

### **3.0 BASE LOCATION ACTIVITIES**

Field teams conduct a number of activities at a “base” location before and after visiting each stream site. These activities are generally conducted on the same day as the sampling visit. Close attention to these activities is required to ensure that the field teams know where they are going, that access to the stream site is possible and permissible, that all the necessary equipment and supplies are in good order to complete the sampling effort, and that samples are packaged and shipped correctly and promptly. All samples must be transported and/or presented for shipment in accordance with State, Federal, and international regulations. Because of the large geographic area being sampled, it is critical to minimize the potential for transferring exotic or nuisance species of plants and animals (e.g., aquatic milfoil, zebra mussels), or waterborne pathogens.

Figure 3-1 illustrates operations and activities that are conducted before and after each visit to a stream site. Activities that are conducted after a stream visit include equipment cleanup and maintenance, packing and shipping samples, and communications with project management to report the status of the visit.

#### **3.1 ACTIVITIES BEFORE EACH STREAM VISIT**

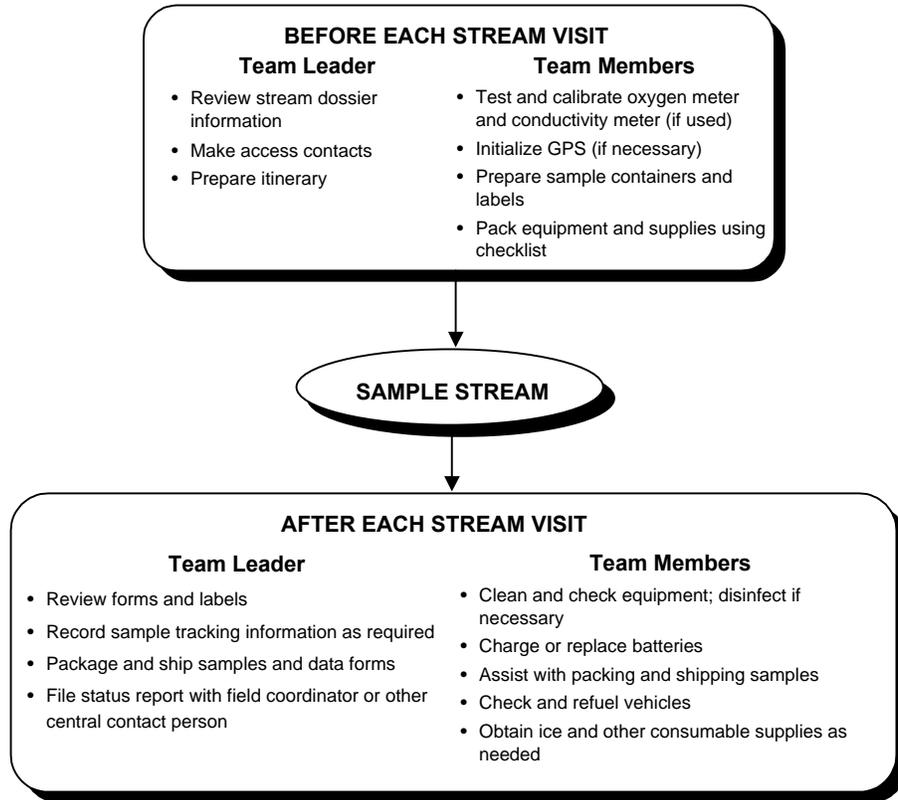
Before each stream visit, each field team should confirm access to the stream site, develop a sampling itinerary, inspect and repair equipment, check to make sure all supplies required for the visit are available, and prepare sample containers. Procedures to accomplish these activities are described in the following sections.

##### **3.1.1 Confirming Site Access**

Cooperators should assemble a dossier containing important locational and access information for each stream they are scheduled to visit. Before visiting a stream, the field crew must review the contents of the specific stream dossier. The landowner(s) listed in the dossier should be contacted to confirm permission to sample and identify any revisions to the information contained in the dossier.

##### **3.1.2 Daily Sampling Itinerary**

Team leaders are responsible for developing daily itineraries based upon the sampling schedule provided. Review each stream dossier to ensure that it contains the appropriate maps, contact information, copies of permission letters, and access instructions. Determine the best access routes, call the landowners or local contacts to confirm permission, confirm lodging plans for the upcoming evening, and coordinate rendezvous locations with individuals who must meet with field teams prior to accessing a site. Use this information to develop an itinerary for the stream. The itinerary should include anticipated departure time, routes of travel, location of any intermediate stops (e.g., to drop off samples, pick up supplies, etc.) and estimated time of arrival at the final destination after completing the stream visit. This information (and any changes that occur due to unforeseen circumstances), should be provided to the field coordinator or other central contact person identified for the specific field study. Failure to adhere to the reported



**Figure 3-1. Activities conducted at base locations.**

itinerary can result in the initiation of expensive search and rescue procedures and disruption of carefully planned schedules. In addition, each team should carry individual emergency medical and personal information with them, possibly in the form of a "safety log" that remains in the vehicle (see Section 2).

