

ATTACHMENT B

Navajo-Gallup Water Supply Project Proposed Regulatory Compliance Scenarios White Paper

(last updated April 8, 2020)

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Proposed Regulatory Compliance
Scenarios
WHITE PAPER

April 8, 2020

**United States Environmental Protection Agency, Navajo Nation Environmental Protection Agency,
and New Mexico Environment Department**

I. Executive Summary

The Navajo-Gallup Water Supply Project (“NGWSP” or “Project”) is a major infrastructure project that, once constructed, will convey a reliable municipal and industrial water supply from the San Juan River to the eastern section of the Navajo Nation, southwestern portion of the Jicarilla Apache Nation, the community of Lybrook, and the City of Gallup, New Mexico via approximately 300 miles of pipeline, approximately 20 pumping plants, and two water treatment plants. The NGWSP is designed to provide a long-term sustainable water supply to meet the future population needs of approximately 250,000 people in these communities by the year 2040.

The NGWSP is composed of two separate transmission mains, the Cutter Lateral and the San Juan Lateral. Each transmission main (referred to in this document as “Laterals”) will have a water treatment plant capable of producing consistently compliant and safe drinking water, as required by the Safe Drinking Water Act (“SDWA”), the National Primary Drinking Water Regulations (“NPDWRs”), and the applicable New Mexico Environment Department (“NMED”) or Navajo Nation Environmental Protection Agency (“NNEPA”) requirements, as provided in the “Memorandum of Understanding between the U.S. Environmental Protection Agency, the New Mexico Environment Department, and the Navajo Nation Environmental Protection Agency Regarding the Navajo-Gallup Water Supply Project.”¹ Project Water will be accessible to Consecutive Systems at various Delivery Points from the NGWSP System.

A schematic representation of the monitoring plan is appended.

II. Key Issues and Considerations for this Project

Because of the complexity of the NGWSP, the extensive length of its Laterals, the large amount of Consecutive Systems that will be provided drinking water, and the multiple regulatory agencies involved with this Project, it is necessary to determine how the NGWSP will be operated and regulated to be in compliance with the SDWA and the NPDWR. Also, due to the length of the Laterals and resulting long retention times of water within them, byproducts of chlorination (“disinfection byproducts” or “DBPs”) are likely to be formed within the system, resulting in a need to address contact time, total organic carbon concentration, pH, and chlorine dose. Finally, due to the change in water sources for all of the Consecutive Systems receiving Project Water (from groundwater to surface water or to a blend of both) there is a need to ensure that the water being provided to consumers meets the requirements of the Lead and Copper Rule. In order to accommodate these concerns, treatment, monitoring, and compliance are expected to occur at different places within the NGWSP.

III. Acronyms

CEP Consecutive Distribution System Entry Point

CFE Combined Filter Effluent

¹ The applicable NNEPA and NMED requirements are the same as the federal requirements for the specific parameters laid out in this White Paper, and therefore they are not referenced separately in the remainder of the paper. Differences may arise at the consecutive system level, as referenced but not specified in the paper.

CPE	Comprehensive Performance Evaluation
DBPs	Disinfection Byproducts
DP	Delivery Point from the NGWSP
EPA	United States Environmental Protection Agency
HPC	Heterotrophic Plate Count
IFE	Individual Filter Effluent
LCR	Lead and Copper Rule
MCL	Maximum Contaminant Level
NGWSP	Navajo-Gallup Water Supply Project
NMED	New Mexico Environment Department
NNEPA	Navajo Nation Environmental Protection Agency
NPDWRs	National Primary Drinking Water Regulations
NTU	Nephelometric Turbidity Units
OCCT	Optimized Corrosion Control Treatment
PWS	Public Water System
RAA	Running Annual Average
SDWA	Safe Drinking Water Act
SMCL	Secondary Maximum Contaminant Level
TBD	To be Determined

IV. Definitions²

Combined Filter Effluent (CFE) - CFE means the water produced by all of the filters at a surface water treatment plant after it has been blended. The CFE is the combined water from the individual filter-effluent (IFE) streams.

² All capitalized terms in this White Paper are defined terms.

