

## Responsibilities of Volunteer Groups

Each volunteer group selected for the River Watch program agrees to the following:

1. Complete a MOU (page 145) between January and May every calendar year to be eligible for River Watch the next year. In July of each new contract year, you can download a new sample plan and/or new datasheets from <http://www.coloradoriverwatch.org>.
2. Attend an initial training sponsored by River Watch. These trainings are generally held in August and October annually. Participants may also receive re-certification or graduate credit hours for attending. River Watch pays most of the workshop, but a registration fee is required. Scholarships are available for up to 50% of the costs for groups who demonstrate a need for assistance.
3. Take the time to learn proper sampling techniques along with the value and function of a river ecosystem.  
Provide River Watch staff with participant contact information (page 140). If your information changes, please provide River Watch staff current information as soon as possible.
4. Collect metal (filtered and non-filtered and field water quality samples and analyze (temperature, dissolved oxygen, pH, alkalinity and hardness) for at least one station approximately once a month for one contract year (July through June). (*Performance Criteria*)
5. Collect and ship nutrient samples for at least one station twice a year 9 (Mon-Wed only. DO NOT ship nutrients on Thur-Sat; they will get warm), high and low flow, or as directed by River Watch Staff. (*Performance Criteria*)
6. Collect 1 blank and 1 duplicate metal sample per station in every fifth sampling event (two per contract year, per station).
7. If provided equipment and notified, collect one macroinvertebrate sample and conduct a physical habitat assessment on one station/stream reach per year, preferably in the fall. Ship macroinvertebrate sample and physical habitat datasheet with chain of custody within 14 days of collection.
8. Ship metals a minimum of every other month, deliver or exchange metals (w/chain of custody) with complete and accurate datasheets and chain of custody form. (*Performance Criteria*)
9. Record data on provided datasheets. Maintain a copy of datasheets; send original hard copies with samples and enter data electronically at a minimum of quarterly via the River Watch Website, [www.coloradoriverwach.org](http://www.coloradoriverwach.org). (*Performance Criteria*)
10. Monitor and record volunteer time on field data sheet and documented expenditures and send regularly with your metals samples. This information can also be recorded and sent to River Watch quarterly on the Volunteer Time Sheet, use either form just track your time. Enter volunteer time in CPW's volunteer database and earn rewards. (*Performance Criteria*)
11. Participate in a site visit or site call when scheduled by River Watch staff within the contract year. (*Performance Criteria*)
12. Complete two sets of unknown samples provided by River Watch (either mailed or received during a site visit), one in the fall and one in the spring, within contract year. (*Performance Criteria*)
13. Notify River Watch if your group cannot complete all or a portion of criteria listed here as soon as practical via email, phone or hardship form and address performance issues. (*Performance Criteria*)

14. Ensure all water quality equipment and supplies are used safely, kept in good working order, and secured when not in use. Access performance report and QA/QC data and respond to performance issues.
15. Carry out all sampling and analysis procedures in a safe manner, consistent with provided lab and field protocols, and in accordance with the RW Health and Safety Plan or your own organizations.
16. Notify River Watch Staff if leaving program, commit to returning equipment and/or finding and training a replacement if possible, if not encourage that replacement to get trained. Once trained by RW Staff, sponsor is responsible for training your set of volunteers.

## Sample Schedule

July	Aug	Sept	Oct	Nov	Dec
Contract begins  Field/metal sample	Field/metal sample  Bug/Phys*	Field/metal sample  NUT** Bug/Phys*	Field/metal sample  NUT** Bug/Phys* SV*** UNK*****	Field/metal sample  NUT** SV*** UNK*****	Field/metal sample  NUT** SV*** UNK*****
Jan	Feb	March	April	May	June
Field/metal sample  SV*** UNK*****	Field/metal sample  SV*** UNK*****	Field/metal sample  NUT** UNK*****	Field/metal sample  NUT**	Field/metal sample  NUT**	Field/metal sample