### **3.1.3 Instrument Inspections and Performance Tests**

Each field team is required to test and calibrate some instruments prior to departure for the stream site. Required field instruments include a global positioning system (GPS) receiver, a current velocity meter, and thermometer. Backup instruments should be available if instruments fail the performance tests or calibrations described in the following subsections.

#### **3.1.3.1 Global Positioning System Receiver**

Specific performance checks will vary among different brands of GPS receivers. Follow the instructions in the receiver's operating manual to make sure the unit is functioning properly. Turn on the receiver and check the batteries. Replace batteries immediately if a battery warning is displayed. Make sure extra batteries are stored with the receiver and will be available in the field if necessary. Follow the manufacturer's instructions for initializing the receiver when it becomes necessary (e.g., before first use, after replacing batteries, or if a new positional reference is required). Make sure the correct datum (NAD27) is selected.

#### **3.1.3.2 Current Velocity Meters**

Field teams may be using one of three types of current velocity meters, a photo-optical impeller type meter (e.g., Swiffer Model 2100) a vertical axis meter (e.g., Price type AA), or an electromagnetic type meter (e.g., Marsh McBirney Model 201D). General guidelines regarding performance checks and inspection of current meters are presented in Table 3-1. Consult the operating manual for the specific meter and modify this information as necessary.

### **3.1.4 Preparation of Equipment and Supplies**

To ensure that all activities at a stream can be conducted completely and efficiently, field teams should check all equipment and supplies before traveling to a stream site. In addition, they should prepare the water chemistry sample containers for use.

Check the inventory of equipment and supplies prior to departure using the stream-visit checklists presented in Appendix A. Pack the flow meter and sampling gear in such a way as to minimize physical shock and vibration during transport. If necessary, prepare stock preservative solutions as described in Table 3-2. Follow the regulations of the Department of Transportation and the Occupational Safety and Health Administration (OSHA) for handling and transporting hazardous materials such as ethanol. These requirements should be summarized for all hazardous materials being used for the project and provided to field personnel. Transport ethanol in appropriate containers with absorbent material.

**TABLE 3-1. GENERAL PERFORMANCE CHECKS FOR CURRENT VELOCITY METERS**

| <b>Photoelectric Impeller Meters (e.g., Swoffer Model 2100)</b>   |
|---|
| <ul style="list-style-type: none"><li>● Check that the calibration adjustment cover screws are tightly fitted on the display case.</li><li>● Periodically check the condition of the connector fitting between the display unit and the sensor.</li><li>● Connect the sensor to the display unit and check the calibration value stored in memory. If this value is less than the correct value for the display unit-sensor rotor combination, replace the batteries.</li><li>● Periodically perform a spin test of the rotor assembly, following the instructions in the meter's operating manual. A displayed count value of 300 or greater is indicative of satisfactory performance at low current velocities.</li><li>● If a buzzing sound occurs when the rotor assembly is spun by hand, or if the shaft shows visible wear, replace the rotor assembly.</li><li>● Periodically examine the thrust-bearing nut on the rotor assembly. If a "cup" begins to form on the bottom surface of the nut, it should be replaced.</li></ul> |
| <b>Vertical-axis Meters (from Smoot and Novak, 1968)</b>  |
| <ul style="list-style-type: none"><li>● Inspect the bucket and wheel hub assembly, yoke, cups, tailpiece, and the pivot point each day before use.</li><li>● Inspect the bearings and check the contact chamber for proper adjustment.</li><li>● Periodically conduct a spin test of the meter. The minimum spin time is 1.5 minutes, while the recommended time is between 3 and 4 minutes.</li></ul>  |
| <b>Electromagnetic Meters</b>   |
| <ul style="list-style-type: none"><li>● Check the meter calibration daily as part of morning routine. Calibration value should be <math>2.00 \pm 0.05</math>.</li><li>● Once per week, check the zero value using a bucket of quiescent water. Place the probe in the bucket and allow to sit for 30 minutes with no disturbance. The velocity value obtained should be <math>0.0 \pm 0.1</math>. Adjust the meter zero if the value is outside this range.</li></ul>   |

