



**Long Term 2
Enhanced Surface Water Treatment Rule
(LT2ESWTR)
Source Water Sampling Plan Requirements Checklist**

PWS ID Number		PWS Name		
Contact Name		Phone Number		E-Mail
Treatment Plant Surface Water (TPSW) Number		TPSW Name		

Submit completed source water intake sampling plans to ADEQ or MCESD (if MCESD regulated), no later than date listed in this table:

Schedule and Population (or in a combined distribution system in which the largest system serves)	Sampling Period	Plans Due
1 (serves ≥ 100,000)	April 2015 – March 2017	January 1, 2015
2 (serves 50,000 – 99,999)	October 2015 – September 2017	July 1, 2015
3 (serves 10,000 – 49,999)	October 2016 – September 2018	July 1, 2016
4 (serves < 10,000)	October 2017 – September 2018	July 1, 2017

Instructions: Select the applicable option (A, B, C, or D) and complete the required steps.

<input type="checkbox"/> A. Schedules 1-4	Schedule 1-4 system chooses to provide treatment for <i>Cryptosporidium</i> (5.5 log), instead of sampling for <i>E. coli</i> or <i>Cryptosporidium</i> <i>Complete and submit a Notice of Intent to Provide Treatment (DWAR 20 (NOI) Treatment).</i>
<input type="checkbox"/> B. Schedule 4 only	Schedule 4 system chooses to sample for <i>Cryptosporidium</i>, instead of <i>E. coli</i>: 1. Complete and submit the <i>Notice of Intent to sample for Cryptosporidium</i> (DWAR 20 (NOI), Sample). 2. See <i>Additional instructions and required steps for system sampling for LT2</i> .
<input type="checkbox"/> C. Schedule 4 only	Schedule 4 system samples for <i>E. coli</i> <i>See Additional instructions and required steps for system sampling for LT2.</i>
<input type="checkbox"/> D. Schedules 1-3 only	Schedule 1-3 system samples for <i>Cryptosporidium</i>, <i>E. coli</i> and turbidity. <i>See Additional instructions and required steps for system sampling for LT2.</i>

Additional instructions and required steps for system sampling for LT2 (Option B, C, or D selected):

<input type="checkbox"/> 1.	Select the schematic that represents the system's source/treatment plant configuration. If none of the first nine LT2 schematics attached to this document fit the system's configuration, use schematic number 10, or the system may submit their own.
<input type="checkbox"/> 2.	Mark the location of the system's sampling point(s), and all points of chemical treatment from the intake to the treatment plant on the selected schematic. <ul style="list-style-type: none"> The system's sampling point(s) must be representative of water entering the treatment plant. The sampling point must be prior to any chemical treatment. Contact ADEQ or MCESD for further instructions if sampling prior to chemical treatment is proposed. Systems that have a raw water off-stream reservoir or storage must collect samples after the raw water storage/reservoir.

DWAR 20 (Checklist)

January 2017



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	<ul style="list-style-type: none"> Systems that apply copper sulfate into the reservoir(s) must include this information in the sampling worksheet. Systems should maximize the amount of time between the application of copper sulfate and the collection of samples. Systems that recycle their filter backwash water must indicate the point where the recycled backwash re-enters the treatment process. The sampling point must be prior to the point where any filter backwash is recycled back into the treatment process. Systems that recycle their filter backwash into the reservoir(s) must provide these details in the worksheet. <p>Systems that have more than one source must collect samples after all raw water sources are combined if a sampling tap is available. Raw water samples not combined prior to treatment may require composite samples from each source (recommended if no combined sample tap is available), or separate analyses from each source with a calculated weighted average.</p>																
<input type="checkbox"/> 3.	Complete a "Sampling Location Worksheet" for each surface water source sampling intake location using DWAR 20 (Worksheet).																
<input type="checkbox"/> 4.	<p>Provide laboratory Information for each lab used (duplicate table as needed):</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Laboratory Name</td> <td style="width: 30%;"></td> <td style="width: 20%;">Laboratory ID Number</td> <td style="width: 20%;"></td> </tr> <tr> <td>Contact Name</td> <td></td> <td>Phone Number</td> <td></td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Laboratory Name</td> <td style="width: 30%;"></td> <td style="width: 20%;">Laboratory ID Number</td> <td style="width: 20%;"></td> </tr> <tr> <td>Contact Name</td> <td></td> <td>Phone Number</td> <td></td> </tr> </table> <p><i>The system must select and use a laboratory using U.S. EPA approved methods that is certified by Arizona Department of Health Services for Cryptosporidium (Schedule 1-3 systems), and E. coli enumeration (counting) (Schedule 1-4 systems).</i></p>	Laboratory Name		Laboratory ID Number		Contact Name		Phone Number		Laboratory Name		Laboratory ID Number		Contact Name		Phone Number	
Laboratory Name		Laboratory ID Number															
Contact Name		Phone Number															
Laboratory Name		Laboratory ID Number															
Contact Name		Phone Number															
<input type="checkbox"/> 5.	<p>Select and submit the sampling dates:</p> <ul style="list-style-type: none"> Use the enclosed calendar to select the days in the appropriate monitoring period, on which the system will be collecting samples (use key at top of page 1). Samples must be collected within a five day window (the date selected, plus or minus 2 days). Schedule 4 systems must collect <i>E. coli</i> samples on at least a biweekly basis (every two weeks) for one year beginning in October 2017. <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;">Monitoring Begin Date</td> <td></td> </tr> <tr> <td>Monitoring End Date</td> <td></td> </tr> </table> <p>If the system chooses to collect samples on a more frequent basis (e.g., weekly), the samples must be evenly spaced throughout the monitoring period.</p>	Monitoring Begin Date		Monitoring End Date													
Monitoring Begin Date																	
Monitoring End Date																	

