

EPA 2020 COVID-19 WATER SECTOR SURVEY

Appendix B: Questionnaire

June 2021



810-R-21-001

EPA COVID-19 Water Sector Survey

Transcription of questionnaire fielded electronically October-December 2020

A. DEMOGRAPHICS

A. Please start by providing some basic demographic information.

Organization name and (if applicable) identifier: [Organization Name]

Organization type: [ORG TYPE: either community water system, wastewater system, or American Indian or Alaska Native Village utility]

- A1. Please select the primary location of your operations. [drop-down menu of states and territories]
- A2. Please tell us the approximate number of customers your [Organization Type] serves (the number of people, not the number of connections). [The next sentence to be inserted only for surveys going to community water systems (not wastewater facilities or AI/ANV utilities)] Include both those you serve directly and (if applicable) those who receive treated drinking water produced by you and resold by other systems. (Enter a number) [FIELD FOR NUMERICAL ANSWER]

B. SUPPLY CHAIN ISSUES

B. In this section of the survey, we'd like to know about your experiences and concerns involving COVID-19-related shortages and supply chain disruptions.

- B1. What kinds of shortages or supply chain disruptions did your [Organization Type] experience from **January 2020 through present day**? (Select all that apply)

<input type="radio"/>	Treatment chemicals (e.g., sodium hypochlorite, lime)
<input type="radio"/>	Personal protective equipment (e.g., masks, gloves)
<input type="radio"/>	Durable goods, other critical equipment and supplies (e.g., pipes, fuel, filter media), and other items
<input type="radio"/>	None

- B1.1.1 [If "Treatment chemicals" was selected in B1] How severe were the treatment chemical shortages or supply chain disruptions that you experienced from January 2020 through present day?

Item	No impact from COVID-19	Slight (did not compromise operations)	Moderate (required operational changes to maintain a constant level of service)	Severe (affected service delivery)
Carbon dioxide	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ferric chloride	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fluoride	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gaseous chlorine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Liquid oxygen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lime	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Orthophosphate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Polymers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Potassium permanganate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sodium hydroxide	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sodium hypochlorite	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 1 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 2 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 3 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 4 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 5 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B1.1.2. [If at least one positive answer was given in B1.1.1] What contributed to each shortage or supply chain disruption? (select all that apply)

Item	Unavailable from supplier(s)	Delayed / backordered from supplier(s)	Transportation / distribution difficulties	Price	Other (please specify)
[options based on answers given to B1.1.1]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	[TEXT ENTRY BOX]

B1.1.3. [If at least one positive answer was given in B1.1.1] How did you address each shortage or supply chain disruption? (select all that apply)

Item	Found alternative supplier	Drew down existing inventory	Switched chemicals, procedures, or technologies	Sought help from neighboring utilities or mutual aid network (e.g., WARN)	Coordinated with local or state emergency management agency	Other (please specify)
[options based on answers given to B1.1.1]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	[TEXT ENTRY BOX]

B1.1.4. [If “Switch chemicals, procedures, or technologies” selected in B1.1.3] What did you switch to?

	Switched to:
[options based on answers given to B1.1.3]	[TEXT ENTRY BOX]

B1.2.1 [If “Personal protective equipment” was selected in B1] How severe were the personal protective equipment shortages or supply chain disruptions that you experienced from January 2020 through present day?

Item	No impact from COVID-19	Slight (did not compromise operations)	Moderate (required operational changes to maintain a constant level of service)	Severe (affected service delivery)
N95 masks and/or elastomeric respirators	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alternative mask options (surgical, cloth, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Face shield and/or protective eye wear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nitrile and/or latex gloves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tyvek suite and/or disposable coveralls	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Sanitizing wipes, sprays for cleaning work offices, or gels for hand sanitizing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 1 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 2 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 3 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 4 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 5 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B1.2.2 [If at least one positive answer was given in B1.2.1] What contributed to each shortage or supply chain disruption? (select all that apply)

Item	Unavailable from supplier(s)	Delayed / backordered from supplier(s)	Transportation / distribution difficulties	Price	Other (please specify)
[options based on answers given to B1.2.1]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	[TEXT ENTRY BOX]

B1.2.3. [If at least one positive answer was given in B1.2.1] How did you address each shortage or supply chain disruption? (select all that apply)

Item	Found alternative supplier	Drew down existing inventory	Switched chemicals, procedures, or technologies	Sought help from neighboring utilities or mutual aid network (e.g., WARN)	Coordinated with local or state emergency management agency	Other (please specify)
[options based on answers given to B1.2.1]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	[TEXT ENTRY BOX]

B1.2.4. [If “Switch chemicals, procedures, or technologies” selected in B1.1.3] What did you switch to?