**TABLE 3-2. STOCK SOLUTIONS, USES, AND INSTRUCTIONS FOR PREPARATION**

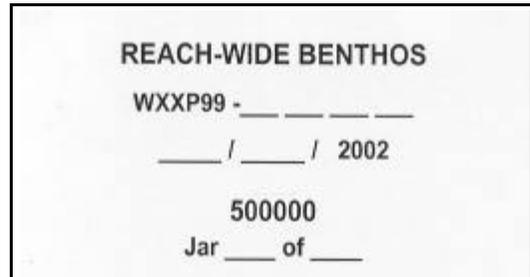
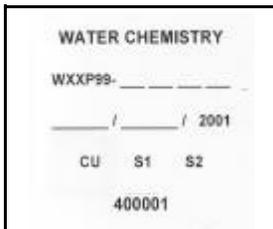
| SOLUTION      | USE  | PREPARATION   |
|---------------|--|---|
| Bleach (10%)  | Clean and disinfect seines, dip nets, kick nets, or other equipment that is immersed in the stream | Dilute 400 mL chlorine bleach solution to 4 L with tap water. |
| Ethanol (95%) | Preservative for benthic macroinvertebrate samples.  | None.   |

<sup>a</sup> Metcalf and Peck (1993)

<sup>b</sup> Peck and Metcalf (1991)

Inspect the vehicles every morning before departure. Refuel vehicles and conduct maintenance activities the night before a sampling trip. Check vehicle lights, turn signals, brake lights, and air pressure in the tires.

Sample containers for water chemistry can be labeled before departing from the base location. Figure 3-2 illustrates the preprinted labels. Prepare a set of three water chemistry sample containers all having the same ID number (one for the 4-L cubitainer and two for the 60-mL syringes) and pre-labeled with the appropriate information (described in Section 5). After labeling, place the syringes in their plastic container, and place the cubitainer and beakers in a clean plastic bag to prevent contamination. Sample containers for benthic samples **CANNOT** be pre-labeled before reaching the stream site. Problems in sample tracking will result if containers are labeled and then are not used at a stream.



**Figure 3-2. Sample container labels.**

## 3.2 ACTIVITIES AFTER EACH STREAM VISIT

Upon reaching a lodging location after sampling a stream, the team reviews all completed data forms and sample labels for accuracy, completeness, and legibility, and makes a final inspection of samples. If information is missing from the forms or labels, the team leader should fill in the missing information as accurately as possible. The team leader initials all data forms after review. The other team member should inspect and clean sampling equipment, check the inventory of supplies, and prepare samples for shipment. Other activities include shipping samples, submitting sampling status and tracking information to Tetra Tech, and communicating with the field coordinator or other central contact person.

### 3.2.1 Equipment Care

Equipment cleaning procedures are given in Table 3-3. Inspect all equipment, including nets, and clean off any plant and animal material. This effort ensures that introductions of nuisance species do not occur between streams, and prevents possible cross- contamination of samples. If nets cannot be cleaned thoroughly using water and detergent, clean and disinfect them with a 10 percent chlorine bleach solution (Table 3-2). Use bleach only as a last resort, as repeated use will destroy the net material. Take care to avoid damage to lawns or other property.

**TABLE 3-3. EQUIPMENT CARE AFTER EACH STREAM VISIT**

- 
- 
1. General cleaning for biological contaminants (e.g., plant and animal material).
    - Prior to departing a stream, drain all water from all buckets used.
    - Inspect sampling gear and waders, boots, etc. for evidence of plant fragments or animal remains and remove them.
    - At the base location, inspect kick nets, waders, and boots. Rinse with water and dry. If there appears to be the potential for contamination, disinfect gear with a 10 percent bleach solution.
  2. Clean and dry other equipment prior to storage.
    - Rinse coolers with water to clean off any dirt or debris on the outside and inside.
    - Rinse all beakers used to collect water chemistry samples three times with deionized water to prevent contamination of the next stream sample. Place the beakers in a 1-gallon self-sealing plastic bag with a cubitainer for use at the next stream.
  3. Inventory equipment and supply needs and relay orders to the Field Coordinator.
  4. Remove GPS receivers from carrying cases and set up for pre-visit inspections and performance tests.
  5. Recharge all batteries overnight if possible (e.g., 12-V wet cells), computer battery). Replace others (GPS, DO meter, current meter) as necessary.
  6. Check and re-fuel vehicles if necessary.
  7. Recheck data forms from the day's sampling activities. Make corrections and completions where possible, and initial each form after review.
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## 3.2.2 Sample Packing, Shipment, and Tracking

Each field team packs and ships samples from each stream visit as soon as possible after collection, normally the day following a stream visit. Field teams are provided with specific information for the shipping destinations, contact persons, and the required shipping schedule for each type of sample. Record sample tracking information (including sample types, sample ID numbers, and other field-related information that is required by the laboratory to conduct analyses and associate results to a specific sample and stream site) during the packing process. After each shipment, file a status report with the field coordinator.

