Sample Schematics:

Choose the ONE of the sample schematics that most resembles the arrangement for your raw water source and treatment plant(s). Mark it with a pen as needed. Indicate where the samples will be taken. If you recycle your filter backwash water, indicate on the schematic where the recycled filter backwash water re-enters the treatment process.

**All samples must be taken at a point prior to any chemical treatment and prior to any re-entry of recycled filter backwash water.**

If there is another schematic on the opposite side of the schematic that you have chosen, please cross it out with your pen (to prevent bleeding through, please do not use a marker). You can create your own schematics if you choose.

Electronic copies of all the information in this package are located at [www.tceq.state.tx.us/goto/pws/lt2](http://www.tceq.state.tx.us/goto/pws/lt2)
Figure 1. Sample Tap before Chemical Treatment and Backwash Water Recycle (if applicable)

LT2 Rule: Systems must collect source water samples prior to chemical treatment [40 CFR § 141.703(b)(1)], unless approved by the State to collect source water samples after chemical treatment [40 CFR § 141.703(b)(2)]. Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition [40 CFR § 141.703(c)].
Figure 2. Multiple Sources: Sample Tap after Two Combined Sources

**LT2 Rule:** Systems must collect source water samples prior to chemical treatment [40 CFR § 141.703(b)(1)], unless approved by the State to collect source water samples after chemical treatment [40 CFR § 141.703(b)(2)]. Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition [40 CFR § 141.703(c)].

**Systems unable to sample from this combined source location should refer to Figure 3.**

Multiple Alternating Sources:
Systems that use multiple alternating sources (seasonal or due to water quality changes) must sample from the source water in use on the designated sampling date following normal operating practices [40 CFR § 141.703(e)].
LT2 Rule: Systems must collect source water samples prior to chemical treatment [40 CFR § 141.703(b)(1)], unless approved by the State to collect source water samples after chemical treatment [40 CFR § 141.703(b)(2)]. Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition [40 CFR § 141.703(c)].

OPTION 1 (Recommended Option):
Collect samples manually at each source near the intake on the same day and composite them into one sample to be analyzed. The volume of sample from each source must reflect its proportion of the total plant flow at the time the samples were collected [40 CFR § 141.703(e)(2)(i)].

- **Source water “A”**: 75% of flow
- **Source water “B”**: 25% of flow
- **100% To be analyzed**

Multiply result by percentage of contribution to total flow

Sum together all source water results for total value

OPTION 2:
Collect samples manually at each source near the intake on the same day and analyze each independently, then calculate a weighted average of the analysis results. This is done by multiplying the result for each source by the percentage of its contribution to the total plant flow at the time the samples were collected, and then summing these values [40 CFR § 141.703(e)(2)(ii)].
LT2 Rule: Systems must collect source water samples prior to chemical treatment [40 CFR § 141.703(b)(1)], unless approved by the State to collect source water samples after chemical treatment [40 CFR § 141.703(b)(2)]. Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition [40 CFR § 141.703(c)].
The correct sampling location for systems using bank filtration differs depending on whether the bank filtered water is treated by subsequent filtration:

**Scenario 1:** Systems that receive *Cryptosporidium* treatment credit for bank filtration must collect source water samples in the surface water prior to bank filtration [40 CFR § 141.703(d)(1)].

**Scenario 2:** Systems using bank filtered water that is treated by subsequent filtration must collect source water samples from the well source (i.e., after bank filtration) but before any other treatment. Use of bank filtration during monitoring should be consistent with routine operational practice. Systems collecting samples after a bank filtration process may not receive *Cryptosporidium* treatment credit for the bank filtration [40 CFR § 141.703(d)(2)].
Systems that use ground water under the direct influence of surface water (GWUDI) must collect source water samples from the well source unless they received Cryptosporidium treatment credit for bank filtration (see Figure 5).

**LT2 Rule:** Systems must collect source water samples prior to chemical treatment [40 CFR § 141.703(b)(1)], unless approved by the State to collect source water samples after chemical treatment [40 CFR § 141.703(b)(2)]. Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition [40 CFR § 141.703(c)].
**Scenario 1:**

Systems using a presedimentation basin with chemical addition should collect source water samples prior to chemical treatment, unless approved by the State to collect source water samples after chemical treatment. Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition [40 CFR § 141.703(c)].

**Scenario 2:**

Systems without chemical addition prior to or in a presedimentation basin, or that have been approved by the State to collect source water samples after chemical treatment, may sample after the presedimentation basin but will not receive any treatment credit for presedimentation.
Source water samples should be collected after the off-stream storage reservoir. Use of off-stream storage during monitoring should be consistent with routine operational practice.

LT2 Rule: Systems must collect source water samples prior to chemical treatment [40 CFR § 141.703(b)(1)], unless approved by the State to collect source water samples after chemical treatment [40 CFR § 141.703(b)(2)]. Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition [40 CFR § 141.703(c)].
Figure 9. Mixed Source Water: Ground Water and Surface Water Sources

Scenario 1:

Raw water intake → Raw water chemical building

If a sample tap is available where the sources are combined prior to treatment, systems must collect samples from the tap [40 CFR § 141.703(e)(1)]. Systems unable to sample from this combined source location should refer to Figure 3.

Source water → Raw water intake

Well → Groundwater

Groundwater well cross section

Scenario 2:

LT2 Rule: Systems must collect source water samples prior to chemical treatment [40 CFR § 141.703(b)(1)], unless approved by the State to collect source water samples after chemical treatment [40 CFR § 141.703(b)(2)]. Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition [40 CFR § 141.703(c)].

Source water → Raw water intake

Well → Groundwater

Groundwater well cross section

LT2 sample point → Chemical addition

Backwash water recycle (if applicable)

Groundwater sources are not required to be monitored under the LT2 Rule. No sample is needed from this source.

Systems that use ground water pumped directly to the distribution system should collect samples only from the surface water source and prior to backwash water or chemical addition.
Figure 10. Blank Schematic

Public Water System (PWS) name: ______________________________
PWS ID: ______________________________
Water treatment plant name: ______________________________
Water system facility ID: ______________________________

Indicate the following on the diagram that best represents your facility type (if applicable):
1. LT2 sampling location
2. Points of chemical treatment prior to the treatment plant
3. Filter backwash water addition
4. Pretreatment processes (e.g., presedimentation basins, bank filtration)
5. Multiple source waters (show by adding additional sources)