**Bug/Phys\*** - macroinvertebrate samples and physical assessment to be collected ONCE during this time frame (July 15<sup>th</sup> to Nov 30<sup>th</sup>)

**NUT\*\*** - nutrients should be sampled twice a year – once during high flow (usually April through July) and once during low flow (usually October through January) as instructed by RW staff

**SV\*\*\* - site visit season – participants will be visited ONCE per year to be coordinated with RW staff**

**UNK\*\*\*\* - unknowns – participants will be given unknown QA/QC samples for analysis, either through mail or site visit, 2 unknowns per year as directed by RW staff.**



## RW Participant Contact Information

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Lead person

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School/Organization

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Shipping/Street address (for shipping via UPS) **REQUIRED**

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P.O. Box

---

City, State, Zip

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Phone number

Fax number

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E-mail address **REQUIRED**

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What is the best time to call you?

### Alternative/Summer/Home contact information

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Home mailing address (if PO Box provide street for UPS shipping too) **REQUIRED**

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City, State, Zip

---

Home number

Home email address

### Shipping Address preference

Which address listed above do you prefer to use as a shipping address? Circle One:

*School/Organization*

*Alternative / Home*

### Change of address

If your address or mailing preference changes, please send the change to River Watch staff.

Participants, please record all your time spent in the preparation, sampling, analysis and recording/shipping of River Watch samples on this form. Submit this information monthly/quarterly to River Watch. Include all mileage and in-kind donations (equipment, other funding sources and other special events related to River Watch). Thanks!

## Volunteer Time Sheet

### Colorado River Watch Volunteer

**Name:** \_\_\_\_\_  
**Organization:** \_\_\_\_\_  
**Date:** \_\_\_\_\_

**work phone:** \_\_\_\_\_  
**home phone:** \_\_\_\_\_  
**email:** \_\_\_\_\_

#### Additional Donations

**Mileage:** \_\_\_\_\_ **Gas:** \_\_\_\_\_  
**Equipment:** \_\_\_\_\_ **Mailing:** \_\_\_\_\_  
**Other:** \_\_\_\_\_

#### Comment:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Name	Quarter				Hours	Total
	Jan-March	Apr-June	July-Sept	Oct-Dec	Hours	Total
Adult(s)						
Youth(s)						
Parent(s)/Citizen(s)Other(s)						

# Memorandum of Understanding for CO River Watch Volunteer Colorado Parks and Wildlife (CPW), River Science

And

\_\_\_\_\_ School/Group enter into an agreement for participation in the  
Colorado River Watch Program for the time period of:

\_\_\_\_/\_\_\_\_/\_\_\_\_ to \_\_\_\_/\_\_\_\_/\_\_\_\_

Final participation will be determined annually by available resources, importance of data, and past performance based upon following criteria. Accepted participants will hereby receive products and services listed on List A, page 2.

In exchange for products and services on List A, Page 2, the named participating group or school above and its sponsor have reviewed the responsibilities and expected performance criteria on List B, Page 2. The participant acknowledges that the group or school and its sponsor(s) intend to meet the responsibilities and performance criteria, and understand that failure to meet performance criteria jeopardizes program eligibility in future years.

The water quality will remain in possession of the above named group or school as long as: 1) performance criteria (outlined in contract and Sample Plan) is satisfactory (as determined by River Watch) and 2) the Colorado Parks & Wildlife in partnership with River Watch contractor continues to sponsor the River Watch Program.

A. The above mentioned group or school will monitor the following station(s) at the following frequency (a minimum of one station sampled 12 times per year is required):

Station Name	Station #	River Name	Frequency # per year (circle one)
1.			Minimum 12 times per year station
2.			4, 12, 24, other _____
3.			4, 12, 24, other _____
4.			4, 12, 24, other _____
5			4, 12, 24, other _____
6			4, 12, 24, other _____
7			4, 12, 24, other _____

B. Is any of the above station information different than we have on record from past sampling efforts (please circle as many as apply)?