### 3.2.2.1 Water Chemistry Samples

Record sample information onto a tracking form as shown in Figure 3-3. A separate tracking form is required for each shipping destination (e.g., analytical laboratory). Use the standard codes provided on the form to record the type of sample and its condition. Record all “subsample” types (cubitainer and syringe for water chemistry in the comments field. In some cases, a field crew may sample more than one site before shipping samples; in such cases, there will be more than one entry per tracking form. Prepare **one additional copy** of the form (a photocopy is acceptable). Retain the original copy of each form to prepare the status report for the site (Section 3.3), and then include it as part of the data forms packet for the site. Include the copy as a “packing list” in the shipment. Water chemistry samples are shipped to the EPA analytical laboratory facility in Corvallis (Willamette Research Station [WRS]), and possibly to a local laboratory (if a concurrent analysis is being done). The address is pre-printed on the sample tracking form (Figure 3-3).

General guidelines for packing and shipping unpreserved water chemistry samples are presented in Table 3-4. Use ice substitute packs whenever possible to avoid potential leakage due to melting ice. When shipping samples using ice, use fresh ice. Use block ice when available, sealed in a large plastic bags. If block ice is not available, contain the ice in several self-sealing plastic bags. Label each bag of ice as "ICE" with an indelible marker to prevent any leakage of meltwater from being misidentified by couriers as a possible hazardous material spill. If ice substitute packs are used, place each pack into a self-sealing plastic bag before use.

Ship water chemistry samples as soon as possible after collection in order to meet holding time requirements for some laboratory analyses (especially pH and nutrients). To ship water chemistry samples, place a large (30-gallon) plastic bag in an insulated shipping container (e.g., a plastic or metal cooler). The sample labels on the cubitainer and syringes should be completely covered with clear tape to prevent damage from water or condensation during shipment. Place the syringes into a separate plastic container for shipment. Place the cubitainer and syringe container into a second large plastic bag and close. Place the bag containing the samples inside the plastic bag lining the shipping container. Place bags of ice (or frozen ice substitute packs) around the bag of samples, but inside the plastic bag lining the shipping container. Be sure to use sufficient quantities of ice to ensure samples will remain cold until arrival at the laboratory. **Typically, the total weight of each shipping container (samples plus ice) should be between 40 and 50 pounds (more for shipments from hot locations).**

### FIELD SAMPLE SHIPMENT PACKING/TRACKING FORM

Wadeable   
  Boatable   
  Other = Fax Verification Form   
 Date Visited: 07/02/2003

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Check all that apply:  Willamette Research Station    Site Name: (Write Unknown if unknown)    Visit Number: 1  2  3   
 Poison Depot  
 Other

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Airbill Number: 809171727040    Contact: (Person calling in or faxing tracking info.)    Date Sent: 07/05/2003

