- Confirm that you are at the proper site location by checking maps, site descriptions, or directions.





## Safety and Health Checklist *(Continued)*

**If you observe any of the following at your sampling station - STOP! - do not monitor.**

Call your PA DEP Regional Office (phone numbers in section titled Emergency Protocol) or 1-800-541-2050.

**STOP!** If you observe closed or leaking drums in the stream or on the stream bank.

**STOP!** If you observe an oil sheen on the water.

**STOP!** If you observe a large quantity of dead fish or other organisms.

**STOP!** If you observe a pipe discharging some odd looking/smelling substance into the stream.

**Do not monitor** if stream site is posted as unsafe for body contact.

- During monitoring, keep your hands away from eye and mouth areas.
- Always wash your hands thoroughly with soap and water after monitoring.
- Never eat after monitoring without first washing your hands.
- When monitoring at a potentially polluted site or near a wastewater treatment plant, a painter's mask should be worn to protect against aerosols (windborne contaminants).
- Watch for poison ivy, poison oak, sumac, and other types of vegetation that can cause rashes and irritation.
- Watch for irate dogs, wildlife (particularly snakes), ticks, and insects that may sting.
- Know what to do if you or your team members get bitten or stung.
- Never drink the water from the stream.
- Do not walk on unstable stream banks that may collapse.

**Be very careful when walking in the stream.** Rocky-bottom streams can be very slippery and can contain deep pools; muddy-bottom streams might also prove treacherous in areas where mud, silt, or sand has accumulated in sinkholes.

**If you must cross the stream:**

- Use a walking stick to steady yourself and probe for deep water or muck.
- A partner should wait on dry land ready to assist in case of an accident.
- Do not cross streams that are swift and above the knee in depth.
- Wear waders and rubber gloves in streams suspected of having significant pollution problems.



## Safety and Health Checklist *(Continued)*

### If sampling from a bridge:

- Be wary of passing traffic.
- Never lean over bridge rails unless you are firmly anchored to the ground or the bridge with good hand and foot holds.

**STOP! If at any time you feel uncomfortable about the condition of the stream or your surroundings, stop monitoring and leave the site at once. Your safety is more important than the data!!**

### CHEMICAL KIT SAFETY

- It is very important when working with chemicals to know the proper handling techniques and possible hazards. Even though the chemicals in the kits are used in very small amounts and are for the most part considered non-hazardous they still can be potentially harmful to you and/or the environment. Following the guidelines below will ensure your safety and well being.
- Know your equipment, sampling instructions, and procedures before going out into the field. Enclosed in each test kit and in this manual is a Material Safety Data Sheet (MSDS) for each of the chemicals. These sheets are provided by the chemical company and contain very specific information on the chemical and the proper first aid if someone ingests the chemical, or if it comes in contact with someone's eyes or skin.
- Read the MSDS sheet for each chemical that you will be handling to familiarize yourself with the potential hazards. Know where your MSDS sheets are located when monitoring in the field.
- Keep all equipment and chemicals away from small children.
- Avoid contact between chemical reagents and skin, eyes, nose, and mouth.
- Wash hands directly after doing the chemical tests and before eating.
- Never use your fingers to stopper a sample bottle (*e.g.*, when you are shaking a solution).
- Wear goggles when handling chemicals.
- Know chemical cleanup and disposal procedures. Wipe up all spills when they occur.
- Close all containers tightly after use. Do not switch caps.
- Do not expose chemicals or equipment to temperature extremes or long-term direct sunshine.



## Criteria for selecting a monitoring site:

There are many different reasons for selecting certain stream sites, such as proximity to volunteer homes, accessibility, or location in potential problem areas. Teachers and students may monitor streams for educational purposes or local community groups may want to determine whether a particular land use activity is, in fact, having an impact on stream health. There are a few guidelines you should follow in selecting sites:

1. The land must be easily accessible. There should be a safe place to park your car. The path to the stream should not be too long or over very rough terrain. If the land is privately owned, written permission from the landowner must be obtained (see the sample permission form).
2. The area around the stream site should be free of obvious hazards. Avoid areas with steep banks, heavily undercut banks, obvious heavy pollution, or other potential hazards.
3. Do not monitor at sites near fragile ecosystems (*e.g.*, wetlands) that you would have to tramp through to get to the stream. You may end up doing more harm to the ecosystem than good to the stream.
4. For providing baseline data to characterize a stream or screen for problems, you might want to monitor a number of sites representing a range of conditions in the stream's watershed. For example, you might choose a site above the problem area where the stream is "unimpaired," a site at the problem area, and a site below the problem area.
5. Check to see if the area is already being monitored. There are many volunteer organizations and school groups throughout the state performing monitoring. You may be able to partner with existing organizations.
6. Get assistance from DEP's Citizens' Volunteer Monitoring Program to develop a "Study Design" for the potential monitoring site.