Yes - station frequency

Yes - station name

Yes - station location

Yes - station name

Yes - Brand new location

Yes - River name

C. If you chose a sample frequency other than 12 times per year please explain:

## SIGNATURES

\_\_\_\_\_  
Sponsor (print name)

\_\_\_\_\_  
River Watch Staff Member,

\_\_\_\_\_  
Date

\_\_\_\_\_  
Sponsor (signature)      Date

\_\_\_\_\_  
Principal or Proper Authority (signature) Date

\_\_\_\_\_  
Sponsor Organization Mailing Address:

\_\_\_\_\_  
Sponsor Physical Mailing Address :

\_\_\_\_\_  
Sponsor Org Email and Phone Number

\_\_\_\_\_  
Sponsor Home Email and Phone Number

Please return form with required signatures to *River Watch: 6060 Broadway, Denver CO 80216*

## List A (Volunteer MOU page 2)

### Participants receive:

1. Equipment, supplies listed in the River Watch Water Quality Sampling Manual.
2. Educational material, training and experiences regarding watershed health monitoring.
3. Site visit or site call, technical and general support.
4. Annual calendar notifying site visit date, nutrient and macroinvertebrate collection timeframe.
5. Opportunity for beginning and advance training and certified credits (teachers).
6. Annual Report Card and Performance Report and Export of quality assurance/control data.
7. Validated water quality, biological and physical data.
8. Supplies to collect and analyze field chemical, physical habitat and biological parameters.
9. Laboratory analyses of remainder of parameters.
10. Robust database application to enter data, retrieve results and meta-data exports, webpage for communication, group profiles, other links and resources regarding rivers, waters and associated issues.
11. Ongoing Information on water quality issues, including a newsletter. Webinars features and social media.
12. If requested and possible, water quality data will be made available within six months after submission of your samples.

## List B

### Performance Criteria:

1. Collect filtered and not filtered metal and field water quality samples approximately once a month per contract year at a minimum of one station and analyze samples for temperature, pH, dissolved oxygen, alkalinity and hardness.
2. Completion of two unknowns for alkalinity, hardness, pH per contract year.
3. Collect equivalent of a blank and duplicate metal samples every fifth sampling event (20% of all events, for one station that is every fifth sampling event or 3 per year, if 10 stations that is a 2 of each every monthly sampling date.
4. Ship metals a minimum of every other month, deliver or exchange metals (w/chain of custody) and complete and accurate datasheets.
5. Record data on datasheets, maintain copies of datasheets, enter data electronically quarterly via Internet and mail original copies to River Watch.
6. Collect bi-annual nutrient samples and ship samples within two days of collection (Mon-Wed only. DO NOT ship nutrients on Thur-Sat; they will get warm).
7. Collect annual macroinvertebrates (if you have equipment) and ship to River Watch along with your annual physical habitat assessment.
8. Mail quarterly signed volunteer time sheet (if not provided on Field data sheets).
9. Participate in annual site visit or site call via River Watch provided schedule.
10. Notify River Watch by submitting a waiver (hardship) form, email or phone as soon as practical if you cannot accomplish any of the above criteria, address performance issues (troubleshoot form).