Consecutive Distribution System – Consecutive Distribution System means the piping and facilities downstream of all Consecutive Distribution System Entry Points that are constructed for the sole purpose of conveying Finished Water to service connections. This term excludes facilities associated with the Turnouts (such as connection pipelines, backflow prevention devices, master meters, or valves) that are constructed, installed, or modified for the purposes of moving, metering, or protecting Finished Water from the DPs or a delivery point from a consecutive system to the CEPs.

Consecutive Distribution System Entry Point (CEP) - CEP means the point where Finished Water enters the Consecutive Distribution System. CEPs may include points where chlorinated well water, finished surface water, or water purchased from another supplier enters the Consecutive Distribution System. The CEPs for this Project will occur at a location after each DP. However, because no additional sources of Project Water will enter the Laterals after the water has left the water treatment plant, and because all water systems connected to the Laterals are classified as consecutive water systems, some CEP sampling required by the SDWA and the NPDWRs will take place prior to the CEP, at the Lateral System Entry Point to Distribution. This type of sampling is allowed by 40 C.F.R. § 141.29. The Disinfection Concentration, as defined in Table 1, will be measured at the Lateral System Entry Point to Distribution.

Consecutive System – As defined in 40 C.F.R. § 141.2, Consecutive System means a PWS that receives some or all of its Finished Water from one or more Wholesale Systems. Delivery may be through a direct connection or through a Consecutive Distribution System.

Delivery Point from the NGWSP (DP) –DP means the point where Finished Water is delivered from the NGWSP to the individual Consecutive Systems. The DPs for this Project will occur after each Turnout and before, or upstream, of the Consecutive Distribution System Entry Point (CEP).

Disinfection Byproducts (DBPs) – DBPs means the unintended byproducts of the disinfection process.

Finished Water - As defined in 40 C.F.R. § 141.2, Finished Water means water that is introduced into the distribution system of a PWS and is intended for distribution and consumption without further treatment, except where treatment is necessary to maintain water quality in the distribution system (e.g., booster disinfection, addition of corrosion control chemicals, etc.). For purposes of this White Paper, “distribution system” means both of the laterals and each Consecutive Distribution System.

Finished Water Compliance Point – Finished Water Compliance Point means the point in the Lateral System where water meets the definition of Finished Water. This point is the location where CT compliance criteria as required by § 141.72(b)(1) will be measured. The Finished Water Compliance Point may be immediately after a chlorine contact tank or in the Lateral before the first Lateral Turnout Pipe.

Individual Filter Effluent (IFE) - IFE means the water produced at the water treatment plant by a single filter.

Lateral System (Lateral) – Lateral means either of the two transmission mains, and multiple Lateral Turnout Pipes that comprise the NGWSP, that is, the San Juan Lateral and the Cutter

Lateral. The Laterals move water from their respective water treatment plants to the Turnouts where water is delivered to consecutive connections (Delivery Points from the NGWSP System) of the Project. Although the Laterals do not provide water directly to end consumers, they are Wholesale Systems because the Laterals convey Finished Water to the Consecutive Distribution Systems.

Lateral System Entry Point to Distribution – The Lateral System Entry Point to Distribution means the point where water first enters the Lateral System from the treatment plant.

Lateral Turnout Pipe – Lateral Turnout Pipe means the pipe running from the Turnout to the Delivery Point from the NGWSP and may consist of the piping, valves, meters, and backflow prevention constructed as part of the Project. It does not include the CEPs or Consecutive Distribution Systems.

Lead and Copper Rule (LCR) – LCR means the rule codified at 40 C.F.R. Part 141, Subpart I, for the control of lead and copper in drinking water.

Maximum Contaminant Level (MCL) – MCL means the maximum permissible level of a contaminant in water that is delivered to any user of a Public Water System.

Navajo-Gallup Water Supply Project (NGWSP or Project) –NGWSP means the water supply project which begins at the intake structures for the Raw Water for each Lateral and ends at the Delivery Points from the NGWSP System. The Project includes, but is not limited to, Raw Water intake structures, Lateral transmission mains, water treatment facilities, pumping plants, storage facilities, Turnouts, DPs, and all related appurtenances. The term includes the operator of the Project when the context so requires.