Submit both pages of DWAR 20 (Checklist), and all required information from A, B, C, or D to the system's regulatory agency:

LT2 Rule Specialist
Drinking Water Monitoring and Protection Unit
 Arizona Department of Environmental Quality
 1110 W. Washington St., Mail Code 5415 B-2
 Phoenix, AZ 85007
lt2rule@azdeq.gov

Manager
Safe Drinking Water Program
 Maricopa County Environmental Services Department
 1001 N Central Avenue, Suite 250
 Phoenix, AZ 85004
 Desk: 602.506.6935 | Fax: 602.372.0866
sdwquestions@mail.maricopa.gov

DWAR 20 (Checklist)

January 2017

LT2 SOURCE WATER MONITORING SAMPLING CALENDAR

PWS Name:

PWS ID #:

TPSW #:

2017

October						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

November						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

December						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

2018

January						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

February						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

March						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

April						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

May						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

June						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

July						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

August						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

September						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) System Schematic Diagrams

Figure 1. Sample Tap before Chemical Treatment and Backwash Water Recycle (if applicable)

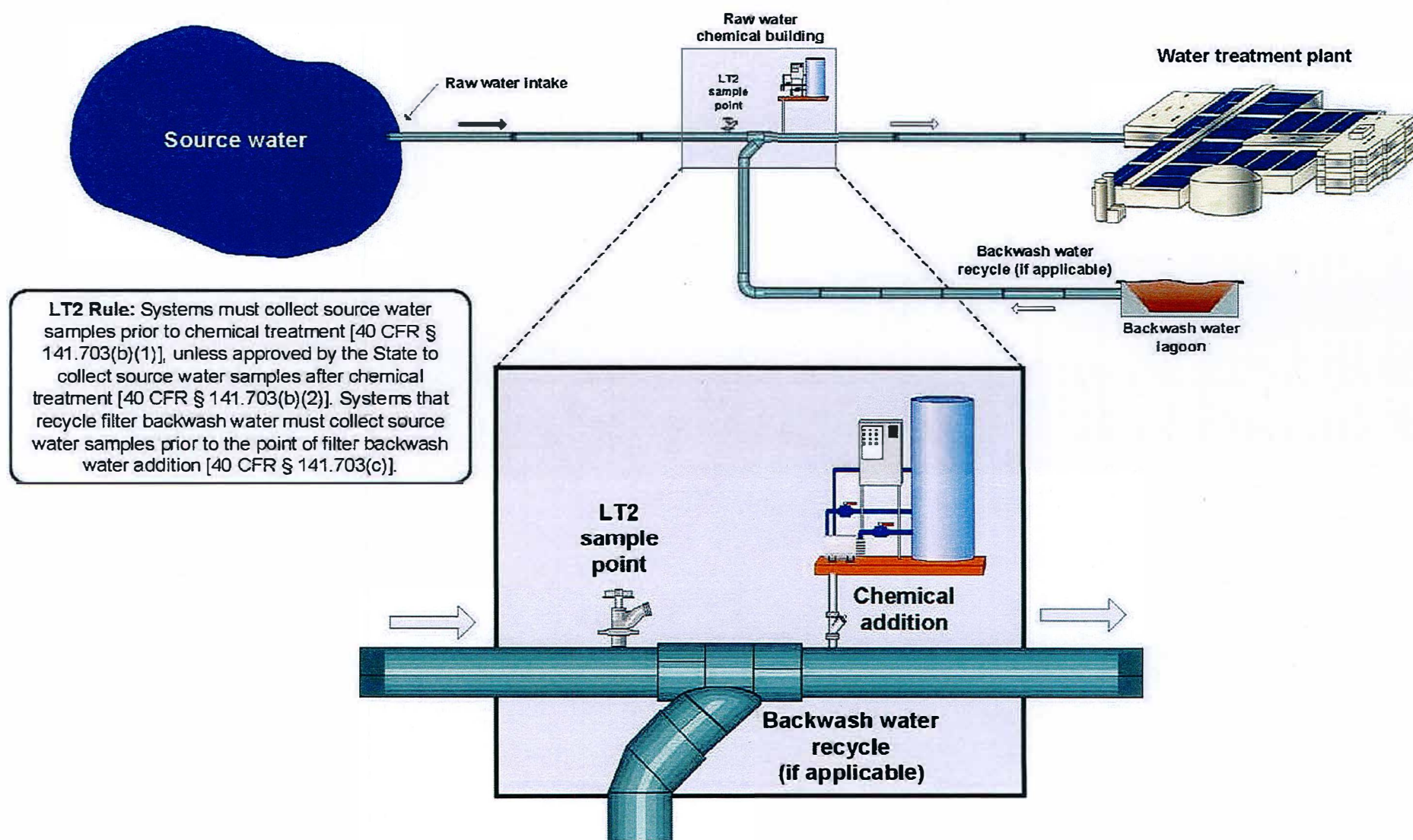


Figure 2. Multiple Sources: Sample Tap after Two Combined Sources

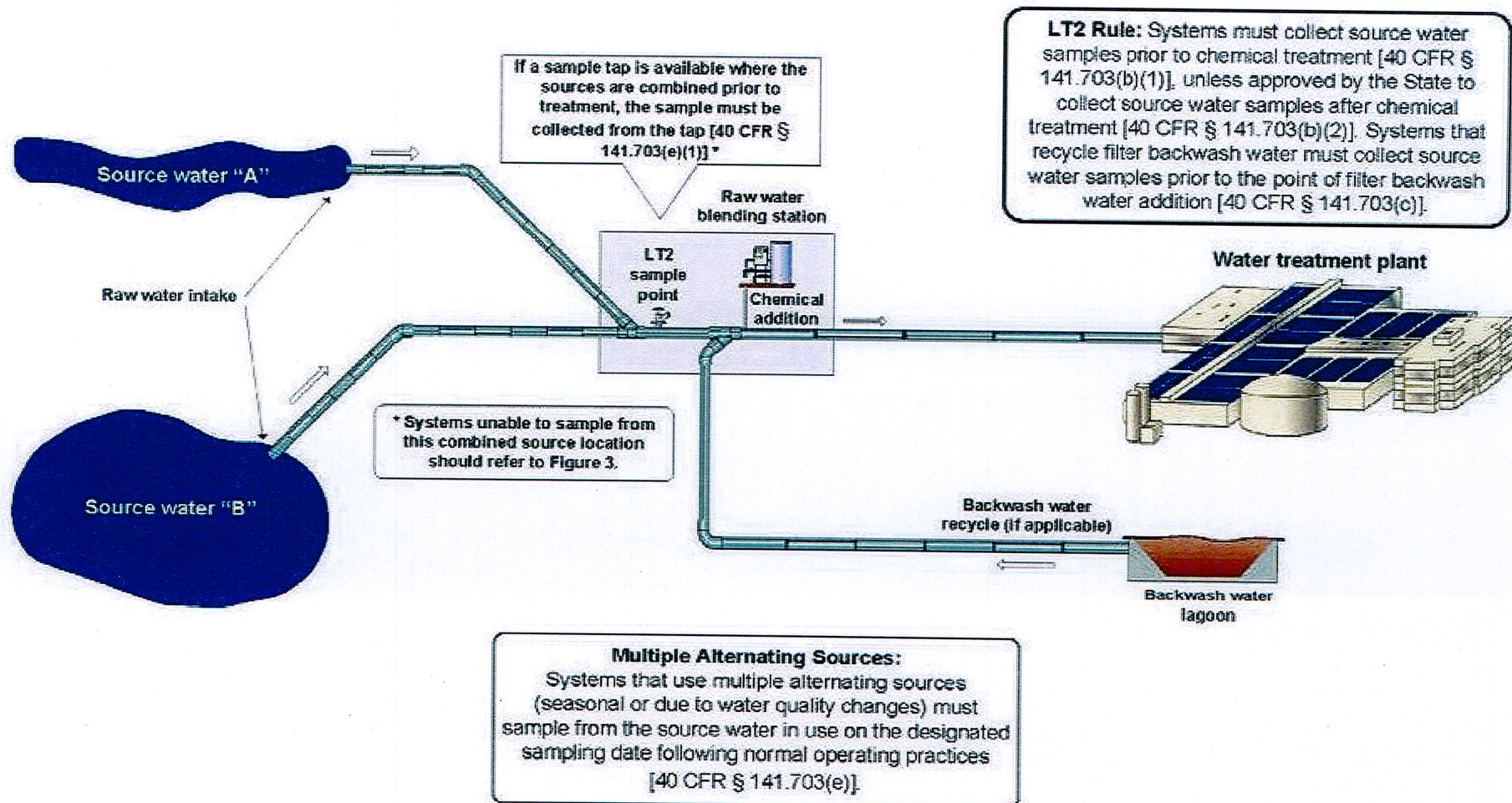
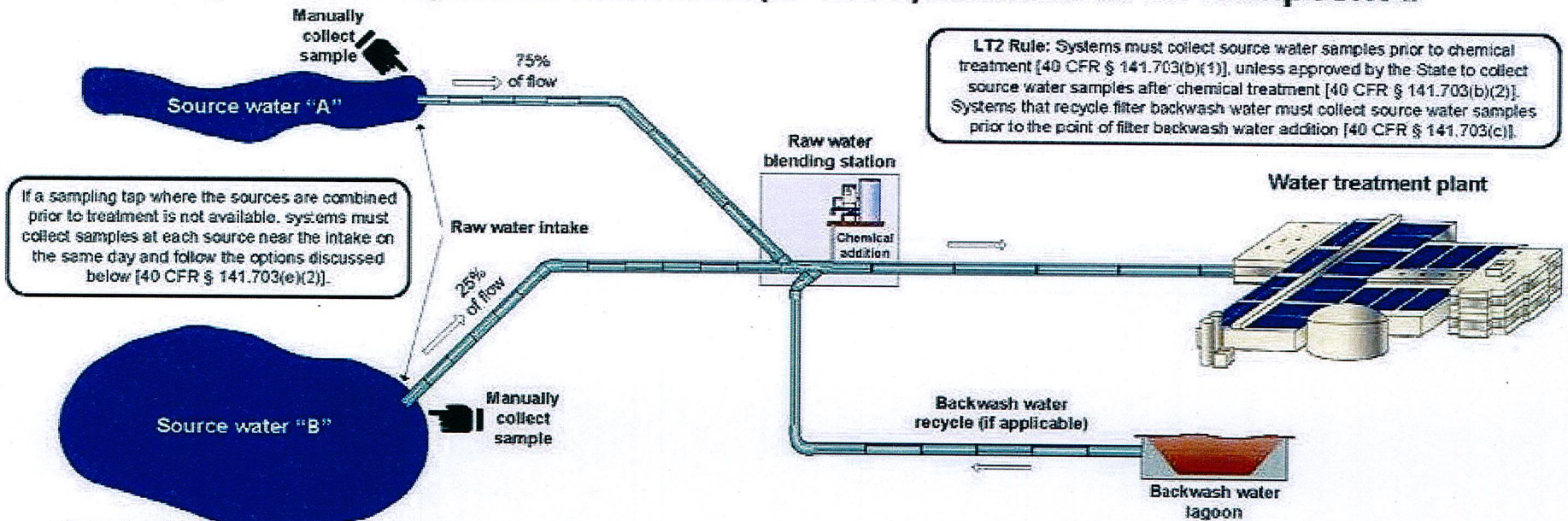
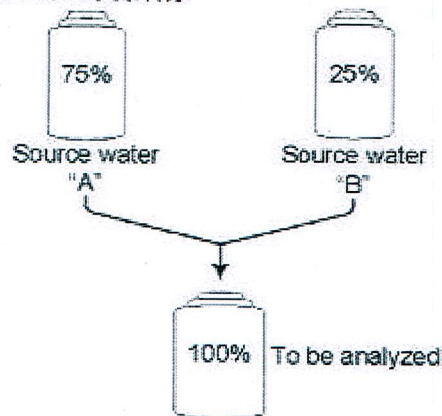