### Responsibilities:

1. Complete MOU each year between January and May to be eligible for next year, in July download new datasheets and Sample Plan from [www.coloradoriverwatch.org](http://www.coloradoriverwatch.org)
2. Use RW methods and equipment and take the time to learn how data is used and the value and function of a river ecosystem.
3. Inform River Watch of any change in activity status (equipment exchange): school e-mail address, Internet access, school name or address change, and station name, location or frequency changes.
4. Current sponsor must attend RW sponsored training and train others in RW protocols if relevant.
5. Provide access, if necessary, to the sampling locations.
6. Perform all sampling and analysis activities in a safe manner and following all provided protocols using only RW equipment.
7. Develop a safety plan per the Sampling Manual.
8. Inform River Watch if you decide to leave the program. It is your responsibility to arrange for the equipment (listed in the River Watch Water Quality Sampling Manual) to be returned to River Watch. Failure to inform River Watch of your departure from the program could lead to you/your organization being invoiced for the \$1800 worth of equipment we provide to you.
9. Each volunteer groups performance is evaluated annually based on the above criteria. Failure to complete (or make corrections if needed) may jeopardize your participation in the program. Your performance report is available on [Coloradoriverwatch.org](http://Coloradoriverwatch.org)

## STATION INFORMATION 2022-2023

\*Required information for each station (one form per station) in order for samples to be analyzed:

\*VOLUNTEER GROUP \_\_\_\_\_ KIT NUMBER \_\_\_\_\_

\*NAME OF CONTACT \_\_\_\_\_ \*RIVER \_\_\_\_\_

\*STATION NAME \_\_\_\_\_ STATION # (We will assign this) \_\_\_\_\_

**STATION NAME:** Please provide a suggested name that can be used by anyone to locate your station. Examples: Below Garber Cr Confluence, At County Rd 150

**STATION DESCRIPTORS:** Please provide as many of the descriptors as possible below.

\*ELEVATION \_\_\_\_\_ \*COUNTY \_\_\_\_\_ \*NEAREST CITY \_\_\_\_\_

**\*STATION UTM-X/Y and/or LATITUDE & LONGITUDE:** River Watch Stations are in NAD83. If you follow these instructions the default setting is NAD83 UTM zone 13N, if you use another system, provide the project (NAD27, 83, etc.) (this are geographic information system grid projection labels). If you cannot complete the following instructions submit a copy of a map (whatever map you do have) with the station highlighted. It must have enough detail we could find it on our map. \*Often can get these descriptors from this site.

- Go to <https://ndismaps.nrel.colostate.edu/index.html?app=FishingAtlas>
- Click on the map
- Find your station, either navigate on the map itself zooming in using the tool bar or information you have in the upper right hand box.
- Zoom in so the river is big on the screen and the cursor is in the river, the UTMX and UTM Y of the cursor point is displayed on the bottom left, in NAD83. Record the numbers.

UTM-X \_\_\_\_\_ UTM-Y \_\_\_\_\_ (we will convert to NAD83).

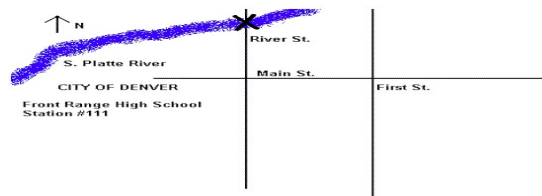
If can provide in NAD83 OR another projection, please do:

LATITUDE \_\_\_\_\_ LONGITUDE \_\_\_\_\_ PROJECTION \_\_\_\_\_

**\*DRIVING or WRITTEN INSTRUCTIONS TO STATION:** Please provide a written description of how to drive to your station from a permanent, well known and described starting point, such as an intersection or building in town, name the town. You can attach an electronic version or write on the back of this form.

Example: In Denver, from intersection of Main and First St, travel west on Main St 2 miles to River St; turn north on River St and continue 2 miles to bridge crossing the S. Platte River. Sample upstream of the bridge.

Example of Site Location Map



Please return either this form or the information on this form and attachments to Colorado Parks and Wildlife, River Watch, 6060 Broadway, Denver, CO 80216. If you have any questions, please contact us at 303-291-7322. Thank You!



## Equipment & Supplies

River Watch equipment is owned by CPW but is yours to use for any water sampling as long as you sign an annual contract, conduct the minimal agreed upon sampling, keep equipment clean and available for RW sampling and notify us of any changes in your status. The CPW maintains the ownership of all equipment and supplies and River Watch staff must be informed when your status as a volunteer changes.