National Primary Drinking Water Regulations (NPDWR) –NPDWR means the federal regulations codified at 40 C.F.R. Part 141.

Project Water – Project Water means the surface water provided by the NGWSP to Consecutive Systems at various Delivery Points from the NGWSP System.

Public Water System (PWS) – Public Water System means the following, as defined in 40 C.F.R. §141.2: A system for the provision to the public of water for human consumption through pipes or, after August 5, 1998, other constructed conveyances, if such system has at least fifteen service connections or regularly serves an average of at least twenty-five individuals daily at least 60 days out of the year. Such term includes: any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system; and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Such term does not include any “special irrigation district.” A public water system is either a “community water system” or a “noncommunity water system.”

Raw Water - Raw Water means water prior to the first water treatment process at the water treatment plant.

Safe Drinking Water Act (SDWA) – SDWA means the federal Safe Drinking Water Act, codified at 42 U.S.C. §§ 300f – 300j-26.

Secondary Maximum Contaminant Level (SMCL) – SMCL means the federal standards codified at 40 C.F.R. Part 143, which are intended as guidelines to control contaminants that primarily affect the aesthetic qualities relating to the public acceptance of drinking water.

Stable Non-Corrosive Water – Stable Non-Corrosive Water means water that minimizes corrosion using EPA’s guidance, “Optimal Corrosion Control Treatment Evaluation Technical Recommendations for Primacy Agencies and Public Water Systems” (March 2016).

Turnout - Turnout means the point of connection on a Lateral for conveying Project Water to the Lateral Turnout Pipe.

Wholesale System – Wholesale System means a Public Water System that treats source water as necessary to produce Finished Water and then delivers some or all of that Finished Water to another Public Water System. Delivery may be through a direct connection or through a distribution system of one or more consecutive systems.

V. Assumptions

1. This White Paper is not intended to identify every possible operational or regulatory issue that may arise at the NGWSP or at Consecutive Systems that receive Project Water. Rather, it is intended to identify regulatory requirements based on information regarding probable operating scenarios at the time that the White Paper was written.
2. Drinking water at each CEP, owned and operated by the Consecutive System operator, will meet all SDWA and NPDWR regulatory requirements. If drinking water does not meet SDWA and NPDWR regulatory requirements, the Project and Consecutive Distribution System operators should work with their respective regulatory agencies to ensure that all regulatory requirements are met in a timely manner.
3. All PWSs receiving Project Water may be “community water systems” or “noncommunity water systems,” as defined in 40 C.F.R. § 141.2.
4. All PWSs receiving Project Water will be “Consecutive Systems,” as defined in 40 C.F.R. § 141.2.
5. Each PWS receiving Project Water is unique in its needs and in the way that it is operated once Project Water is delivered. Some PWS operators may choose to modify the existing infrastructure of a PWS in order to receive and distribute Project Water to their Consecutive Distribution Systems. Because it is difficult to anticipate every possible operating scenario for PWSs receiving Project Water, each individual PWS operator should work with its regulatory agency to ensure that it is in compliance with the regulations.
6. Surface water from the NGWSP and groundwater from the existing consecutive PWS source wells may be blended within each individual water system. This water may be blended within storage tanks, within Consecutive Distribution Systems, or a combination of both.
7. Once blended, the water being served to the customers will be regulated as surface water.