**For those sites that are chosen, the key to successful monitoring will be consistent, regular monitoring over time.**



### SAMPLE PERMISSION FORM

#### Water Quality Monitoring Authorization

I, [property owner]\_\_\_\_\_ do hereby authorize and agree to permit [volunteer monitor] \_\_\_\_\_ to enter my property for the purpose of conducting a water monitoring program on [specific waterway]\_\_\_\_\_ accessible from my property beginning [specific date]\_\_\_\_\_ .

This permission is to be renewed on an annual basis and allows the above-named individual or his/her designee(s) to carry out monthly/semiannual/annual water quality tests while exercising due diligence in protecting my property and personal safety and health. The below-named individual and his/her designees agree to hold me harmless against any liability for injury suffered in the carrying out of this water quality monitoring on my property.

\_\_\_\_\_ Property Owner Signature \_\_\_\_\_ Date

\_\_\_\_\_ Volunteer Signature \_\_\_\_\_ Date

\_\_\_\_\_ Property Owner Name (Printed)

\_\_\_\_\_ Volunteer Name (Printed)



## Contact/Resource List

### **Adams County PaSEC**

Linda Thompson, Supervisor  
318 West Middle Street  
Gettysburg, PA 17325  
PH: (717) 334-9296; FAX: (717) 334-4715  
Email: lthomp@acofa.org

### **Allegheny County – Vintage PaSEC**

Marilyn Crouch-Kraitchman, Supervisor  
401 Highland Avenue  
Pittsburgh, PA 15206  
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### **Benthic Invertebrate Help**

(See contact information for Dana Walker)

### **Blair County PaSEC**

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EASI Program Coordinator  
1320 12<sup>th</sup> Avenue  
Altoona, PA 16601  
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E-mail: bssinc@nb.net

### **Capital Region PaSEC**

Carol A. Oman, Executive Director  
5301 Jonestown Road  
Harrisburg, PA 17112  
PH: (717) 541-9521; FAX: (717) 541-8466  
E-mail: rsvp@paonline.com

### **Center In The Park PaSEC**

Lynn Harris  
5818 Germantown Avenue  
Philadelphia, PA 19144  
PH: (215) 848-7722; FAX: (215) 848-0979  
E-mail: sec@centerinthepark.org

### **Centre County PaSEC**

Bonnie Wick  
420 Holmes Street  
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PH: (814) 355-6816; FAX: (814) 355-6757  
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### **Chester County PaSEC**

Leslie Stauffer  
Mailing: RSVP  
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### **Clarion County PaSEC**

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### **Clearfield County PaSEC**

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### **Crawford County PaSEC (French Creek Project)**

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**Database Help**

(See contact information for Peggy Knight or Melinda Hughes)

**Delaware County PaSEC**

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**Eastwick PAC PaSEC**

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Eastwick Area Project Committee  
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**Environmental Alliance for Senior Involvement (EASI)**

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**Hach Company (Technical Support)**

(800) 227-4224

**How to Train Help**

(see contact information for Florinda Mendelhsen)

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**Lycoming-Clinton County PaSEC**

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**Juniata Valley PaSEC**

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**Mendelsohn, Florinda "Lindy"**

PA DEP  
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**Monongahela River PaSEC**

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**Monroe County PaSEC**

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**Montgomery County PaSEC**

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**PA DEP's Citizens' Volunteer  
Monitoring Program (CVMP)**

(See contact information for Cheryl Snyder  
and Diane Wilson)

**PA DEP Northwest Regional Office**

230 Chestnut Street  
Meadville, PA 16335  
PH: (814) 332-6942  
Counties: Butler, Clarion, Crawford, Elk,  
Erie, Forest, Jefferson, Lawrence,  
McKean, Mercer, Venango, Warren

**PA DEP Southwest Regional Office**

400 Waterfront Drive  
Pittsburgh, PA 15222-4745  
PH: (412) 442-4000  
Counties: Allegheny, Armstrong, Beaver,  
Cambria, Fayette, Greene, Indiana,  
Somerset, Washington, Westmoreland