### Equipment list by Test

Each participating organization will receive a kit including all the supplies and equipment needed for carrying out the River Watch monitoring program. It is the responsibility of each volunteer group to maintain this equipment and to notify River Watch if equipment needs to be replaced or to refill supplies. Each group keeps their set of equipment as long as a current contract is on file.

Each kit will contain:

#### Large Action Packer containing:

0.45 micron disposable filters	DO titration stand
1 HNO <sub>3</sub> container (nitric acid)	DO 25 ml burette
1 500 ml Erlenmeyer flask	1 thermometer
1 permanent markers	DO starch dispenser
2 bags of 2-ounce metals bottles	2 sheets metals labels
Sulfamic acid pillows	syringe (1 per station)
Sodium Thiosulfate 16 oz dispenser	1 organizer tray
Sodium Thiosulfate 16 oz container	1 pair of goggles
Manganese-Sulfide dispenser	clippers/ scissors
Alkali-iodide dispenser	2 pH buffers (7, 10)
1 32 oz. deionized water bottle	1 16 oz. sample bottles
1 16 oz. acid rinse bottle	1 pair of gloves
1 300 ml graduated cylinder	1 300 ml BOD bottles
1 pH meter, pH probe, and carrying cases	
½ sheet instructions (2) for metals and DO collection and analysis	

#### Additional supplies:

- 1 cooler
- 1 specific sampling plan with standard datasheets and instructions
- 1 5 gal carboy for pure deionized water
- 2 buckets with 60-foot rope (if required)
- 1 pair hip waders

#### Macroinvertebrate Collection (optional):

- 2 sets forceps
- 1 600 micron sieve
- 1 modified D net
- 1 brush

## Equipment List by Titration

(Alkalinity and Hardness gear housed in large green wooden box)

### Hardness Titration

#### Reagents

Ammonia buffer (liquid)

Indicator, EBT (Eriochrome Black T)

(Titrant, EDTA (ethylene diamine tetra acetic acid)

#### Apparatus

Burette, Automatic self-zero, class A

Flask, Erlenmeyer, 125 mL

Cylinder, graduated, 50 mL

Lab scoop

½ sheet instructions

### Alkalinity Titration

#### Reagents

Indicator, Phenolphthalein indicator

Indicator, BGMR (Bromocresol-green methyl-red)

Titrant, H<sub>2</sub>SO<sub>4</sub> (Sulfuric Acid) (0.02N)

#### Apparatus

Burette, Automatic self-zero, class A

Flask, Erlenmeyer, 125 mL

Cylinder, graduated, 50 mL

½ sheet instructions

### Dissolved Oxygen (Winkler Titration Method)

#### Reagents

Reagent, Manganese Sulfate Solution 118 mL

Reagent, Alkaline Iodide-Azide 118 mL

Reagent, Sulfamic Acid Powder Pillows

Titrant, Sodium Thiosulfate Standard Solution, 0.025N

Indicator, Starch Solution

#### Apparatus

Bottle, glass-stopper, BOD, 300 mL

Burette, Class A, 25 mL

Burette Support stand w/rod

Burette clamp, double

Clippers, for opening powder pillows

Cylinder, graduated, 250 mL

Flask, Erlenmeyer, 500 mL

## Care and Storage of Equipment and Supplies

It is the responsibility of each volunteer group to maintain the equipment and supplies provided to them for sampling.

### pH Meter

You must store meter in provided container (manufacturer's container/RW action packer). Probe is to be stored in provided storage cap with storage solution (KCl), in a safe (locked if necessary), clean, temperate and dry room. It will minimize leakage and white precipitate if stored upright. When the meter calibration scale shows one bar, the meter takes more than three minutes to calibrate or readings jump around, the volunteer is to follow pH probe cleaning and rejuvenation protocol. Please place probe into cleaning solution for 3 minutes or as per instructions on packet, then rinse and recalibrate. Probes should be rejuvenated before each unknown test, at least twice a year. Follow instrument instructions to use and maintain, including two standard calibration before every sampling event.