| Site ID     | Sample ID | Sample Type  | # Of Jars                | Fish:   | Comments (Fish tissue species and other comments here.) |
|-------------|-----------|--|--------------------------|---|---|
| WXXP99-9999 | 100000    | <input checked="" type="radio"/> Chem<br><input type="radio"/> Peri - BQ, CHLA, ID<br><input type="radio"/> Peri - Plankton Tow<br><input type="radio"/> Peri - STAR<br><input type="radio"/> Fish (Tissue)<br><input type="radio"/> Bent - Reachwide<br><input type="radio"/> Bent - Targeted Riffle<br><input type="radio"/> Vert (Vouchers) | <input type="checkbox"/> | <input type="radio"/> Big<br><input type="radio"/> Small            |   |
| WXXP99-9999 | 300000    | <input type="radio"/> Chem<br><input checked="" type="radio"/> Peri - BQ, CHLA, ID<br><input type="radio"/> Peri - Plankton Tow<br><input type="radio"/> Peri - STAR<br><input type="radio"/> Fish (Tissue)<br><input type="radio"/> Bent - Reachwide<br><input type="radio"/> Bent - Targeted Riffle<br><input type="radio"/> Vert (Vouchers) | <input type="checkbox"/> | <input type="radio"/> Big<br><input type="radio"/> Small            |   |
| WXXP99-9999 | 400000    | <input type="radio"/> Chem<br><input type="radio"/> Peri - BQ, CHLA, ID<br><input type="radio"/> Peri - Plankton Tow<br><input type="radio"/> Peri - STAR<br><input checked="" type="radio"/> Fish (Tissue)<br><input type="radio"/> Bent - Reachwide<br><input type="radio"/> Bent - Targeted Riffle<br><input type="radio"/> Vert (Vouchers) | <input type="checkbox"/> | <input checked="" type="radio"/> Big<br><input type="radio"/> Small | CUTTHROAT TROUT   |
| WXXP99-9999 | 400001    | <input type="radio"/> Chem<br><input type="radio"/> Peri - BQ, CHLA, ID<br><input type="radio"/> Peri - Plankton Tow<br><input type="radio"/> Peri - STAR<br><input checked="" type="radio"/> Fish (Tissue)<br><input type="radio"/> Bent - Reachwide<br><input type="radio"/> Bent - Targeted Riffle<br><input type="radio"/> Vert (Vouchers) | <input type="checkbox"/> | <input type="radio"/> Big<br><input type="radio"/> Small            | CUTTHROAT TROUT   |
| WXXP99-9999 | 400002    | <input type="radio"/> Chem<br><input type="radio"/> Peri - BQ, CHLA, ID<br><input type="radio"/> Peri - Plankton Tow<br><input type="radio"/> Peri - STAR<br><input checked="" type="radio"/> Fish (Tissue)<br><input type="radio"/> Bent - Reachwide<br><input type="radio"/> Bent - Targeted Riffle<br><input type="radio"/> Vert (Vouchers) | <input type="checkbox"/> | <input type="radio"/> Big<br><input type="radio"/> Small            | CUTTHROAT TROUT   |
| WXXP99-9999 | 400003    | <input type="radio"/> Chem<br><input type="radio"/> Peri - BQ, CHLA, ID<br><input type="radio"/> Peri - Plankton Tow<br><input type="radio"/> Peri - STAR<br><input checked="" type="radio"/> Fish (Tissue)<br><input type="radio"/> Bent - Reachwide<br><input type="radio"/> Bent - Targeted Riffle<br><input type="radio"/> Vert (Vouchers) | <input type="checkbox"/> | <input type="radio"/> Big<br><input type="radio"/> Small            | NORTHERN PIKEMINNOW                                     |
| WXXP99-9999 | 400004    | <input type="radio"/> Chem<br><input type="radio"/> Peri - BQ, CHLA, ID<br><input type="radio"/> Peri - Plankton Tow<br><input type="radio"/> Peri - STAR<br><input checked="" type="radio"/> Fish (Tissue)<br><input type="radio"/> Bent - Reachwide<br><input type="radio"/> Bent - Targeted Riffle<br><input type="radio"/> Vert (Vouchers) | <input type="checkbox"/> | <input type="radio"/> Big<br><input type="radio"/> Small            | NORTHERN PIKEMINNOW                                     |
| WXXP99-9999 | 400005    | <input type="radio"/> Chem<br><input type="radio"/> Peri - BQ, CHLA, ID<br><input type="radio"/> Peri - Plankton Tow<br><input type="radio"/> Peri - STAR<br><input checked="" type="radio"/> Fish (Tissue)<br><input type="radio"/> Bent - Reachwide<br><input type="radio"/> Bent - Targeted Riffle<br><input type="radio"/> Vert (Vouchers) | <input type="checkbox"/> | <input type="radio"/> Big<br><input type="radio"/> Small            | NORTHERN PIKEMINNOW                                     |
| WXXP99-9999 | 400006    | <input type="radio"/> Chem<br><input type="radio"/> Peri - BQ, CHLA, ID<br><input type="radio"/> Peri - Plankton Tow<br><input type="radio"/> Peri - STAR<br><input checked="" type="radio"/> Fish (Tissue)<br><input type="radio"/> Bent - Reachwide<br><input type="radio"/> Bent - Targeted Riffle<br><input type="radio"/> Vert (Vouchers) | <input type="checkbox"/> | <input type="radio"/> Big<br><input checked="" type="radio"/> Small | REDSIDE SHINER (30)                                     |
|             |           | <input type="radio"/> Chem<br><input type="radio"/> Peri - BQ, CHLA, ID<br><input type="radio"/> Peri - Plankton Tow<br><input type="radio"/> Peri - STAR<br><input type="radio"/> Fish (Tissue)<br><input type="radio"/> Bent - Reachwide<br><input type="radio"/> Bent - Targeted Riffle<br><input type="radio"/> Vert (Vouchers)            | <input type="checkbox"/> | <input type="radio"/> Big<br><input type="radio"/> Small            |   |
|             |           | <input type="radio"/> Chem<br><input type="radio"/> Peri - BQ, CHLA, ID<br><input type="radio"/> Peri - Plankton Tow<br><input type="radio"/> Peri - STAR<br><input type="radio"/> Fish (Tissue)<br><input type="radio"/> Bent - Reachwide<br><input type="radio"/> Bent - Targeted Riffle<br><input type="radio"/> Vert (Vouchers)            | <input type="checkbox"/> | <input type="radio"/> Big<br><input type="radio"/> Small            |   |
|             |           | <input type="radio"/> Chem<br><input type="radio"/> Peri - BQ, CHLA, ID<br><input type="radio"/> Peri - Plankton Tow<br><input type="radio"/> Peri - STAR<br><input type="radio"/> Fish (Tissue)<br><input type="radio"/> Bent - Reachwide<br><input type="radio"/> Bent - Targeted Riffle<br><input type="radio"/> Vert (Vouchers)            | <input type="checkbox"/> | <input type="radio"/> Big<br><input type="radio"/> Small            |   |
|             |           | <input type="radio"/> Chem<br><input type="radio"/> Peri - BQ, CHLA, ID<br><input type="radio"/> Peri - Plankton Tow<br><input type="radio"/> Peri - STAR<br><input type="radio"/> Fish (Tissue)<br><input type="radio"/> Bent - Reachwide<br><input type="radio"/> Bent - Targeted Riffle<br><input type="radio"/> Vert (Vouchers)            | <input type="checkbox"/> | <input type="radio"/> Big<br><input type="radio"/> Small            |   |
|             |           | <input type="radio"/> Chem<br><input type="radio"/> Peri - BQ, CHLA, ID<br><input type="radio"/> Peri - Plankton Tow<br><input type="radio"/> Peri - STAR<br><input type="radio"/> Fish (Tissue)<br><input type="radio"/> Bent - Reachwide<br><input type="radio"/> Bent - Targeted Riffle<br><input type="radio"/> Vert (Vouchers)            | <input type="checkbox"/> | <input type="radio"/> Big<br><input type="radio"/> Small            |   |
|             |           | <input type="radio"/> Chem<br><input type="radio"/> Peri - BQ, CHLA, ID<br><input type="radio"/> Peri - Plankton Tow<br><input type="radio"/> Peri - STAR<br><input type="radio"/> Fish (Tissue)<br><input type="radio"/> Bent - Reachwide<br><input type="radio"/> Bent - Targeted Riffle<br><input type="radio"/> Vert (Vouchers)            | <input type="checkbox"/> | <input type="radio"/> Big<br><input type="radio"/> Small            |   |
|             |           | <input type="radio"/> Chem<br><input type="radio"/> Peri - BQ, CHLA, ID<br><input type="radio"/> Peri - Plankton Tow<br><input type="radio"/> Peri - STAR<br><input type="radio"/> Fish (Tissue)<br><input type="radio"/> Bent - Reachwide<br><input type="radio"/> Bent - Targeted Riffle<br><input type="radio"/> Vert (Vouchers)            | <input type="checkbox"/> | <input type="radio"/> Big<br><input type="radio"/> Small            |   |