**PA DEP Southcentral Regional Office**

909 Elmerton Avenue  
Harrisburg, PA 17110  
PH: (717) 705-4707  
Counties: Adams, Bedford, Berks, Blair,  
Cumberland, Dauphin, Franklin, Fulton,  
Huntingdon, Juniata, Lancaster,  
Lebanon, Mifflin, Perry, York

**PA DEP Northeast Regional Office**

2 Public Square  
Wilkes-Barre, PA 18711-0790  
PH: (570) 826-2511  
Counties: Carbon, Lackawanna, Lehigh,  
Luzerne, Monroe, Northampton, Pike,  
Schuylkill, Susquehanna, Wayne,  
Wyoming

**PA DEP Southeast Regional Office**

Suite 6010, Lee Park  
555 North Lane  
Conshohocken, PA 19428  
PH: (610) 832-6130  
Counties: Bucks, Chester, Delaware,  
Montgomery, Philadelphia

**PA DEP Northcentral Regional Office**

208 West 3<sup>rd</sup> Street - Suite 101  
Williamsport, PA 17701  
PH: (570) 327-3636  
Counties: Bradford, Cameron, Centre,  
Clearfield, Clinton, Columbia,  
Lycoming, Montour, Northumberland,  
Potter, Snyder, Sullivan, Tioga, Union

**Rider, Glenn, Chief**

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**Schuylkill Center for  
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(See contact information for Dana Walker)

**Schuylkill County PaSEC**

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**Snyder, Cheryl**

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E-mail: chesnyder@state.pa.us

**Stream Assessment Help**

(See contact information for Dana Walker)

**Supplies/Equipment**

(See contact information for Melinda  
Hughes)

**Test Kit Help**

(See contact info for Dana Walker)  
or Hach Company (800) 227-4224

**Union-Snyder Counties PaSEC**

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# Emergency Protocol

From time to time water quality monitors may come upon situations that may require immediate action.

**STOP! If you observe any of the following at your sampling station:**

1. Closed or leaking drums in the stream or on the stream bank
2. An oil sheen on the water.
3. A large quantity of dead fish.
4. A pipe discharging some odd looking/smelling substance into the stream.

**STOP! Do not sample or allow water to come in contact with your skin!**

**STOP and call your Pennsylvania DEP Regional Office or the DEP Main Emergency Number at 1-800-541-2050.** You should have your camera with you for use in photo documenting your observations. Following is the listing of regions, counties and call-in numbers for you to use if necessary.

**Northwest Regional Office PA DEP (814) 332-6942**

230 Chestnut Street

Meadville, PA 16335

Counties: Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango, Warren

**Southwest Regional Office PA DEP (412) 442-4000**

400 Waterfront Drive

Pittsburgh, PA 15222-4745

Counties: Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington, Westmoreland

**Southcentral Regional Office PA DEP (717) 705-4707**

909 Elmerton Avenue

Harrisburg, PA 17110

Counties: Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, York



## **Emergency/Unusual Reading Protocol**

### **Northeast Regional Office PA DEP (570) 826-2511**

2 Public Square

Wilkes-Barre, PA 18711-0790

Counties: Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne, Wyoming

### **Southeast Regional Office PA DEP (610) 832-6130**

Lee Park

555 North Lane, Suite 6010

Conshohocken, PA 19428

Counties: Bucks, Chester, Delaware, Montgomery, Philadelphia

### **Northcentral Regional Office PA DEP (570) 327-3636**

208 West 3rd Street, Suite 101

Williamsport, PA 17701

Counties: Bradford, Cameron, Centre, Clearfield, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga, Union



# Unusual Reading Protocol

**If any of your chemical tests produce unusual readings proceed as follows:**

1. Repeat the test.
2. Repeat the test.

**At least 2 of the 3 tests should produce similar readings. If that reading is abnormal, proceed as follows:**

1. Bracket the extent of any potential abnormal conditions by taking readings at designated upstream and downstream locations.

If you do not have designated upstream and downstream locations that have been checked for safety and accessibility, DO NOT bracket the test site.

2. Report your results to your Web Host and inform them of your interpretation of the abnormal reading. The Web Host should e-mail a notification to EASI at [easi@easi.org](mailto:easi@easi.org).



# Chemical Waste Disposal

## **Environmentally Sound Monitoring**

When you are using the chemical test kit to monitor water quality, you are using chemicals that are not already present in the water, and these chemicals must be handled properly to avoid causing pollution. Here are the steps to follow to be an “environmentally sound water quality monitor.”