Figure 3. Multiple Sources: Two (or More) Sources to be Composited



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)].



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)].

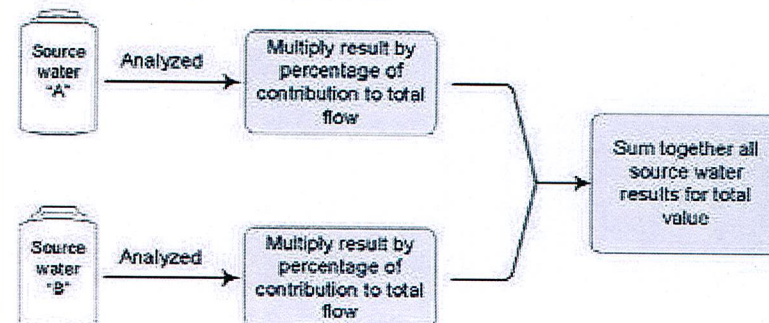


Figure 4. Multiple Plants with the Same Influent

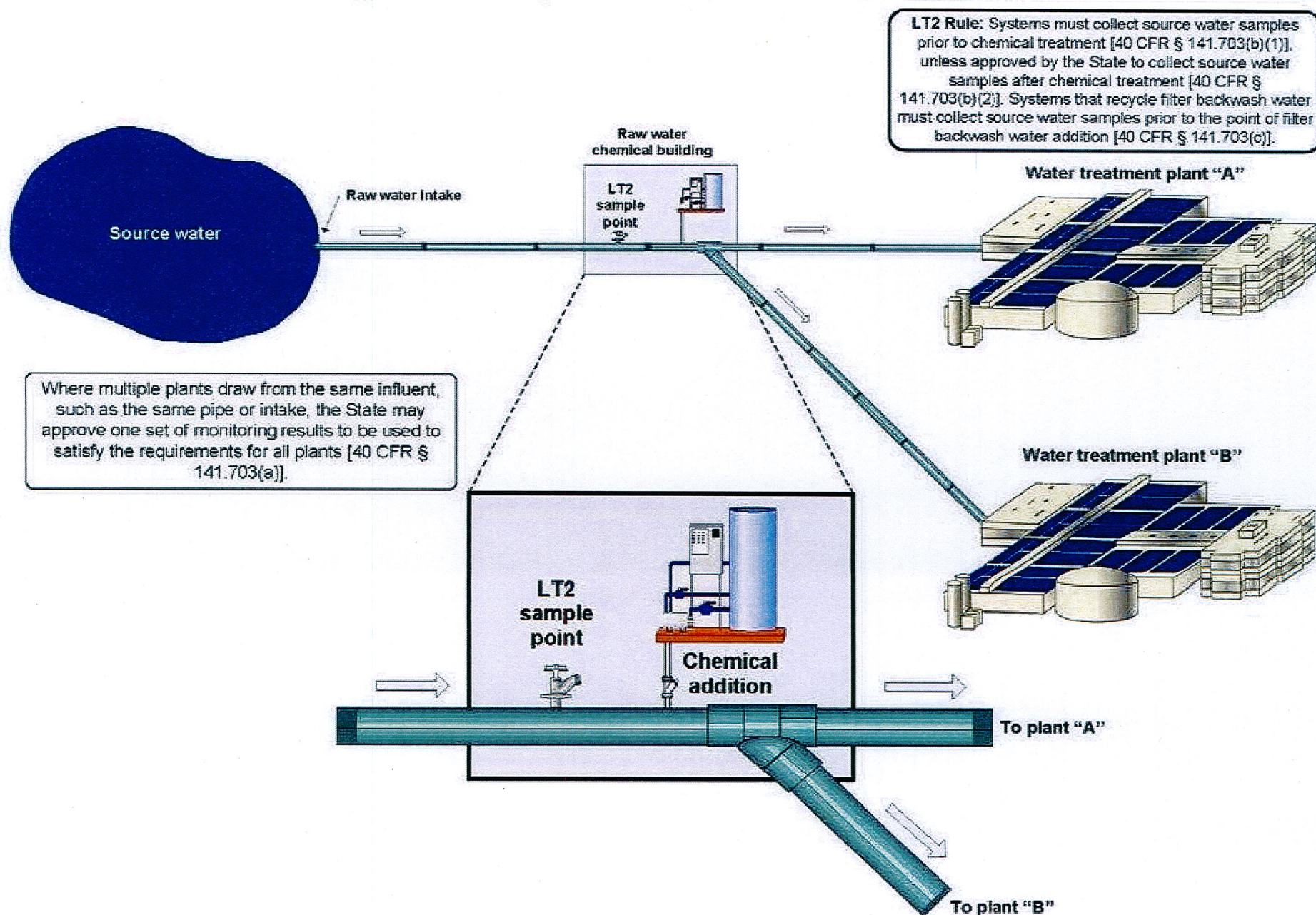
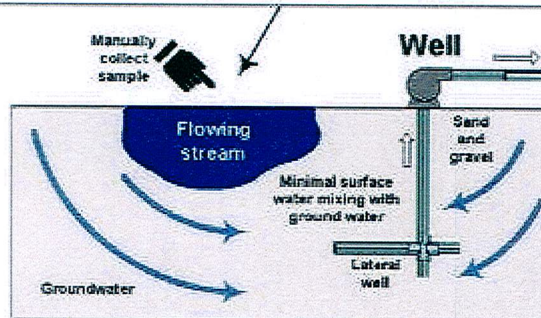


Figure 5. Bank Filtration

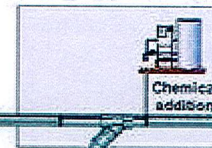
The correct sampling location for systems using bank filtration differs depending on whether the bank filtered water is treated by subsequent filtration:

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)]. *



Bank filtration cross section

Raw water
chemical building



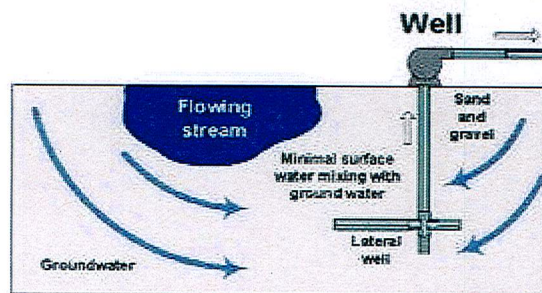
Water treatment plant



Backwash water
recycle (if applicable)

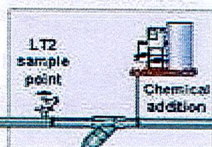


Scenario 2: Systems using bank filtered water that is treated by subsequent filtration must collect source water samples from the well source (i.e., after bank filtration) but before any other treatment. ** Use of bank filtration during monitoring should be consistent with routine operational practice.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

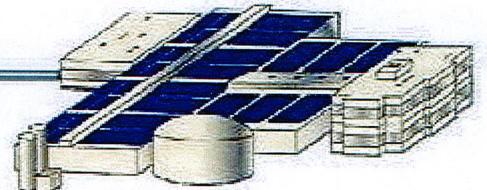


Bank filtration cross section

Raw water
chemical building



Water treatment plant



Backwash water
recycle (if applicable)



* Refers to systems using bank filtration to meet *Cryptosporidium* removal requirements of the Interim Enhanced Surface Water Treatment Rule (IESWTR) or Long Term 1 ESWTR under 40 CFR § 141.173(b) or 40 CFR § 141.522(a).
** Refers to systems where bank filtration serves as pretreatment to a filtration plant.