Lab Contact: Richard Kovar (541)754-4735  
 Ph) (541)754-GOOD (4663) OR  
 Fax) (541)754-4338 ATTN: Mariys Cappaert

1) Name/Contact, Time of call, Site Name, Site ID and number, Collected date, Sent date, Visit number, Airbill number.

2) Site status from stream verification form ie: Wadeable, Boatable...

3) Information for both unpreserved samples as well as preserved samples, sent or not.

**For office use only**

Initials: \_\_\_\_\_ Status:

Sample:

Date Entered: \_\_\_\_/\_\_\_\_/\_\_\_\_

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**For Lab use only**

Date Received: \_\_\_\_/\_\_\_\_/\_\_\_\_

Lab: Fax this sheet to 541-754-4338 Attn: Mariys Cappaert

| SAMPLE TYPES           | CONDITION CODES           |
|------------------------|---------------------------|
| BENT = Benthos         | B = Broken Syringe Tip    |
| CHEM = Water Chemistry | C = Cracked Jar           |
| FISH = Fish Tissue     | F = Frozen                |
| PERI = Periphyton      | L = Leaking               |
| VERT = Fish Museum     | ML = Missing Label        |
|                        | NL = Not Preserved        |
|                        | OK = Seems Fine           |
|                        | T = Thawed but still Cold |
|                        | W = Warm                  |

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03/03/2003    2003 Tracking

Figure 3-3. Sample tracking form for unpreserved samples.