8. Since groundwater sources may be used to supplement Project Water within individual PWSs, additional monitoring for groundwater systems may be required. Individual PWS operators should work with their respective regulatory agencies to ensure compliance with all NPDWRs and applicable NMED or NNEPA regulations.
9. All PWSs subject to the LCR that receive Project Water must report any long-term change in treatment or any source addition to their respective regulatory agencies and must receive prior regulatory approval before implementing the change or addition. Once the Consecutive System receives Project Water it will have undergone a long-term change in source and the PWS must comply with regulatory agency requirements resulting from the source change, as required by the LCR. Any additional changes to treatment after the Consecutive System receives Project Water must also be approved by the primacy agency. PWSs subject to the LCR that make approved changes in treatment or source addition also must notify Consecutive Systems of those changes. "Source additions" do not include the turning on and off of existing wells designated as part of the approved PWS.
10. Compliance monitoring for all Consecutive Systems that receive Project Water will follow the applicable requirements for surface water.
11. A disinfectant may be added along the Laterals for seasonal microbial control in the Laterals. This disinfectant concentration will not be used to calculate CT.
12. CT requirements for both *Giardia lamblia* (remaining treatment by inactivation to meet 3-log total treatment) and viruses (remaining treatment by inactivation to meet 4-log total treatment) will be met by adding the minimum amount of disinfectant at the water treatment plant. CT will be met prior to or at the first DP downstream of the treatment plant or the first service connection, whichever is closer to the treatment plant.
13. The initial disinfection residual requirement will be met at the Lateral System Entry Point to Distribution. A 0.2 mg/L residual disinfectant concentration is required by 40 C.F.R. § 141.72(b)(2) at this entry point. As required in 40 CFR § 141.72(b)(3)(i), a detectable chlorine residual or HPC result less than or equal to a total bacteria concentration of 500/mL will be maintained in the Lateral System.
14. Maintenance of disinfection residual in Consecutive Distribution Systems as required by the SDWA and NPDWR will be the responsibility of each Consecutive System. It is the responsibility of the Consecutive Systems to adjust disinfectant as needed at the Consecutive Distribution System Entry Point (CEP) in order to maintain a detectable chlorine residual or HPC result less than or equal to a total bacteria concentration of 500/mL in the Consecutive Distribution System. 40 C.F.R. § 141.72(b)(2).
15. Sampling frequencies within this White Paper are based on the assumption that monitoring results are in compliance with the applicable drinking water regulations. If routine monitoring results indicate otherwise, the sampling frequencies will be revised to reflect the new conditions of the water systems as required by the NPDWR.

16. Initial corrosivity analysis for Consecutive Systems will be conducted by the operators of respective Consecutive Systems.
17. The Project will deliver Stable Non-Corrosive Water to Consecutive Systems that are directly connected to the Project.
18. Any corrosivity issues at consecutive connections as a result of blending additional sources or adding additional treatment to Project Water will be the responsibility of the owner/operator of the Consecutive System(s).
19. Site-specific situations that may cause the NGWSP or the Consecutive System receiving Project Water to require additional monitoring and/or treatment will be evaluated and determinations made on a case-by-case basis by the applicable regulatory authority.

VI. Surface Water Treatment Rules Considerations

The main purpose of the water treatment plants is to treat surface water for drinking water. Treatment plant design is assigned credit for removal and inactivation. The Project will be required to meet all surface water treatment removal and inactivation requirements and objectives at the water treatment plant. These treatment requirements and objectives will include turbidity,^{1,2} disinfection to meet CT³ as defined in Table 1, minimum residual disinfectant concentration in the water entering the Consecutive Distribution System⁴, and organic carbon removal as defined in Table 5.

The minimum disinfectant concentration of 0.2 mg/L is recommended at each Consecutive Distribution System Entry Point.

Table 1 Surface Water Treatment Monitoring Requirements

Parameter	Citation (40 C.F.R.)	MCL	Sampling Frequency	Sampling Location(s)
IFE Turbidity	141.174	TT ¹	Monitor continuously and record turbidity in NTU every 15 minutes or conduct grab sampling every 4 hours if there is a failure in the continuous monitoring equipment	At the end of each individual filter
CFE Turbidity	141.74(c)(1)	TT ²	Monitor and record turbidity in NTU every 15 min or conduct grab sampling every 4 hours if there is a failure in the continuous monitoring equipment Report 4-hour turbidity readings in NTU (every 4 hours)	At a point where water from all filters is blended into one common line

Log Removal/Inactivation	141.72(b)(1)	TT ³	To Be Determined	Finished Water Compliance Point
Disinfectant Concentration	141.74(c)(2)	TT ⁴	Monitored continuously and the lowest value must be recorded each day or conduct grab sampling every 4 hours if there is a failure in the continuous monitoring equipment	Lateral System Entry Point to Distribution.