Small pH buffer bottles solutions must be changed if meter calibration is slow or the meter will not calibrate. They should also be changed out before each unknown test two times per year. pH meter/probes/solutions are tested two times per year with pre-made standards (values unknown to volunteer). Equipment is inspected once a year by River Watch staff at annual site visit.

### Alkalinity and Hardness

You must store titration equipment in provided container (custom made wood box called the "green box") with all material safety datasheet labels on each relative container. The green box opens with two sides, each side with equipment and chemicals for each test (alkalinity on one side, hardness on the other side), including instructions and measuring devices. All titration equipment is to be stored in this green box in a safe (locked if necessary), clean, temperate and dry room, with all solutions capped (no air) and dark (no sunlight). Be sure all lids are closed and air tight. After each use, burette can be immediately drained back into glass burette bottle. The tests can be done in the green box or titration burette taken out to complete test.

Glassware (Erlenmeyer flasks) should be washed with phosphorous free soap and water if a film is present and before two annual unknown (standard values unknown to volunteer) tests. Alkalinity flasks tend to build up a film, so wash these more regularly if you notice the buildup.

The self-zeroing burettes are glass and hand-blown. The instructions include ensuring no air bubbles are present in the arm, no crusty tips or other signs of contamination. The alkalinity burette can develop an algae after years of use, but it does not affect the results. You should annually clean the burettes by emptying the burette, running a strong bleach solution through it, rinsing with tap water, then rinse multiple times with deionized water. Let the burette air dry overnight, then refill with proper acid (should be labeled EDTA or H<sub>2</sub>SO<sub>4</sub>) before using again.

Equipment is inspected once a year by River Watch staff at annual site visit, replaced or repaired if needed.

## Dissolved Oxygen

You should keep dissolved oxygen supplies/equipment in provided container (large action packer), with all material safety datasheet labels on each relative container. All equipment is to be stored in this action packer in a safe (locked if necessary), clean, temperate and dry room. Dissolved oxygen titration set up can be left up or taken down each test.

Glassware (Erlenmeyer flasks and BOD sample bottle) should be washed with soap and water if a film or dirt is present and at a minimum before the two annual unknown (standard values unknown to volunteer) tests. The burette is plastic and will occasionally clog because the titrant is basic. If left in the burette, the titrant can become slimy and thick and will leave crust and harden if exposed to air. This titrant will become hard in the stopcock of the burette and lead to blockage. Storage instructions to avoid this are one of two choices; 1) the preferred method is after each use, drain the burette, then thoroughly rinse with deionized water, store upside down in stand with valve open. 2) Provide an air tight cap (cork) to top of burette.

If possible, do not store your sodium thiosulfate in the yellow cap squirt bottle if you know you will travel with it. The sodium thiosulfate will “drip” during transit or changes in air pressure leaving a slimy film on equipment.

Equipment is inspected once a year by River Watch staff at annual site visit, replaced or repaired if needed.

## Temperature

You need to use the Celsius thermometer provided by RW. This will give you the ability to down to freezing conditions. If the thermometer breaks and is not available, volunteers can use an equivalent instrument in the field if they have one and document on the field data sheet.

The thermometer is stored in the sample carrying caddy provided to each volunteer.

Equipment is inspected once a year by River Watch staff at annual site visit.

## Action Packer, Metals Collection, DI-Carboy, Cooler

You are provided a large action packer to store most supplies/equipment other than the alkalinity and hardness green box. In addition to those containers, you will receive a five gallon deionized water carboy, a cooler and potentially a macroinvertebrate set of equipment. This container can be locked and must be kept clean (of chemical spills, dust, dirt, old filters, etc.). These items should be stored in a safe, clean, temperate and dry room. All relevant bottles should be labeled with contents.