Figure 6. Ground Water Under the Direct Influence of Surface Water (GWUDI)

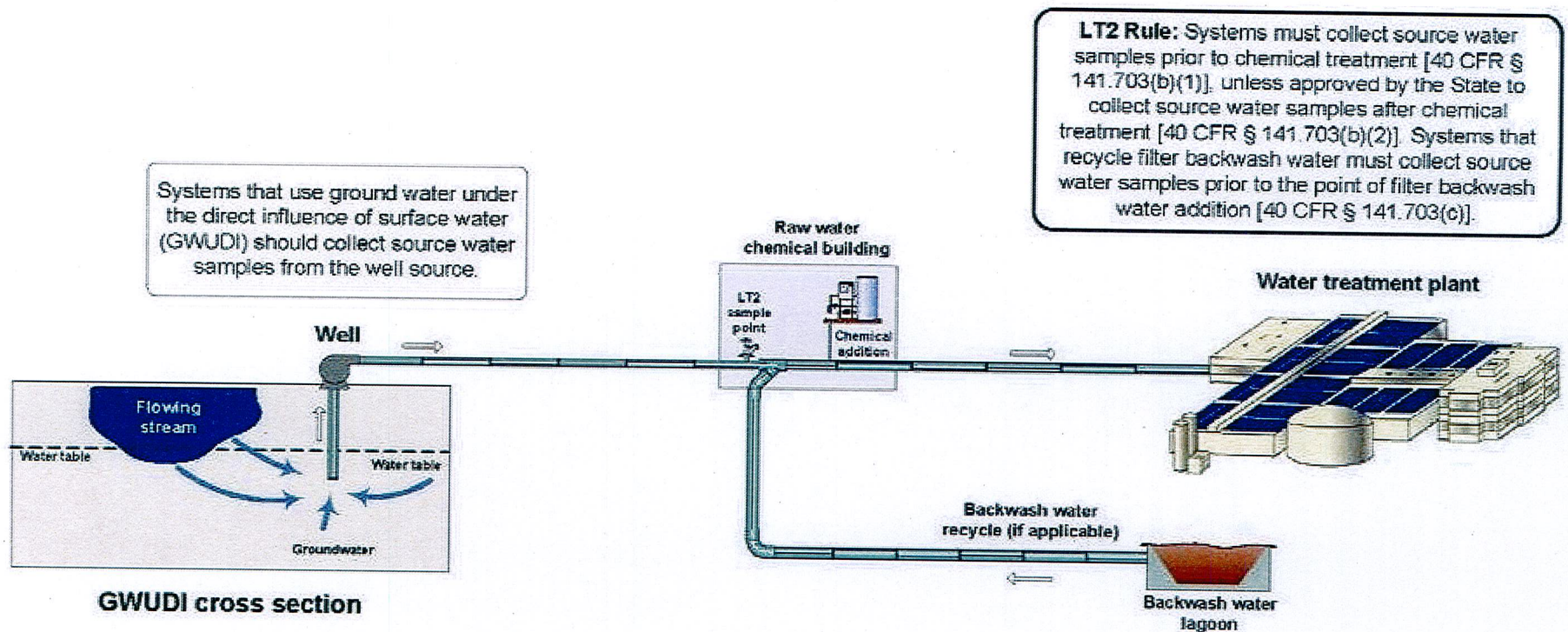
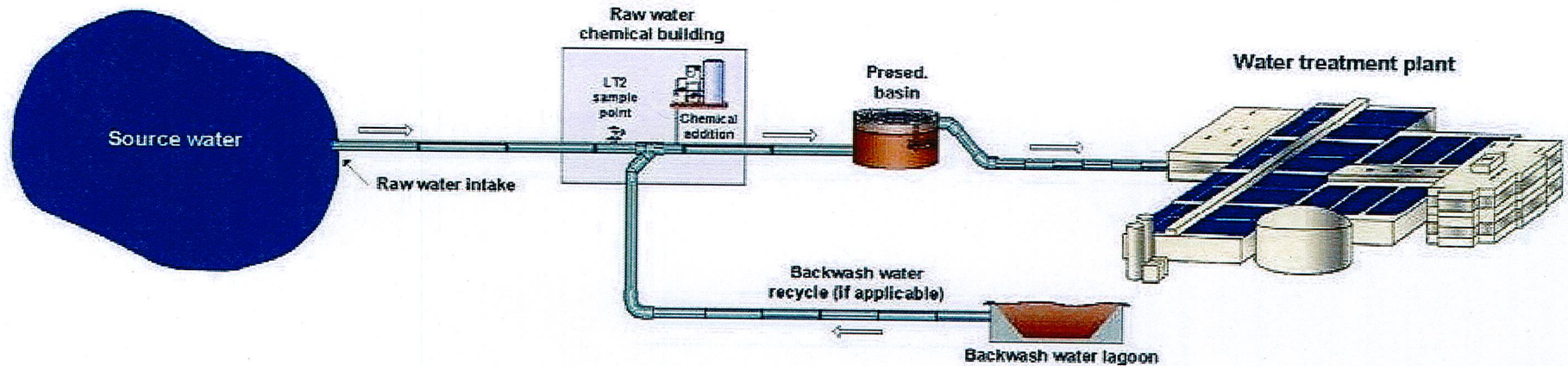


Figure 7. Presedimentation Basin

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.