**TABLE 3-4. GENERAL GUIDELINES FOR PACKING AND SHIPPING  
UNPRESERVED SAMPLES**

| <b>Sample Type<br/>(container)</b>                  | <b>Guidelines</b>   |
|---|---|
| Water Chemistry (4-L cubitainer and 60-mL syringes) | <p>Ship on day of collection or within 24 hr by overnight courier. Use frozen ice substitute packs, or fresh ice in labeled plastic bags for shipping. <b>Use enough ice so that total weight of each shipping container is 40-50 lbs.</b></p> <p>Line each shipping container with a large plastic bag.<br/>           Place syringes in a plastic container.<br/>           Place syringe container and cubitainer inside of a second plastic bag.<br/>           Cover labels completely with clear tape.<br/>           The cubitainer and syringes should have same sample ID number assigned.<br/>           Confirm the sample ID assigned on the labels matches the ID number recorded on the field collection form and the sample tracking form.</p> |

Then close the outer plastic bag. Insert the copy of the completed tracking form (Figure 3-3) into a self-sealing plastic bag, and tape the bag to the inside of the lid), then close the container. Seal the container with shipping tape (do not use duct tape) and affix any required shipping-related labels to the outside of the container. Attach an adhesive plastic sleeve to the lid of the container and insert any required shipping forms.

### **3.2.2.2 Benthic Macroinvertebrate Samples**

Transport benthic macroinvertebrate samples that are preserved in ethanol in appropriate inner and outer containers, with inner containers surrounded with some type of acceptable absorbent material (e.g., vermiculite). **Before shipping to the lab (after a sample has been preserved for at least one week), decant the majority of the ethanol from the container. Leave only enough ethanol to keep the sample moist.** Place the lid back on the container and seal with electrical tape. The sample will be refilled with ethanol upon receipt at the benthic laboratory. Check to see that all equipment is in the vehicle.

Complete a separate tracking form for benthic macroinvertebrate samples as shown in Figure 3-4. These samples are likely to be retained by the field team and periodically transported to intermediate storage "depots", where they will accumulate prior to shipment or delivery to the appropriate support laboratories. Again, make a copy of the completed form for each site. Retain the original copy to prepare the status report for the site (Section 3.3), and then include it as part of the data forms packet for the site. Include the copy as a "packing list" when you drop off samples at the storage depot.

In order to avoid problems encountered when shipping hazardous materials, decant ethanol from samples until detritus is DAMP. Only ship samples that have been preserved in alcohol for at least one week. Re-seal the sample container with electrical tape. Be sure to mark the shipment as Priority Overnight on the Fed Ex packing slip. The sample will be refilled with alcohol immediately upon receipt in the laboratory.



When shipping field data sheets, make every effort to copy the entire completed set first. If a copy machine is not readily available in the hotel in which the field team is staying, or the team is concerned about the potential exorbitant cost of making copies, try to hold the field sheets until a trip can be made to an EPA Regional office, or possibly a satellite field office. The sheets can also be faxed to Tetra Tech, and the originals then mailed. A pre-labeled Fed Ex envelope will be provided in each site kit to mail the original data sheets to the EPA/ORD central data processing center in Corvallis, Oregon. Depending on the total number of sites a team has, data sheets should be mailed every five days to one week. If any particular team does not have too many more sites than that total (i.e., 5 - 7), they can wait until the completion of their sampling window to mail the entirety of their data sheets. Even if a site is not sampleable, the field crew should complete the site verification form for that site and include that in the set of forms mailed to Corvallis.

### **3.3 STATUS REPORTS**

After visiting and/or sampling a site, each field team leader files a status report with their respective field coordinator and with Tetra Tech. Reports should be filed every day before unpreserved samples are shipped. File a status reports for **every site visited** (even if not sampled). These status reports inform the project coordinators of the anticipated delivery of samples (this is especially important when samples are shipped on a Friday for Saturday delivery), and allow the information management staff to better track sites and samples (especially preserved samples that are not delivered directly to a laboratory).

The procedure for preparing and submitting a status report to the field coordinator is presented in Table 3-6. The information needed for a status report comes from the Stream Verification Form and from the tracking forms prepared for both unpreserved and preserved samples. Status reports can be submitted by phone/voice mail, e-mail, or by FAX. Teams should also inventory their supplies after each stream visit. Submit requests for replenishment to the field coordinator well in advance of exhausting on-hand stocks.

### **3.4 EQUIPMENT AND SUPPLIES**

A checklist of equipment and supplies required to conduct the activities described in Section 3 is presented in Figure 3-7. This checklist is similar to the checklist in Appendix A, which is used at the base location to ensure that all of the required equipment is brought to the stream. Use this checklist to ensure that equipment and supplies are organized and available at the stream site in order to conduct the activities efficiently.