Metals collection material should be stored in this way:

- Syringe for each station in clean zip lock bag (one labeled syringe per station)
- Filters in their own clean zip lock bag
- Metals bottles in the bag they come in, brand new. They do not need to be rinsed before use.

- Nitric acid is in a provided container with paper to absorb spills, air tight. This can be moved to an acid storage container or under a hood. Follow your organizations safety rules.
- Deionized five gallon carboy needs to be labeled, stored in a safe, temperate room and never used for anything else.
- Cooler should also be kept clean and not used for any other purpose.

## **Macroinvertebrates**

If you receive macroinvertebrate collection equipment, you will receive a net, sieve, brush and forceps. Volunteers will need to provide white buckets, rinse bottles, waders and other supplies. Annually, River Watch will send you sample containers with alcohol for bug collection. Samples and unused alcohol should be shipped back to River Watch within two weeks of sampling.

Volunteers are instructed at trainings how to clean nets, buckets, waders and other equipment exposed to river water, if those will be used in another river, to reduce spreading of invasive species.

## **Physical Habitat**

Physical habitat is an annual assessment in River Watch. All equipment is provided by the volunteer, including a depth and width measuring device and stopwatch. Volunteers should collect physical habitat data in the fall with low flow nutrients and macroinvertebrate collection.

Volunteers are instructed at trainings how to clean nets, buckets, waders and other equipment exposed to river water, if those will be used in another river, to reduce spreading of invasive species.

## **River Watch Staff**

- Maintains equipment database. Each group is assigned a set of equipment per group (kit number)
- Conducts annual site visits to check equipment, performance, answer questions, exchange samples and supplies (including unknowns, duplicates and other quality assurance samples).
- Addresses equipment or chemical issues immediately.
- Purchases, maintains, delivers and inventories supplies for volunteers, including systematic replacement of relevant equipment (like pH probes/meters).
- Validate data received by volunteers. Data must be validated by staff before the data is made public. The database has validation warnings, for example, catching odd temperatures, wrong units, etc. This is part of the process comparing entered data and what is on the datasheet.
- Creates annual volunteer Unknown Report and Program Performance Report.

## Equipment Replacement

To receive refills for your chemicals, complete a Request for Equipment Form, (also available on the website) and send it with your next sample and/or data sheet shipment. Please send back the empty chemical bottle(s) with your samples. We only refill containers for one year of sampling and thus bottles may not be “full”. Please plan ahead and notify us before you run out.

## Chemical Disposal Procedures

Nitric Acid HNO <sub>3</sub>	Corrosive	Neutralize to pH>2 (dilution and/or neutralization with base) and down drain with water
Reagent, Sulfamic Acid Powder Pillows	Corrosive	Neutralize to pH>2 (dilution and/or neutralization with base) and down drain with water
Reagent, Alkaline Iodide-Azide 118 mL	Toxic, Corrosive	Hazardous waste disposal
Ammonia buffer (liquid)	Harmful	Dilute with water and down drain; (flammable, should not be left uncovered)
Indicator, Phenolphthalein indicator, 70% isopropyl alcohol	Flammable, toxic	Dilute with water and down drain; (flammable, should not be left uncovered)
Ethyl Alcohol (macroinvertebrate)	Flammable	Dilute with water and down drain; (flammable, should not be left uncovered)
BGMR (Bromocresol-green methyl-red, 100% ethanol)	Flammable, toxic	Down drain (flammable, should not be left uncovered)
EBT (Eriochrome Black T)	Irritant	Waste bucket and/or down drain
EDTA (ethylene diamine tetra acetic acid)	Irritant	Waste bucket and/or down drain
H <sub>2</sub> SO <sub>4</sub> (Sulfuric Acid) (0.02N)	Irritant	Waste bucket and/or down drain
Reagent, Manganese Sulfate Solution	Irritant	Waste bucket and/or down drain
Sodium Thiosulfate, 0.025N	Irritant	Waste bucket and/or down drain
3 pH buffers (4,7,10)	Irritant	Waste bucket and/or down drain
Potassium Chloride	Irritant	Waste bucket and/or down drain
Starch Solution	Irritant	Waste bucket and/or down drain

