# Example Coliform Monitoring Plan

**Coliform Monitoring Plan for: JKL Water System\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. **System Information Date: 5/6/16**

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| **Water System Name**  JKL | **County**  Jefferson | **System I.D. Number**  XXXXX1 |
| **Name of Plan Preparer**  John Doe | **Position**  Operator | **Daytime Phone #**  (360) 555-1212 |
| **Sources:** DOH Source Number, Source Name, Well Depth, Pumping Capacity | #S01 - Well 1 (225 ft) 200 gpm  #S02 - Well 2 (175 ft) 400 gpm | |
| **Storage:** List and Describe | Low Tank - 500,000 gallon tank  High Tank - 500,000 gallon tank | |
| **Treatment:** Source Number & Process | Treatment Plant 001 – S01 Chlorination w/o 4-log virus treatment  Treatment Plant 002 – S02 Chlorination w/ 4-log virus treatment not conducting Compliance Monitoring. | |
| **Pressure Zones:** Number and name | Low Zone  High Zone | |
| **Population by Pressure Zone** | Low Zone – 750 people  High Zone – 1,250 people | |
| **Number of Routine Samples Required Monthly by Regulation: 2** | **Number of Sample Sites Needed to Represent the Distribution System: 4** | |
| **\*Request DOH Approval of Triggered Source Monitoring Plan?** | **Yes  No** |  |

\*If approval is requested a fee will be charged for the review.

1. **Laboratory Information**

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| --- | --- |
| **Laboratory Name**  Perfect Analysis Every Time | **Office Phone #**  (253) 123-4567 |
| **Address**  999 - 99th Ave E  Tacoma, WA | **After Hours #**  (253) 951-3578 |
| **Hours of Operation**  Mon. – Fri. 8 a.m. to 5 p.m., Sat. 8 a.m. to noon | |
| **Contact Name**  Jane Micro | |
| **Emergency Laboratory Name**  Clean Beaker Laboratory | **Office Phone #**  (206) 852-1397 |
| **Address**  111 - 11th Ave W  Seattle WA | **After Hours #**  (206) 456-9871 |
| **Hours of Operation**  Mon.–Fri. 7:30 a.m. to 5:30 p.m., Sat. 8 a.m. to 4 p.m. | |
| **Contact Name**  John Scope | |

1. **Wholesaling of Groundwater**

|  |  |  |
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|  | **Yes** | **No** |
| **We are a consecutive system and purchase groundwater from another water system.** |  |  |
| **We sell groundwater to other public water systems.** |  |  |
| If yes, Water System Name:  Triple C Water System\_ (pop. 500) \_\_\_\_\_\_\_\_  Contact Name:  Steve Doe\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Telephone Numbers:  360-555-1214\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |  |
|  |  |  |

1. **Routine, Repeat, and Triggered Source Sample Locations**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Location/Address for**  **Routine Sample Sites** | **Location/Address for**  **Repeat Sample Sites** | | **Sources for**  **Triggered Sample Sites** | |
| **X1.** 1005 1st Avenue |  | * 1. 1005 1st Avenue |  | **S\_01** |
|  |  | * 1. 1001 1st Avenue |  | **S\_02** |
|  |  | * 1. 1010 1st Avenue |  | **S\_\_\_** |
|  |  |  |  | **S\_\_\_** |
|  |  |  |  | **S\_\_\_** |
| **X2.** 5005 4th Avenue |  | **2-1.** 5005 4th Avenue |  | **S\_01** |
|  |  | **2-2.** 5001 4th Avenue |  | **S\_02** |
|  |  | **2-3.** 5010 4th Avenue |  | **S\_\_\_** |
|  |  |  |  | **S\_\_\_** |
|  |  |  |  | **S\_\_\_** |
| **X3.** 1005 A Street |  | **3-1.** 1005 A Street |  | **S\_02** |
|  |  | **3-2.** 1001 A Street |  | **S\_\_\_** |
|  |  | **3-3.** 1010 A Street |  | **S\_\_\_** |
|  |  |  |  | **S\_\_\_** |
|  |  |  |  | **S\_\_\_** |
| **X4.** 1005 D Street |  | **4-1.** 1005 D Street |  | **S 02** |
|  |  | **4-2.** 1001 D Street |  | **S\_\_\_** |
|  |  | **4-3.** 1010 D Street |  | **S\_\_\_** |
|  |  |  |  | **S\_\_\_** |
|  |  |  |  | **S\_\_\_** |
| **Triple C Water** |  |  |  | **S\_02** |

**Important notes for Sample Collector:**

1. Sample early in the month and early in the week.
2. Do not sample if experienced staff are on vacation or a holiday may create schedule conflicts.
3. Check the sample tap before filling the bottle to make sure there is no reason to invalidate the sample result.
4. **Reduced Triggered Source Monitoring Justification**

Triggered Source Monitoring at S01 is not required when a routine total coliform present sample result is obtained from Sample Site X3 or X4 because the source water cannot be pumped to the higher pressure zone (please see the attached schematic). S01 does not require Triggered Source Monitoring when the Triple C Water System submits a routine total coliform present sample for the same reason.