¹IFE trigger if turbidity is >1.0 NTU for 2 consecutive 15-minute periods for 3 consecutive months and > 2.0 NTU for 2 consecutive 15-minute periods for 2 consecutive months, requires individual filter assessment or CPE, respectively.

²Treatment Technique (TT) requirement of ≤0.3 NTU in 95% of measurements per month not to exceed 1.0 NTU for more than one 15-minute period. Additional turbidity requirements may apply, depending on the final design of the plant.

³Treatment Technique (TT) requirement for CT requirements (inactivate *giardia* and viruses).

⁴Residual in the water at the Lateral System Entry Point to Distribution cannot be less than 0.2 mg/L for more than 4 hours.

VII. Primary Regulated Chemical and Radiological Contaminant Monitoring Considerations

The SDWA and NPDWR identify primary contaminants that are regulated in drinking water to protect public health. These contaminants are subject to regulatory limits on the amount of each contaminant that is allowed to be present in water provided by Public Water Systems, as listed in Table 2. For the purposes of the NGWSP, samples will be taken to monitor for primary contaminants at the Lateral System Entry Point to Distribution. See 40 C.F.R. § 141.29 (treatment of Consecutive Systems as single system for monitoring purposes).

Table 2 Chemical and Radiological Contaminants Monitoring Requirements

Contaminant	Citation (40 C.F.R.)	MCL	Sampling Frequency	Sampling Location
Cyanide	141.23 (c)(1)	0.2 mg/L	1/year	Lateral System Entry Point to Distribution.
Heavy Metals	141.23(c)(1)	See citation, 141.62(b)	1/year ¹	
Nitrate	141.23(d)	10 mg/L	1/year	
Nitrate/Nitrite	141.62(b)	10 mg/L	1/year	
Nitrite	141.23 (e)	1 mg/L	1/year	
Fluoride	141.23(c)(1)	See citation, 141.62	1/year	
VOCs	141.24(f)(4)	See citation, 141.61(a)	1/quarter ¹	
SOCs	141.24(h)(4)	See citation, 141.61(c)	1/quarter for first year of initial 3-year compliance period ¹	
Radionuclides	141.25	See citation, 141.66	1/quarter for first year of initial compliance period ¹	

Asbestos	141.23(b)	See citation, 141.62(b)	1/year for first year of initial 3-year compliance period ¹	
Sodium	141.41	Not established	1/year	
Asbestos	141.23(b)	See citation, 141.62(b)	1/year for first year of initial 3-year compliance period ¹	Within the consecutive distribution system at sample tap(s) served by asbestos line(s). See citation, 141.23(b)(5)
UCMRs	141.40	Not established	To be determined (TBD)	TBD

¹Reduced sampling is available based on results or by waiver after an initial period.

If operators of consecutive connections to the NGWSP blend Project Water with their existing wells prior to distributing the water to their consumers, the operators should work with their respective regulatory agencies to determine if additional monitoring for these contaminants is required.

VIII. Secondary Chemical Contaminant Monitoring Considerations

U.S. EPA has established National Secondary Drinking Water Regulations that set non-mandatory water quality standards for 15 contaminants, as referenced in Table 3. These are non-enforceable standards that are established as guidelines to assist PWS operators in managing their drinking water for aesthetic considerations, such as taste, color, and odor. These contaminants are considered not to present a risk to human health at the Secondary Maximum Contaminant Level (“SMCL”). For the purposes of the NGWSP, samples will be taken to monitor for secondary contaminants at a point to be determined by the regulating Agency.

While SMCLs are not federally enforceable, the SDWA and NPDWR require a special notice for exceedance of the fluoride SMCL of 2.0 mg/L. Operators of community water systems that exceed the fluoride SMCL of 2 mg/L, but do not exceed the MCL of 4.0 mg/L for fluoride, must provide public notice to persons served by the system no later than 12 months from the day the operator learns of the exceedance (40 C.F.R. § 141.208).