	Switched to:
[options based on answers given to B1.2.3]	[TEXT ENTRY BOX]

B1.3.1 [If “Durable goods...” was selected in B1] How severe were the shortages or supply chain disruptions involving durable goods and other critical equipment and supplies, etc. that you experienced from January 2020 through present day?

Item	No impact from COVID-19	Slight (did not compromise operations)	Moderate (required operational changes to maintain a constant level of service)	Severe (affected service delivery)
Filter media	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Granular / Powdered Activated Carbon (GAC / PAC)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Membrane modules	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pumps	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Motors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pipes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Valves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fuel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vehicles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 1 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 2 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 3 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 4 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 5 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B1.3.2 [If at least one positive answer was given in B1.3.1] What contributed to each shortage or supply chain disruption? (select all that apply)

Item	Unavailable from supplier(s)	Delayed / backordered from supplier(s)	Transportation / distribution difficulties	Price	Other (please specify)
[options based on answers given to B1.3.1]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	[TEXT ENTRY BOX]

B1.3.3. [If at least one positive answer was given in B1.3.1] How did you address each shortage or supply chain disruption? (select all that apply)

Item	Found alternative supplier	Drew down existing inventory	Switched chemicals, procedures, or technologies	Sought help from neighboring utilities or mutual aid network (e.g., WARN)	Coordinated with local or state emergency management agency	Other (please specify)
[options based on answers given to B1.3.1]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	[TEXT ENTRY BOX]

B1.3.4. [If “Switch chemicals, procedures, or technologies” selected in B1.3.3] What did you switch to?

	Switched to:
[options based on answers given to B1.3.3]	[TEXT ENTRY BOX]

B2. What kinds of potential shortages or supply chain disruptions is your [Organization Type] most concerned about from **present day through December 2020**? (Select all that apply)

<input type="radio"/>	Treatment chemical shortages (e.g., sodium hypochlorite, lime)
<input type="radio"/>	Personal protective equipment shortages (e.g., masks, gloves)
<input type="radio"/>	Durable goods, other critical equipment and supplies (e.g., pipes, fuel, filter media), and other items
<input type="radio"/>	None

B2.1.1. [If “Treatment chemicals” was selected in B2] How severe are your concerns about treatment chemical shortages or supply chain disruptions from **present day to December 2020?**

Item	No impact from COVID-19	Slight (not likely to compromise operations)	Moderate (could require operational changes to maintain a constant level of service)	Severe (could affect service delivery)
Carbon dioxide	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ferric chloride	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fluoride	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gaseous chlorine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Liquid oxygen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lime	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Orthophosphate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Polymers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Potassium permanganate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sodium hydroxide	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sodium hypochlorite	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 1 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 2 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 3 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 4 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 5 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B2.1.2. [If at least one positive answer was given in B2.1.1] For each item, what are you most concerned about from **present day to December 2020?** (select all that apply)

Item	Unavailable from supplier(s)	Delayed / backordered from supplier(s)	Transportation / distribution difficulties	Price	Other (please specify)
[options based on answers given to B2.1.1]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	[TEXT ENTRY BOX]

B2.1.3. [If at least one positive answer was given in B2.1.1] What steps have you taken or are you taking to prepare for potential shortages and supply chain disruptions? (select all that apply)

Item	Seek alternative suppliers	Increase purchasing / maintain a larger than typical inventory	Switch chemicals, procedures, or technologies	Make arrangements with neighboring utilities or mutual aid networks (e.g., WARN)	Other (please specify)
[options based on answers given to B2.1.1]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	[TEXT ENTRY BOX]

B2.1.4. [If “Switch chemicals, procedures, or technologies” selected in B2.1.3] What are you switching to?