1. **Routine Sample Rotation Schedule**

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| --- | --- | --- | --- |
| **Month** | **Routine Site(s)** | **Month** | **Routine Site(s)** |
| January | 1 & 3 | July | 1 & 3 |
| February | 2 & 4 | August | 2 & 4 |
| March | 1 & 3 | September | 1 & 3 |
| April | 2 & 4 | October | 2 & 4 |
| May | 1 & 3 | November | 1 & 3 |
| June | 2 & 4 | December | 2 & 4 |

1. ***E. coli*-present Sample Response Plan**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Distribution System *E. coli* Response Checklist** | | | | | |
| **Background Information** | **Yes** | **No** | **N/A** | | **To Do List** |
| We inform staff members about activities within the distribution system that could affect water quality. |  |  |  | |  |
| We document all water main breaks, construction & repair activities, low pressure and outage incidents. |  |  |  | |  |
| We can easily access and review documentation on water main breaks, construction & repair activities, low pressure and outage incidents. |  |  |  | |  |
| Our Cross-Connection Control Program is up-to-date. |  |  |  | |  |
| We test all cross-connection control devices annually as required, with easy access to the proper documentation. |  |  |  | |  |
| We routinely inspect all treatment facilities for proper operation. |  |  |  | |  |
| We have procedures in place for disinfecting and flushing the water system if it becomes necessary. |  |  |  | |  |
| We can activate an emergency intertie with an adjacent water system in an emergency. |  |  |  | |  |
| We have a map of our service area boundaries. |  |  |  | |  |
| We have consumers who may not have access to bottled or boiled water. |  |  |  | |  |
| There is a sufficient supply of bottled water immediately available to our customers who are unable to boil their water. |  |  |  | |  |
| We have identified the contact person at each day care, school, medical facility, food service, and other customers who may have difficulty responding to a Health Advisory. |  |  |  | |  |
| We have messages prepared and translated into different languages to ensure they will be understood by our consumers |  |  |  | |  |
| We have the capacity to print and distribute the required number of notices in a short time period. |  |  |  | |  |
| **Policy Direction** | **Yes** | **No** | **N/A** | | **To Do List** |
| We have discussed the issue of *E. coli*-present sample results with our policy makers. |  |  | |  |  |
| If we find *E. coli* in a routine distribution sample, the policy makers want to wait until repeat test results are available before issuing advice to water system customers. |  |  | |  |  |
| **(Cont.)** | | | | | |

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| **Distribution System *E. coli* Response Checklist (cont.)** | | | | | |
| **Potential Public Notice Delivery Methods** | **Yes** | **No** | **N/A** | | **To Do List** |
| It is feasible to deliver a notice going door-to-door. |  |  | |  |  |
| We have a list of all of our customers’ addresses. |  |  | |  |  |
| We have a list of customer telephone numbers or access to a Reverse 9-1-1 system. |  |  | |  |  |
| We have a list of customer email addresses. |  |  | |  |  |
| We encourage our customers to remain in contact with us using social media. |  |  | |  |  |
| We have an active website we can quickly update to include important messages. |  |  | |  |  |
| Our customers drive by a single location where we could post an advisory and expect everyone to see it. |  |  | |  |  |
| We need a news release to supplement our public notification process. |  |  | |  |  |

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| ***E. coli*-Present Triggered Source Sample Response Checklist –**  **All Sources** | | | | |
| **Background Information** | **Yes** | **No** | **N/A** | **To Do List** |
| We review our sanitary survey results and respond to any recommendations affecting the microbial quality of our water supply. |  |  |  |  |
| We address any significant deficiencies identified during a sanitary survey. |  |  |  |  |
| There are contaminant sources within our Wellhead Protection  Area that could affect the microbial quality of our source water, and  If yes, we can eliminate them. |  |  |  |  |
| We routinely inspect our well site(s). |  |  |  |  |
| We have a good raw water sample tap installed at each source. |  |  |  |  |
| After we complete work on a source, we disinfect the source, flush, and collect an investigative sample. |  |  |  |  |
| **Public Notice** | **Yes** | **No** | **N/A** | **To Do List** |
| We discussed the requirement for immediate public notice of an *E. coli*-present source sample result with our water system’s governing body (board of directors or commissioners) and received direction from them on our response plan. |  |  |  |  |
| **(Cont.)** | | | | |