Table 3 Secondary Contaminants Monitoring Requirements

Contaminant	Citation (40 C.F.R.)	SMCL	Sampling Frequency	Sampling Location
Secondary Contaminants	143.3	See citation	To be determined by regulating Agency	To be determined by regulating Agency

IX. Primary Regulated Microbiological Contaminant Monitoring Considerations

The NGWSP provides Finished Water to consecutive PWSs through the Laterals. Because there are no customers on the Laterals, the NGWSP is not required to collect monthly microbiological contaminant samples in the Laterals. However, Finished Water in the Laterals will be monitored for residual disinfectant.

Monthly microbiological samples and residual disinfectant, as defined in Table 4, will be required to be collected by each consecutive PWS that receives Project Water. Consecutive PWSs should

work with their respective regulatory agencies to ensure that monthly microbiological sampling is in compliance with regulatory requirements.

Table 4 Microbiological Contaminants Monitoring Requirements

Contaminant	Citation (40 C.F.R.)	MCL	Sampling Frequency	Sampling Location(s)
Total Coliforms	Subpart Y, 141.859	TT ¹	Monthly	Within each PWS’s Consecutive Distribution System, as determined by that PWS’s required Revised Total Coliform Rule (RTCR) sampling plan
<i>E. coli</i>	Subpart Y, 141.860(a)	See citation	Monthly	
Residual Disinfectant	Subpart H 141.72(b)(3)	Cannot be undetectable in more than 5 percent of the samples each month	Monthly	At least at the same points in the distribution system and at the same time as total coliforms are sampled. See 40 C.F.R. § 141.74(c)(i).

¹As per the Revised Total Coliform Rule.

X. Disinfection Byproducts Considerations

Public water systems using surface water as a source are required to use a primary disinfectant to control harmful microorganisms such as *E. coli*, *Giardia* and viruses. Unfortunately, when these disinfectants combine with naturally occurring organic materials, the combination may cause unintended byproducts from the disinfection process.

As stated earlier in this document, because of the complexity of this Project and due to the length of the Laterals and resulting long retention times of water in those Laterals, disinfection byproducts are likely to be formed within Laterals and continue their formation in the Consecutive Distribution System. It is therefore important that the Project’s disinfection process be carefully operated to balance inactivation of any potential microbiological contaminants with limiting the formation of disinfection byproducts.

Additionally, it is important that operators of Consecutive Systems that receive Project Water (and potentially blend it with other sources within their systems) take steps to mitigate the formation of disinfection byproducts within their respective Consecutive Distribution Systems.

Table 5 Disinfection Byproducts Monitoring Requirements

Contaminant	Citation (40 C.F.R.)	MCL	Sampling Frequency	Sampling Location(s)
Maximum Residual Disinfection Limit (MRDL) Chlorine and chloramines	141.65(a) 141.132(c)(1) Or 141.74(c)(3)(i)	4.0 mg/L on a RAA	At the same time as RTCR Sampling or other times as allowed by the applicable regulatory agency	At the same locations as RTCR Sampling location(s) or other locations as allowed by the applicable regulatory agency
Maximum Residual Disinfection Limit (MRDL) Chlorine dioxide	141.65(a) 141.132(c)(2)	0.8 mg/L	Daily	Consecutive Distribution System Entry Point
Stage 2 DBPs	141.64 141.621(a)(2)	141.64	141.621(a)(2)	141.622
TOC ¹	141.132 141.135	TT	To be determined (TBD)	TBD

¹TOC requirements are dependent on the final design of the plants

XI. Lead and Copper Rule Considerations

The goal of the LCR is to provide maximum human health protection by reducing lead and copper levels at consumers’ taps. To accomplish this goal, the LCR establishes requirements for community water systems such as the NGWSP and Consecutive Systems. Operators of these systems must conduct periodic monitoring and optimize corrosion control. In addition, operators of these systems must perform public education when the level of lead at the tap exceeds the lead action level, treat source water if it is found to contribute significantly to high levels of lead or copper at the tap, and replace lead service lines in the Consecutive Distribution System if the level of lead at the tap continues to exceed the lead action level after optimal corrosion control and/or source water treatment has been installed.