## Request for Equipment and Supplies

Name \_\_\_\_\_

Date \_\_/\_\_/\_\_

Volunteer Group \_\_\_\_\_

Kit # \_\_\_\_\_

Number of Stations Monitored \_\_\_\_\_

Please check the appropriate box(s) for needed equipment and supplies, if additional quantities are required please specify quantity needed. **If \* is by item, please ship us the empty chemical bottles or equipment. Please include shipping address and email address for every supply request form submitted.**

- |   |   |
|---|---|
| <input type="checkbox"/> 2-ounce metals bottles                           | <input type="checkbox"/> manganese sulfate                              |
| <input type="checkbox"/> 250 mL nutrient jar with sulfuric                | <input type="checkbox"/> nitric acid (HNO <sub>3</sub> )                |
| <input type="checkbox"/> 500 mL nutrient jug                              | <input type="checkbox"/> phenolphthalein indicator*                     |
| <input type="checkbox"/> KCL/probe solution*                              | <input type="checkbox"/> pH buffers 4 -7-10 large/small (circle needed) |
| <input type="checkbox"/> alkalide iodide                                  | <input type="checkbox"/> sodium thiosulfate*                            |
| <input type="checkbox"/> ammonia buffer*                                  | <input type="checkbox"/> starch solution                                |
| <input type="checkbox"/> BGMR*  | <input type="checkbox"/> Metals/Nutrient Labels (circle one)            |
| <input type="checkbox"/> EBT*   | <input type="checkbox"/> metals filters                                 |
| <input type="checkbox"/> EDTA *   | <input type="checkbox"/> pH probe/meter* (circle one)                   |
| <input type="checkbox"/> deionized water*                                 | <input type="checkbox"/> thermometer                                    |
| <input type="checkbox"/> Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> )* | <input type="checkbox"/> syringe  |
| <input type="checkbox"/> sulfamic acid powder pillow                      | <input type="checkbox"/> other _____                                    |
| <input type="checkbox"/> other _____                                      | <input type="checkbox"/> other _____                                    |

### Shipping

Email Address: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_  
**Comments:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### River Watch Staff

Date Shipped: \_\_\_\_\_

## Self-leveling Burette Holder

RW Self-Leveling Buret Holder (so you don't miss a drop!)

**Materials**

- 1 - 13.6 x 22 x 1.9 cm Board (or plywood) ( $\frac{3}{4}$ " x  $5\frac{1}{2}$ " x  $8\frac{3}{4}$ "
- white enamel paint
- clear acrylic finish
- 3 - hard plastic furniture bumpers (tack type)  $\frac{1}{2}$ " round
- 4 - rubber bumpers pads (stick on type)
- -  $\frac{1}{2}$ " squares

**Procedure:**

1. Cut board to size & do square cutout (sand or file cutout to fit buret if necessary)
2. Finish entire board with clear acrylic finish
3. Paint erlenmeyer flask half of board with white enamel paint
4. Place buret in cutout & center flask under buret stem tip - mark flask location & remove flask & buret
5. Scribe a circle at the flask location 7cm in diameter & attach 3 hard plastic bumpers at points indicated (to immediately place flask in proper position for titrating) (don't cut out!)
6. Put rubber bumpers on 4 corners of bottom of board - level if necessary

designed by  
Sam Crane  
Middle Park HS  
Granby, CO

9-99-707180-8

This drawing was provided by Sam Crane of Middle Park High School.



## Picture of burette holder





River Watch Water Quality Sampling Manual  
Participant