## **Reacted Sample Waste (what’s in your test tubes when you finish!)**

Two types of waste are generated during chemical analyses: nonhazardous and hazardous. These two types of waste must be separated for proper disposal. All wastes from the dissolved oxygen, total phosphate, total alkalinity, and the calibration standards from the pH and conductivity meters are classified as nonhazardous.

The nitrate test that employs the cadmium reduction method generates small amounts of cadmium, a heavy metal. The sulfate test generates small amounts of barium. The waste from these two chemical tests should be treated as hazardous due to the cadmium and barium in the solution.

**Disposing of Nonhazardous Wastes.** There are two options for disposal:

1. For disposal in a sink: Bring an empty plastic or glass container to your site and use it to collect all wastes from the dissolved oxygen, total phosphate, total alkalinity, and the calibration standards from the pH and conductivity meters. Take the container of waste and dispose in a sink. Be sure to run plenty of water while disposing and for a few minutes after dumping to dilute the chemicals and prevent corrosion of pipes.
2. For disposal in a trash receptacle: Collect the wastes in a container (an old coffee can works well) filled with an absorbent material like kitty litter. The kitty litter will absorb the water and bind the waste. This container should be tightly covered and may be placed in a trash receptacle as long as there is not free-flowing liquid remaining.

## **Disposing of Hazardous Wastes**

Wastes from the nitrate and sulfate tests are classified as hazardous by the US EPA and should be collected separately in containers such as wide-mouthed plastic bottles that are clearly marked as “Toxic Waste-Nitrate Test-Cadmium” and “Toxic Waste-Sulfate Test-Barium.” Remember to keep wastes from the nitrate and sulfate tests in separate containers! The wastes can be concentrated by evaporation (in a safe place, out of reach of children). The wastes should be kept in the marked container for proper disposal at a later date.



# Care and Cleaning of Test Kits

## General Cleaning

All labware (mixing bottles, syringes, sample tubes, etc.) should be washed after each use. Any residual contamination may alter test results. The cleaning method below applies to all test kits and supplies except the Total Phosphate Test Kit and the Nitrate Test Kit (see Acid Wash Procedure below).

1. Clean with a nonabrasive detergent (phosphate-free) or a solvent such as isopropyl rubbing alcohol. Use a brush to clean all surfaces.
2. Rinse three times with cold tap water.
3. Rinse three times with distilled or deionized water.
4. Use a soft cloth (cheesecloth works well) for drying or allow to air dry. Never use papertowels or tissues as they may scratch.

## Acid Wash Procedure

This method applies to cleaning labware for the Total Phosphate and Nitrate Test Kits. Always wear protective gloves and eyewear.

1. Wash each sample bottle or piece of glassware with a brush and phosphate-free detergent.
2. Rinse three times with cold tap water.
3. Rinse with 10 percent hydrochloric acid.
4. Rinse three times with deionized water.
5. Use a soft cloth (cheesecloth works well) for drying or allow to air dry. Never use paper towels or tissues as they may scratch.

## Care of the Pocket Pal pH Tester and Conductivity Tester

After each use of the pH tester, it is necessary to place several drops of the pH 7.0 buffer solution in the protective cap in order to prolong the life of the tester and to provide a faster response time. Conductivity testers should be stored dry. After use, make sure to ALWAYS turn the pH and Conductivity Testers OFF!

## Cleaning Supplies List

Detergent - phosphate-free and nonabrasive  
Soft Cloths - cheesecloth works well  
Cleaning Brushes - various shapes and sizes  
10% Hydrochloric Acid  
Red Acid Wash Safety Bottle  
Deionized Water



# Site Map Master Form

Sketch below the outlines of your monitoring site and any unusual and/or manmade characteristics and/or landmarks.

N

S

W

E

Waterway Name \_\_\_\_\_

Site Name \_\_\_\_\_

Site ID # \_\_\_\_\_

**(Use this sheet as a master copy for all your site maps)**



# Choose Your Watershed (obtained from the Pa DEP website)

To select a Watershed Notebook by using the map, start by selecting its major basin below (point and click). Then click on the watershed you want. Viewing county names can help you locate the right one.

If you know the State Water Plan name or number for your watershed, you can use the list below the map.



### *Watershed List*

These State Water Plan watersheds are named for their major streams. (The names are underlined.) In some cases, additional stream names are given to help you select the right area.