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| ***E. coli*-Present Triggered Source Sample Response Checklist – All Sources (cont.)** | | | | |
| We discussed the requirement for immediate public notice of an *E. coli*-present source sample result with our wholesale customers and encouraged them to develop a response plan. |  |  |  |  |
| We have prepared templates and a communications plan that will help us quickly distribute our messages. |  |  |  |  |
|  | | | | |
| ***E. coli*-Present Triggered Source Sample Response Checklist – Source S01** | | | | |
| **Alternate Sources** | **Yes** | **No** | **N/A** | **To Do List** |
| We can stop using this source and still provide reliable water service to our customers. |  |  |  |  |
| We have an emergency intertie with a neighboring water system that we can use until corrective action is complete (perhaps for several months). |  |  |  |  |
| We can provide bottled water to all or part of our distribution system for an indefinite period. |  |  |  |  |
| We can quickly replace our existing source of supply with a more protected new source of supply. |  |  |  |  |
| **Temporary Treatment** | **Yes** | **No** | **N/A** | **To Do List** |
| This source is continuously chlorinated, and our existing facilities can provide 4-log virus treatment (CT = 6) before the first customer.  If yes, at what concentration? \_\_mg/L |  |  |  |  |
| We can quickly introduce chlorine into the water system and take advantage of the existing contact time to provide 4-log virus treatment to a large portion of the distribution system. |  |  |  |  |
| We can reduce the production capacity of our pumps or alter the configuration of our storage quantities (Operational Storage) to increase the amount of time the water stays in the system before the first customer to achieve CT = 6. |  |  |  |  |
| We can alter the demand for drinking water (Maximum Day or Peak Hour) through conservation messages to increase the time the water is in the system prior to the first customer in order to achieve 4-log virus treatment with chlorine. |  |  |  |  |

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| --- | --- | --- | --- | --- |
| ***E. coli-present* Triggered Source Sample Response Checklist –**  **Source S02** | | | | |
| **Alternate Sources** | **Yes** | **No** | **N/A** | **To Do List** |
| We can stop using this source and still provide reliable water service to our customers. |  |  |  |  |
| We have an emergency intertie with a neighboring water system that we can use until corrective action is complete (perhaps for several months). |  |  |  |  |
| We can provide bottled water to all or part of our distribution system for an indefinite period. |  |  |  |  |
| We can quickly replace our existing source of supply with a more protected new source of supply. |  |  |  |  |
| **Temporary Treatment** | **Yes** | **No** | **N/A** | **To do List** |
| This source is continuously chlorinated, and our existing facilities can provide 4-log virus treatment (CT = 6) before the first customer.  If yes, at what concentration? 0.2 mg/L |  |  |  |  |
| We can quickly introduce chlorine into the water system and take advantage of the existing contact time to provide 4-log virus treatment to a large portion of the distribution system. |  |  |  |  |
| We can reduce the production capacity of our pumps or alter the configuration of our storage quantities (Operational Storage) to increase the amount of time the water stays in the system before the first customer to achieve CT = 6. |  |  |  |  |
| We can alter the demand for drinking water (Maximum Day or Peak Hour) through conservation messages to increase the time the water is in the system prior to the first customer in order to achieve 4-log virus treatment with chlorine. |  |  |  |  |

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| **Distribution System *E. coli* Response Plan** |
| **If we have *E. coli* in our distribution system we will immediately:**   1. Call DOH. 2. Collect repeat/triggered samples per Part D. Collect additional investigative samples as necessary. 3. Inspect our major water system facilities, including treatment plants for proper operation. 4. Interview staff to determine whether anything unusual was happening in the water system service area, especially since the previous month’s sample(s). 5. Review new construction activities, water main breaks, and pressure outages that may have occurred during the previous month. 6. Review Cross-Connection Control Program status. 7. Discuss whether a Health Advisory is warranted based on the findings of steps 3-6. 8. Call Triple C Water System. 9. Increase chlorine dose at both treatment plants to 1.0 mg/L. 10. Flush affected portions of the distribution system. 11. Prepare draft news release and website changes. 12. Contact school district & medical facilities about potential action. 13. Collect investigative samples every 10 to 12 hours until repeat results are known. 14. Issue news release and make website changes if repeats are coliform or *E. coli* present. |

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| ***E. coli-present* Triggered Source Sample Response Plan**  **Source S01** |
| **If we have *E. coli* in our source S01 we will immediately:**   1. Call DOH. 2. Shut down source S01. 3. Distribute required notice to direct service customers and Triple C Water System. The notice will include water curtailment instructions to stop outdoor watering. 4. Increase chlorine dose to achieve at least 1.0 mg/L at the entry point to the distribution system. 5. In concert with DOH, begin work on corrective action plan to provide 4-log virus treatment. |

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| ***E. coli-present* Triggered Source Sample Response Plan**  **Source S02** |
| **If we have *E. coli* in our source S02 we will immediately:**   1. Call DOH. 2. Distribute required notice. 3. Increase chlorine dose to achieve at least 1.0 mg/L at the entry point to the distribution system. 4. Begin compliance monitoring of disinfection treatment at S02. 5. Contact DOH to receive acknowledgment that the treatment plant provides 4-log virus treatment. |

1. **System Map**

**JKL Water System**

**Triple C Water System**

PRV

X3

TP002 / S02

TP001 / S01

Cl2

4th Avenue

A Street

Low Zone X

Low Tank

High Tank

High Zone

Cl2

1st Avenue

X2

X1

X4

D Street