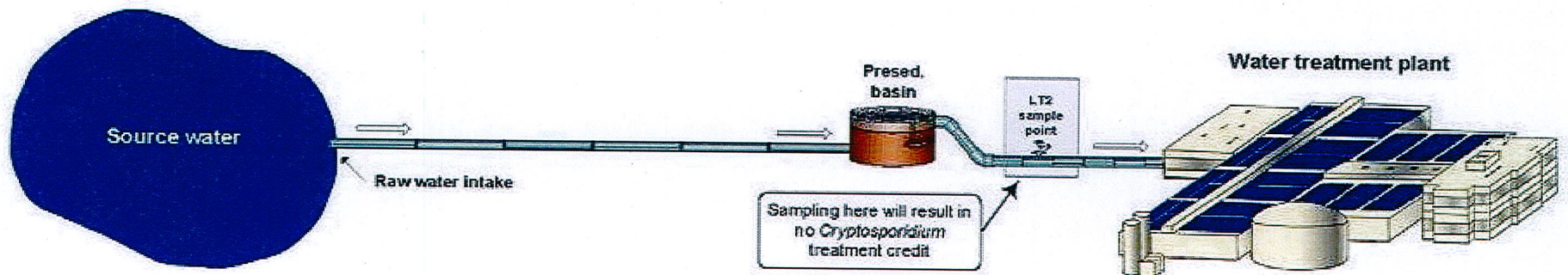


Figure 8. Raw Water Off-Stream Storage

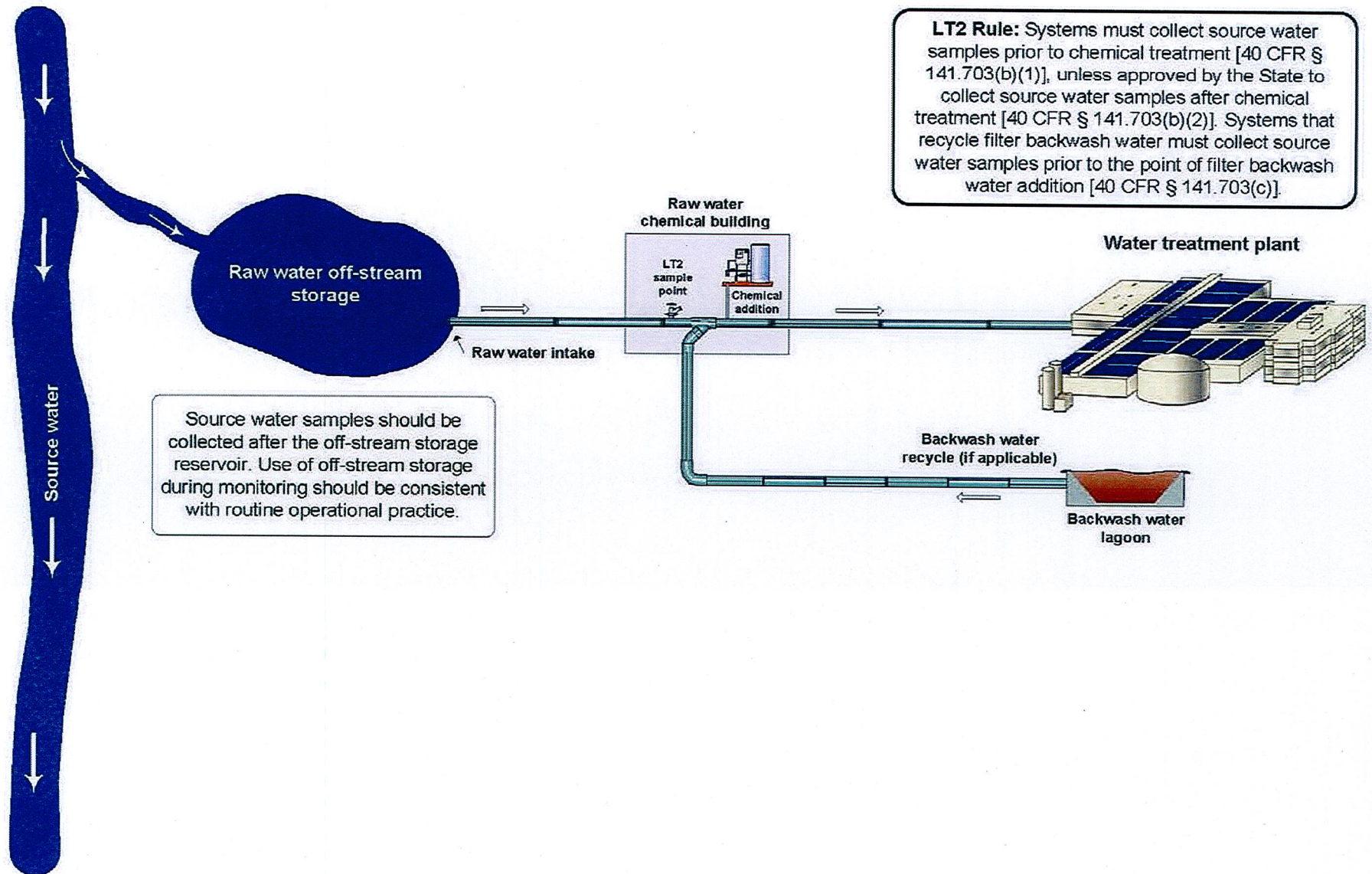


Figure 9. Mixed Source Water: Ground Water