#### **Delaware Basin**

##### **Upper Delaware Subbasin**

- [01A, Shehawken - Rattlesnake Creeks](#), Equinunk and Calkins Creeks
- [01B, Lackawaxen River](#)
- [01C, Wallenpaupack Creek](#)
- [01D, Shohola - Bushkill Creeks](#)
- [01E, Brodhead Creek](#), Cherry Creek
- [01F, Jacoby - Bushkill Creeks](#), Oughoughton and Martins Creeks



**Central Delaware Subbasin**

- [02A, Upper Lehigh River](#), Tobyhanna Creek
- [02B, Middle Lehigh River](#), Pohopoco and Aquashicola Creeks
- [02C, Lower Lehigh River](#), Jordon, Lehigh and Saucon Creeks
- [02D, Cooks - Tohickon Creeks](#)
- [02E, Pidcock - Mill Creeks](#), Common Creek
- [02F, Neshaminy Creek](#)

**Lower Delaware Subbasin**

- [03A, Upper Schuylkill River](#), West Branch Schuylkill River
- [03B, Maiden Creek](#), Irish Creek
- [03C, Tulpehocken Creek](#), Antietam and Allegheny Creeks
- [03D, Manatawny - French Creeks](#), Monocacy Creek
- [03E, Perkiomen Creek](#)
- [03F, Lower Schuylkill River](#), Wissahickon Creek
- [03G, Darby - Crum Creeks](#), Ridley and Chester Creeks
- [03H, Brandywine Creek](#)
- [03I, White Clay Creek](#), Red Clay Creek
- [03J, Poquessing - Pennypack Creeks](#)

**Susquehanna/Chesapeake Basin****Upper Susquehanna Subbasin**

- [04A, Tioga - Cowanesque Rivers](#)
- [04B, Wappasening Creek - Chemung River](#), Bentley Creek
- [04C, Sugar - Towanda Creeks](#)
- [04D, Wysox - Wyalusing Creeks](#)
- [04E, Great Bend Susquehanna River](#), Snake and Starrucca Creeks
- [04F, Tunkhannock Creek](#)
- [04G, Mehoopany - Bowman Creeks](#), Meshoppen Creek

**Upper Central Susquehanna Subbasin**

- [05A, Lackawanna River](#)
- [05B, Toby - Wapwallopen Creeks](#), Harvey Creek
- [05C, Fishing Creek](#)
- [05D, Nescopeck Creek](#), Briar Creek
- [05E, Catawissa - Roaring Creeks](#)

**Lower Central Susquehanna Subbasin**

- [06A, Penns - Middle Creeks](#)
- [06B, Mahanoy - Shamokin Creeks](#)
- [06C, Mahantango - Wiconisco Creeks](#), Powell Creek

**Lower Susquehanna Subbasin**

- [07A, Sherman Creek](#), Little Juniata Creek
- [07B, Conodoguinet Creek](#)
- [07C, Clark - Paxton Creeks](#), Stony Creek
- [07D, Swatara Creek](#)
- [07E, Yellow Breeches Creek](#), Fishing Creek
- [07F, Conewago Creek](#) (west of the Susquehanna River)
- [07G, Chickies Creek](#), Conewago Creek (east of the Susquehanna River)
- [07H, Codorus Creek](#)
- [07I, Kreutz - Muddy Creeks](#)
- [07J, Conestoga River](#)
- [07K, Pequea - Octorara Creeks](#), Conowingo Creek, headwaters of the Elk and Northeast Rivers

**Upper West Branch Susquehanna Subbasin**

- [08A, Sinnemahoning Creek](#)
- [08B, Chest - Anderson Creeks](#)
- [08C, Clearfield Creek](#), Trout Run
- [08D, Moshannon - Mosquito Creeks](#)

**Central West Branch Susquehanna Subbasin**

- [09A, Pine Creek](#)
- [09B, Kettle - McElhattan Creeks](#), Young Womans Creek
- [09C, Bald Eagle Creek](#)

**Lower West Branch Susquehanna Subbasin**

- [10A, Antes - Lycoming Creeks](#), Larrys Creek
- [10B, Loyalsock Creek](#), Millers Run
- [10C, White Deer - Buffalo Creeks](#)
- [10D, Muncy - Chillisquaque Creeks](#)

**Upper Juniata Subbasin**

- [11A, Frankstown Branch - Little Juniata Rivers](#)
- [11B, Crooked - Standing Stone Creeks](#), Shaver Creek
- [11C, Dunning Creek](#), Brush Creek
- [11D, Raystown Branch Juniata River](#), Lake Raystown