	Switching to:
[options based on answers given to B2.1.3]	[TEXT ENTRY BOX]

B2.2.1. [If “Personal protective equipment” was selected in B2] How severe are your concerns about personal protective equipment shortages or supply chain disruptions from **present day to December 2020?**

Item	No impact from COVID-19	Slight (not likely to compromise operations)	Moderate (could require operational changes to maintain a constant level of service)	Severe (could affect service delivery)
N95 masks and/or elastomeric respirators	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alternative mask options (surgical, cloth, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Face shield and/or protective eye wear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nitrile and/or latex gloves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Tyvek suite and/or disposable coveralls	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sanitizing wipes, sprays for cleaning work offices, or gels for hand sanitizing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 1 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 2 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 3 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 4 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 5 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B2.2.2. [If at least one positive answer was given in B2.2.1] For each item, what are you most concerned about from **present day to December 2020?** (select all that apply)

Item	Unavailable from supplier(s)	Delayed / backordered from supplier(s)	Transportation / distribution difficulties	Price	Other (please specify)
[options based on answers given to B2.2.1]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	[TEXT ENTRY BOX]

B2.2.3. [If at least one positive answer was given in B2.2.1] What steps have you taken or are you taking to prepare for potential shortages and supply chain disruptions? (select all that apply)

Item	Seek alternative suppliers	Increase purchasing / maintain a larger than typical inventory	Switch chemicals, procedures, or technologies	Make arrangements with neighboring utilities or mutual aid networks (e.g., WARN)	Other (please specify)
[options based on answers given to B2.2.1]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	[TEXT ENTRY BOX]

B2.2.4. [If “Switch chemicals, procedures, or technologies” selected in B2.1.3] What are you switching to?

Item	Switching to:
[options based on answers given to B2.2.3]	[TEXT ENTRY BOX]

B2.3.1. [If “Durable goods...” was selected in B2] How severe are your concerns about shortages or supply chain disruptions involving durable goods and other critical equipment and supplies, etc. from **present day to December 2020?**

Item	No impact from COVID-19	Slight (not likely to compromise operations)	Moderate (could require operational changes to maintain a constant level of service)	Severe (could affect service delivery)
Filter media	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Granular Activated Carbon (GAC)/ Powdered Activated Carbon (PAC)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Membrane modules	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pumps	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Motors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pipes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Valves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fuel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vehicles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 1 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 2 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 3 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 4 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 5 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B2.3.2. [If at least one positive answer was given in B2.3.1] For each item, what are you most concerned about from **present day to December 2020?** (select all that apply)

Item	Unavailable from supplier(s)	Delayed / backordered from supplier(s)	Transportation / distribution difficulties	Price	Other (please specify)
[options based on answers given to B2.3.1]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	[TEXT ENTRY BOX]

B2.3.3. [If at least one positive answer was given in B2.3.1] What steps have you taken or are you taking to prepare for potential shortages and supply chain disruptions? (select all that apply)

Item	Seek alternative suppliers	Increase purchasing / maintain a larger than typical inventory	Switch chemicals, procedures, or technologies	Make arrangements with neighboring utilities or mutual aid networks (e.g., WARN)	Other (please specify)
[options based on answers given to B2.3.1]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	[TEXT ENTRY BOX]

B2.3.4. [If “Switch chemicals, procedures, or technologies” selected in B2.3.3] What are you switching to?

Item	Switched to:
[options based on answers given to B2.3.3]	[TEXT ENTRY BOX]

- B3. Has your [Organization Type] made any requests for personnel, supplies, or equipment to your tribal, local, or state emergency operations center (EOC), primacy agency, or similar organization?
1. Yes, and the request was entirely fulfilled.
 2. Yes, and the request was partly fulfilled.
 3. Yes, but the request was overlooked or not fulfilled.
 4. No, support was not needed.
 5. No, but we would have made a request for support if the option had been available to us or if we had known about it in time
 6. Do not know
- B4. Is there anything else you would like to add about supply chain issues, or to explain how you developed your answers? [TEXT ENTRY BOX]

C. WORKFORCE ISSUES

C. Next, we would like to identify and understand concerns about COVID-19-related workforce issues.

- C1. To what extent did your [Organization Type] experience shortages of key personnel, including contractors performing critical functions to maintain operations, from **January 2020 through present day?** (Depending on your browser, you may need to scroll to the right to see all options.)