**TABLE 3-5. FIELD DATA SHEETS TO BE SHIPPED**

| <b>Number per Site</b> | <b>Item</b>   |
|------------------------|---|
| 1                      | Verification Form   |
| 1                      | Sample Collection Form and Stream Discharge Form                              |
| 11 + extras            | Channel/Riparian Cross-section & Thalweg Profile Form                         |
| 1                      | Slope & Bearing Form  |
| 1                      | Legacy Tree Form  |
| 1                      | Channel Constraint & Field Measurement Form, Torrent Evidence Assessment Form |
| 1                      | Rapid Habitat Assessment Form   |
| 1                      | Assessment Form for Visual Assessment   |
| 2 + extras             | Sample Tracking Form  |

**TABLE 3-6. STATUS REPORTING**

1. File a status report after **every site visit** (even if not sampled) on the day that you ship unpreserved samples (before shipment if practical). Submit reports to the field coordinator.
2. Complete two separate tracking forms for each site. One form is for unpreserved water chemistry samples, the other for preserved benthos samples. Make a copy of each form (by hand or a photocopy). Include the copy with the sample shipment (unpreserved) or with the samples themselves (preserved samples).
3. Use the original copies of the tracking forms and the stream verification form from the site to prepare the status report.
4. Contact Tetra Tech at the following numbers: **(443) 465-7663 or 800-504-4861**. The status report should be filed with Jennifer Pitt. The alternate contact is Kristen Pavlik at 410-356-8993. NOTE: There is no need to leave a separate message with the analytical laboratory staff in Corvallis. They will be alerted to the anticipated delivery of the samples.
5. Include the following information in your report if left as a voice message or e-mail (**Jennifer.Pitt@tetrattech.com**):
  - Your name and organization.
  - The name of the study (Wadeable Stream Assessment).
  - From the stream verification form:
    - Site ID number and visit number
    - Sampling status from the verification form (e.g., Sampleable/Wadeable, Non-sampleable-not wadeable, no access-access denied, etc.)
    - Date sampled or visited
  - From the tracking form for unpreserved samples:
    - Date shipped
    - Airbill number
    - Anticipated date of delivery to laboratory (usually the next day)
  - For each sample in shipment:
    - Sample ID
    - Sample type (chemistry)
    - Comments regarding condition or missing subsamples
  - From the tracking form for preserved samples:
    - Sample ID
    - Sample Type (reachwide benthos)
    - Comments regarding number of jars, condition, or missing samples

Alternatively, you can FAX copies of the verification form and two tracking forms to the following number: **(410) 356-9005 ATTN: Jennifer Pitt or Kristen Pavlik**.

Return the original forms to the data forms packet for the site for later shipment using the shipping labels included in the site dossier. Field data forms should be copied and shipped within 5-7 days to the WSA Data Management Team, operated under contract to CSC: Marlys Cappaert, c/o U.S. EPA, NHEERL/WED, 200 W. 35<sup>th</sup> St., Corvallis, OR 97333.

**TABLE 3-7. SUMMARY OF BASE LOCATION ACTIVITIES AND SUPPLIES**

| QTY.                                | ITEM  |  |
|-------------------------------------|---|--|
| <b>Before Departure for Stream</b>  |   |  |
| 1                                   | Dossier of access information for scheduled stream site   |  |
| 1                                   | Sampling itinerary form or notebook   |  |
| 1                                   | Safety log and/or personal safety information for each team member  |  |
| 1                                   | GPS receiver with extra batteries   |  |
| 1                                   | Field thermometer   |  |
| 1                                   | 500-mL plastic bottle containing deionized water  |  |
| 2                                   | 500-mL plastic bottles containing conductivity QCCS, labeled "Rinse" and "Test"   |  |
| 1                                   | Current velocity meter with probe and wading rod  |  |
|                                     | Assorted extra batteries for dissolved, conductivity, and current velocity meters   |  |
| 1 set                               | Completed water chemistry sample labels (3 labels with same barcode)  |  |
| 1 set                               | Water chemistry sample containers (one 4-L Cubitainer and two 60-mL syringes with a plastic storage container)                                    |  |
| 1 box                               | Clear tape strips to cover completed sample labels  |  |
| 1                                   | Checklist of all equipment and supplies required for a stream visit   |  |
| <b>Packing and Shipping Samples</b> |   |  |
|                                     | Ice or frozen ice substitute packs  |  |
| 1 box                               | 2-gal heavy-duty sealable plastic bags  |  |
| 1 box                               | 1-gal heavy-duty sealable plastic bags  |  |
| 1-box                               | 30-gal plastic garbage bags   |  |
| 1                                   | Insulated shipping container for water chemistry sample   |  |
| 1                                   | Container, absorbent material, labels, and shipping forms required to transport and/or ship benthic macroinvertebrate sample preserved in ethanol |  |
| 2-4                                 | Sample tracking forms (can xerox completed originals or complete two sets of forms per shipment)  |  |
|                                     | Shipping airbills and adhesive plastic sleeves  |  |

## NOTES