and Surface Water Sources

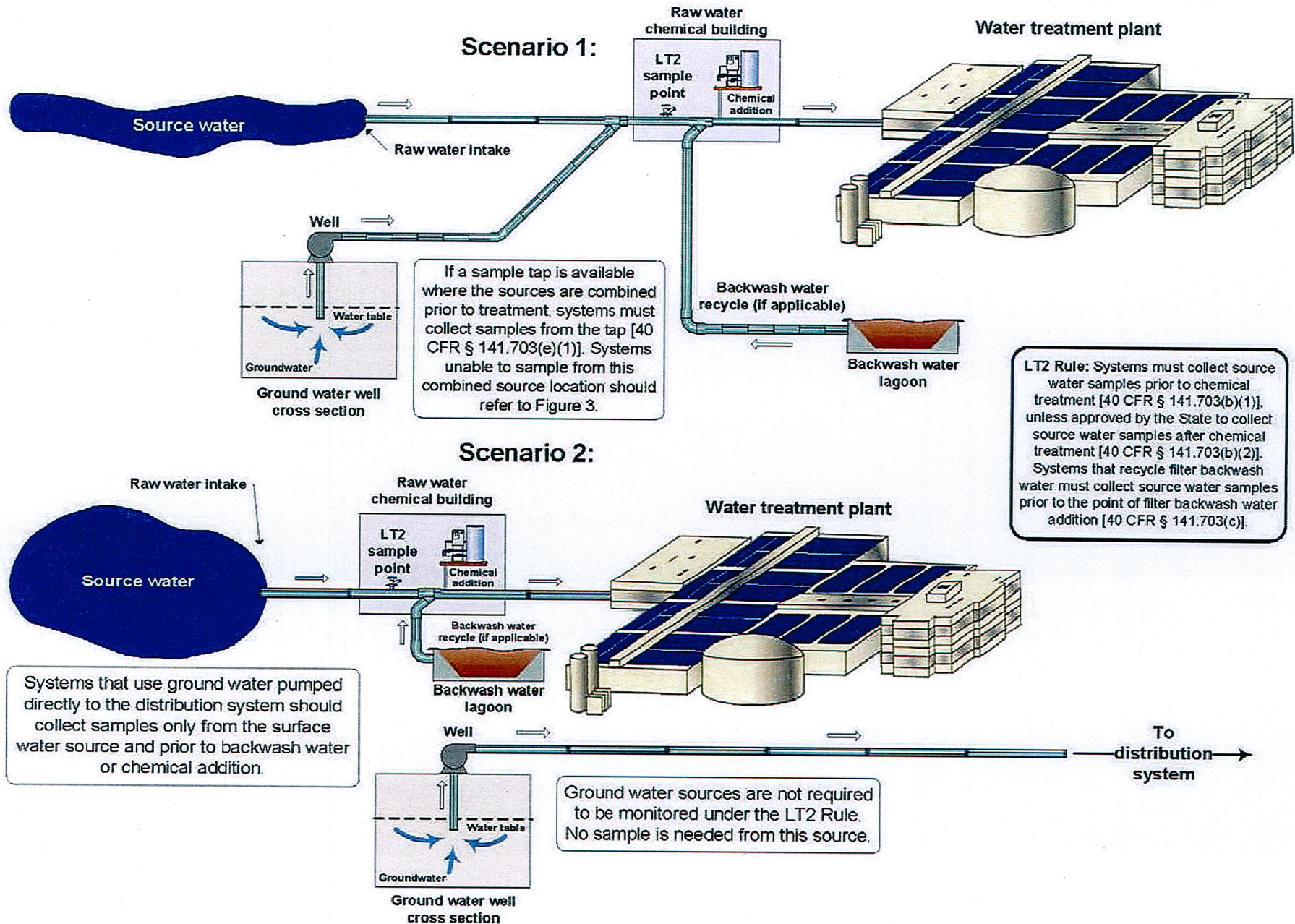


Figure 10. Blank Schematic for Submission

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)