**Lower Juniata Subbasin**

- [12A, Kishacoquillas - Jacks Creeks](#), Licking and Lost Creeks
- [12B, Tuscarora - Buffalo Creeks](#), Cocolamus Creek
- [12C, Aughwick Creek](#), Mill Creek

**Potomac Basin and Subbasin**

- [13A, Wills - Town Creeks](#), Evitts Creek
- [13B, Licking - Tonoloway Creeks](#), Sideling Hill Creek
- [13C, Conococheague - Antietam Creeks](#)
- [13D, Marsh - Rock Creeks](#), Toms Creek

**Genesee Basin and Subbasin**

- [14, Genesee River](#)

**Lake Erie Basin and Subbasin**

- [15, Lake Erie](#), Walnut, Elk and Conneaut Creeks

**Ohio Basin****Upper Allegheny Subbasin**

- [16A, Upper French Creek](#), Conneauttee and Woodcock Creeks
- [16B, Kinzua - Brokenstraw Creeks](#), Conewango Creek
- [16C, Potato - Oswayo Creeks](#), Tunungwant Creek
- [16D, Lower French Creek](#), Sugar and Cussewago Creeks
- [16E, Oil Creek](#), Pithole and Hemlock Creeks
- [16F, Tionesta Creek](#), Hickory Creek
- [16G, Sandy Creek](#), Scrubgrass and East Sandy Creeks

**Central Allegheny Subbasin**

- [17A, Upper Clarion River](#), Toby and Spring Creeks
- [17B, Lower Clarion River](#), Piney, Mill and Deer Creeks
- [17C, Redbank Creek](#), Bear and Sandy Lick Creeks, North Fork
- [17D, Mahoning Creek](#), Mast Run
- [17E, Cowanshannock - Crooked Creeks](#), Glade Run

**Lower Allegheny Subbasin**

- [18A, Lower Allegheny River](#), Deer, Pine and Pucketa Creeks
- [18B, Kiskiminetas River](#), Beaver Run
- [18C, Loyalhanna Creek](#), Blacklegs Creek, Conemaugh River Reservoir
- [18D, Conemaugh River-Blacklick Creek](#), Two Lick Creek



- [18E, Stonycreek River](#), upper and South Fork Conemaugh River
- [18F, Buffalo Creek](#), Knapp and Hill Runs

### **Monongahela Subbasin**

- [19A, Turtle Creek](#), lower Monongahela River
- [19B, Tenmile Creek](#), Muddy Run
- [19C, Middle Monongahela River](#), Redstone and Peters Creeks
- [19D, Lower Youghiogheny River](#), Sewickley and Jacobs Creeks
- [19E, Upper Youghiogheny River](#), Indian and Laurel Hill Creeks, Hall Run
- [19F, Casselman River](#), Braddock Run
- [19G, Upper Monongahela River](#), Whitely, Dunkard, and Big Sandy Creeks

### **Ohio Subbasin**

- [20A, Shenango River](#), Neshannock Creek
- [20B, Beaver River](#), Mahoning River, Little Beaver Creek
- [20C, Slippery Rock Creek](#), Connoquenessing Creek
- [20D, Raccoon Creek](#), Cross and Kings Creeks
- [20E, Wheeling-Buffalo Creeks](#), Enlow Fork, Pennsylvania Fork Fish Creek
- [20F, Chartiers Creek](#), Saw Mill Run
- [20G, Upper Ohio River](#), Sewickley Creek, Montour Run



## River Mile Index

To determine River Mile Index for your sampling site, you will need a Topographic Map (7.5 Minute Quadrangle) for your area. These maps are available from many sporting goods stores. They can also be ordered by calling 1-800-USA-MAPS.

1. Locate your sampling location on the map and mark it.
2. Find the mouth of your stream. This is the point where your stream flows into another stream.
3. Using a string and ruler or “map wheel”, measure the distance UPSTREAM from the mouth of your stream to your sampling location by following the configuration of the stream.
4. Once you have this measurement in inches, you can convert it to feet by multiplying by 2000 (inches on map x 2000 = feet).
5. Now convert to miles by dividing the number of feet by 5280.
6. Record the distance in miles to the hundredth of a mile. This is your RIVER MILE INDEX!

## Site ID Number

The database automatically generates a unique ID number for each monitoring site using the Stream Code (5 digits), the River Mile Index (4 digits), and the date of the initial monitoring event (year – 4 digits, month – 2 digits, day – 2 digits). (Please see Training Manual, Session 3: Physical Assessment.)