Personnel type	No shortage at all	Slight shortage (did not compromise operations)	Moderate shortage (required operational changes to maintain a constant level of service)	Severe shortage (affected service delivery)	Do not know
Licensed or certified drinking water and/or wastewater operators	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Laboratory technicians / sample analysts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Field workers (meter reading, sampling, maintenance, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Engineering / design / construction personnel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Critical equipment repair	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Administrative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Customer service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- C2. To what extent do you expect to experience shortages of key personnel, including contractors performing critical functions to maintain operations, from **present day through December 2020?** (Depending on your browser, you may need to scroll to the right to see all options.)

Personnel type	No shortage at all	Slight shortage (not likely to compromise operations)	Moderate shortage (could require operational changes to maintain a constant level of service)	Severe shortage (could affect service delivery)	Do not know
Licensed or certified drinking water and/or wastewater operators	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Laboratory technicians / sample analysts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Field workers (meter reading, sampling, maintenance, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Engineering / design / construction personnel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Critical equipment repair	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Administrative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Customer service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- C3. [To be asked if respondents select slight, moderate, or severe for any personnel type in questions C1 or C2.] What factors contribute to personnel shortages you identified on the previous page? (Check all that apply)

	Does not contribute	Contributes somewhat	Contributes significantly	Do not know
Absenteeism (illness, care of family members, daycare closure, virtual schooling, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Layoffs or furloughs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduced work hours of current staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delayed or canceled plans to hire staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of backup certified personnel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operators unable to obtain or maintain needed certification due to lack of in-person training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Restrictions on travel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of I.T. infrastructure (e.g., equipment, network capacity)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify) [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- C4. What strategies or resources has your [Organization Type] used to address potential shortages of certified operators, laboratory staff, or other trained personnel during the COVID-19 pandemic? (Select all that apply)

<input type="radio"/>	Used technology (e.g., live video feeds) to allow some operational tasks to be performed remotely
<input type="radio"/>	Used telework for job functions that could be performed remotely
<input type="radio"/>	Decreased staffing/changed shift work while maintaining core operations
<input type="radio"/>	Delayed non-critical work
<input type="radio"/>	Increased use of contractors
<input type="radio"/>	Accessed operators from nearby utilities, including via WARN or other mutual aid networks
<input type="radio"/>	Utilized backup laboratory services
<input type="radio"/>	Other (please specify) [TEXT ENTRY BOX]

- C4.1. [If one or more options was selected in response to C4] Did the strategies you implemented help mitigate staffing shortages?

	Yes	Not sure	No
[options based on answers given to C4]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- C5. What is the greatest concern your [Organization Type] has associated with maintaining staffing during the pandemic? (Select one)

1. Availability of testing for illness
2. Availability of PPE
3. Ability to house personnel on site
4. Cross-training personnel
5. Protecting high-risk employees
6. Adhering to changing local and state requirements
7. Other (please specify): [TEXT ENTRY BOX]

C6. Is there anything else you would like to add about workforce issues, or to explain how you developed your answers? [TEXT ENTRY BOX]

D. FINANCIAL ISSUES

D. Next, please identify any financial impacts that your [Organization Type] has experienced due to the COVID-19 pandemic. As a reminder, you are answering on behalf of [Organization Name].

[This paragraph to be inserted only for surveys going to wastewater facilities (not community water systems or AI/ANV utilities).] (We understand that in some cases a wastewater facility may belong to a larger organization such as a municipality that manages multiple facilities. Please answer specifically for the wastewater facility identified above. If that is not possible, please explain how you are answering the financial questions in your response to question D6, at the end of this section.)

D1.1.1. Let’s start with your [Organization Type]’s operational budget from **January 2020 to the present**. Since different organizations have different accounting periods, please tell us the cutoff date you will be using for “the present” when filling out the following table. For example, your cutoff date could be the last day of your most recent accounting month. (Please enter as mm/dd/yyyy) [DATE FIELD]

D1.1.2. Please indicate the state of your [Organization Type]’s operating budget from January 2020 to the present.

	Value (in dollars)	This number is:		Don’t know the value
		Exact	Estimate	
Budgeted operating revenue (January 2020 - present)	[NUMERICAL ENTRY FIELD]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Actual operating revenue (January 2020 - present)	[NUMERICAL ENTRY FIELD]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Budgeted operating expenses (January 2020 - present)	[NUMERICAL ENTRY FIELD]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Actual operating expenses (January 2020 - present)	[NUMERICAL ENTRY FIELD]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

D1.2. [To be asked if the January to present anticipated revenue is lower than the January to present budgeted revenue] Your answers indicate that actual operating revenue was lower than budgeted during the January to present period. What COVID-19-related factors contributed to this?

Factors	Not a contributor	Contributor	Significant contributor	Do not know
Nonpayment of bills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Decreased use (decreased demand for service)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduction in rates and/or fees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 1 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 2 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

D1.3. [To be asked if the January to present anticipated expenses are higher than the January to present budgeted expenses] Your answers indicate that actual operating expenses were higher than budgeted during the January to present period. What COVID-19-related factors contributed?

Factors	Not a contributor	Contributor	Significant contributor	Do not know
Personnel costs (e.g., overtime, increased hours)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Consumables (e.g., higher cost for chemicals, more sanitation/cleaning, higher inventories)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utilities costs (e.g., higher power, fuel, etc. costs)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PPE (e.g., cloth masks)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 1 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 2 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

D2.1. We would like your assessment of your [Organization Type]'s financial situation for the rest of 2020. We recognize that projections for the rest of the year are uncertain, but do you expect your financial situation for the remainder of the year to improve, to worsen, or to stay about the same, compared with the January to present timeframe?

	Financial outlook for the remainder of 2020			
	Improve	Stay about the same	Worsen	Do Not Know
Operating revenue	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operating expense	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

D2.2. [To be asked IF the response above indicates that the operating revenue situation is expected to “worsen.”] To what COVID-19-related factors do you attribute the worsening outlook for operating revenue in the remainder of 2020?

Factors	Not a contributor	Contributor	Significant contributor	Do not know
Nonpayment of bills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Decreased use (decreased demand for service)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduction in rates and/or fees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 1 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 2 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

D2.3. [To be asked IF the response above indicates that the operating expense situation is expected to “worsen.”] To what COVID-19-related factors do you attribute the worsening outlook for operating expenses in the remainder of 2020?

Factors	Not a contributor	Contributor	Significant contributor	Do not know
Personnel costs (e.g., overtime, increased hours)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Consumables (e.g., higher cost for chemicals, more sanitation/cleaning, higher inventories)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utilities costs (e.g., higher power, fuel, etc. costs)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PPE (e.g., cloth masks)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 1 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other – 2 [TEXT ENTRY BOX]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

D3.1. If your [Organization Type] has experienced or anticipates a decrease in cash flow due to COVID-19, what mitigating actions are you taking or planning? (Select all that apply)

<input type="radio"/>	Drawing down days cash on hand
<input type="radio"/>	Drawing on reserve funds
<input type="radio"/>	Delaying maintenance
<input type="radio"/>	Reducing staff hours
<input type="radio"/>	Reducing staff pay and/or benefits
<input type="radio"/>	Laying off staff
<input type="radio"/>	Incurring additional debt
<input type="radio"/>	Refinancing debt and/or deferring debt payments
<input type="radio"/>	Delaying/canceling capital improvement projects
<input type="radio"/>	Adjusting rates higher than originally planned
<input type="radio"/>	Other – 1 [TEXT ENTRY BOX]
<input type="radio"/>	Other – 2 [TEXT ENTRY BOX]
<input type="radio"/>	Not applicable (no decrease in cash flow)

D3.2. [To be asked if a positive answer is given to D3.1] What type of impact do you think these actions are making or will make in mitigating the decrease in your [Organization Type]’s cash flow?

	Have made / will make a small impact	Have made / will make a large impact	Do not know
[options based on answers given to D3.1]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

D4. Which of the following is your [Organization Type] considering regarding capital infrastructure projects due to COVID-19? (Select all that apply)

<input type="radio"/>	Not applicable (no projects planned)
<input type="radio"/>	No change to current or planned projects
<input type="radio"/>	Pausing/slowing a project for which construction has begun
<input type="radio"/>	Delaying starting a project that was planned to start soon
<input type="radio"/>	Accelerating starting a project
<input type="radio"/>	Reducing the scope or funding for a project for which construction has begun
<input type="radio"/>	Increasing the scope or funding for a project (current or planned)
<input type="radio"/>	Delaying applying for a subsidized loan/grant by at least six months
<input type="radio"/>	Accelerating interest in applying for a subsidized loan/grant for a shovel-ready project
<input type="radio"/>	Other (please specify) [TEXT ENTRY BOX]
<input type="radio"/>	Do not know

D5. In response to COVID-19, what actions has your [Organization Type] taken to help alleviate economic impacts on customers? (Select all that apply)

<input type="radio"/>	Suspended service shutoffs
<input type="radio"/>	Waived late payment fees
<input type="radio"/>	Provided extensions on bill payment
<input type="radio"/>	Expanded customer assistance programs
<input type="radio"/>	Expanded water conservation programs
<input type="radio"/>	Delayed or eliminated planned rate adjustment
<input type="radio"/>	Lowered rates
<input type="radio"/>	Other (please specify) [TEXT ENTRY BOX]
<input type="radio"/>	None (no actions taken to alleviate economic impact on customers)
<input type="radio"/>	Do not know

D6. Is there anything else you would like to add about financial issues, or to explain how you developed your answers? [TEXT ENTRY BOX]

E. ANALYTICAL SUPPORT ISSUES

E. Next, we'd like to know if the COVID-19 pandemic has affected your ability to complete required sampling and laboratory analyses.

E1. What COVID-19-related conditions have interfered with your [Organization Type]'s ability to complete the required sampling needed to operate your system and to determine compliance with regulations? (Select all that apply)

<input type="radio"/>	Lack of available personnel for sample collection
<input type="radio"/>	Lack of available supplies for sampling and/or shipping
<input type="radio"/>	Lack of available personal protective equipment
<input type="radio"/>	Lack of access to approved monitoring locations (e.g., for pre-treatment sampling or coliform sampling)
<input type="radio"/>	Other (please specify): [TEXT ENTRY BOX]
<input type="radio"/>	None (no COVID-19-related hindrances to completion of required sampling)
<input type="radio"/>	Do not know

E2. What COVID-19-related conditions have interfered with your [Organization Type]'s ability to complete required laboratory analyses needed to operate your system and to determine compliance with regulations? (Select all that apply)

<input type="radio"/>	Lack of available laboratory personnel
<input type="radio"/>	Lack of available supplies for sampling and/or shipping
<input type="radio"/>	Lack of available personal protective equipment
<input type="radio"/>	Internal laboratory capacity shortages that delay timely analysis
<input type="radio"/>	Decreased access to external laboratory services
<input type="radio"/>	Delays in external laboratory services
<input type="radio"/>	Sample transport delays
<input type="radio"/>	Travel restrictions
<input type="radio"/>	Revenue interruption
<input type="radio"/>	Other (please specify): [TEXT ENTRY BOX]
<input type="radio"/>	None (no COVID-19-related hindrances to completion of required laboratory analysis)
<input type="radio"/>	Do not know

E3. Is there anything else you would like to add about analytical support issues, including how you addressed them (e.g., using primacy-agency-approved alternate sampling sites), or to explain how you developed your answers? [TEXT ENTRY BOX]

F. CYBERSECURITY ISSUES

F. Please tell us about any cybersecurity issues or concerns.

F1. Has your [Organization Type] experienced any issues or concerns related to cybersecurity during the pandemic? [Yes/No]

F1.1. [appears if answer to F1 is "Yes"] Please describe the issues or concerns. [TEXT ENTRY BOX]

G. CLOSING

G. Finally, we'd like to ask you where you think the greatest challenges lie.

G1. Looking ahead to the next several months, please indicate your level of concern about topics covered in this survey.

Issue	No concern	Mild concern	Serious concern	Don't know
Supply Chain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Workforce	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Analytical Support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cybersecurity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

G2. Thank you for participating in this survey. Is there anything else you would like to tell us? **[TEXT ENTRY BOX]**

G3. To whom should any questions regarding your responses to the survey be directed?

1. Name **[TEXT ENTRY BOX]**
2. Title **[TEXT ENTRY BOX]**
3. Email address **[FIELD FOR EMAIL ADDRESS]**
4. Phone number **[FIELD FOR PHONE NUMBER]**

Submittal. Please double-check that you have answered all questions in the survey. (A "check" mark in the Table of Contents indicates that you have reached end of each section of the survey, but not that you have answered all questions in the section. We recommend that you go back to the beginning and page through to ensure all questions are answered.) When you press "Submit," you will no longer be able to change your answers.

[SUBMIT BUTTON]