The goal of the NGWSP is to provide optimized corrosion-controlled water for the Lateral Systems, considering the unique corrosion control needs of each consecutive PWS. Additionally, the operator of each Consecutive System should conduct long-term corrosivity analyses and ensure that OCCT requirements are met on an individual basis. Because of multiple potential blending scenarios within each Consecutive System, long-term corrosivity analyses and additional LCR sampling requirements should be determined on a system-by-system basis. Operators of individual PWSs should work with the applicable regulatory agencies to ensure compliance with all LCR requirements.

Additionally, operators of all PWSs subject to the LCR that receive Project Water must report any long-term change in treatment or any source addition to their regulatory agencies and must receive prior approval before implementing the change or addition. These operators also must notify Consecutive Systems of those changes or additions. See 40 C.F.R. § 141.86(d)(4)(vii).

Once Project Water is being delivered to Consecutive Systems, those systems must return to standard LCR monitoring as required by the SDWA and NPDWR (Table 6).

Table 6 Lead and Copper Monitoring Requirements

Contaminant	Citation (40 C.F.R.)	MCL	Sampling Frequency	Sampling Location(s)
Lead and Copper	141.80	Action Levels: Lead – 0.015 mg/L Copper – 1.3 mg/L	Every 6 months for at least 2 consecutive 6-month periods	At LCR sites within each Consecutive System that receives Project Water
Corrosion Control Parameters ¹	141.82	TT	To be determined	TBD
Water Quality Parameters ²	141.87	TT	To be determined	TBD

¹ Optimal Corrosion Control Treatment (OCCT) steps and initial water quality parameter monitoring to determine the corrosivity of the water should be conducted. If OCCT is required, the required water quality parameter monitoring will be conducted.

² Water quality parameters include pH, alkalinity, orthophosphate, silica, calcium, conductivity, and temperature.

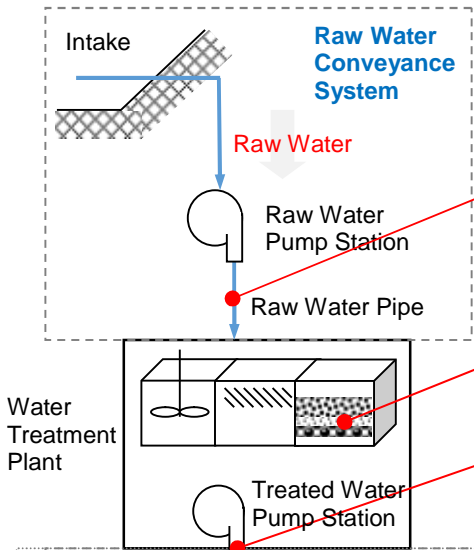
APPENDIX

NAVAJO-GALLUP WATER SUPPLY SYSTEM MONITORING
SCHEMATIC

NGWSP Water Supply System Monitoring

2/24/2020

NGWSP Water System



Notes:

1. NGWSP System Monitoring schematic is not drawn to scale and may not represent the final design of the project.
2. Final monitoring requirements will be per the regulatory agency having authority for each consecutive system.

Before Treatment

Raw Water Monitoring:

- TOC
- Alkalinity
- LT2

Filtered Water Turbidity Compliance Point

Filtered Water Turbidity Monitoring:

- Turbidity – Individual Filter Effluent
- Turbidity – Combined Filter Effluent

Lateral System EP to Distribution

Entry Point Monitoring:

- TOC
- Chemical
- Radiological
- Secondary Contaminants
- OCCT/ WQP
- Residual Disinfectant

Lateral System

Finished Water CP (Prior to first turnout or connection)

Finished Water CP Monitoring:

- Parameters for CT

Delivery Point from NGWSP System

Distribution Feed Pipe

Treated / Finished Water Conveyance System

Consecutive Distribution System

Groundwater Distribution System Entry Point

Consecutive Distribution Monitoring

- Chlorine / HPC
- DBP/ OCCT/ WQP
- Bacti
- Asbestos

Distribution Feed Booster Chlorination & Corrosion Control Station

PWS Well

Distribution Pipe

Consecutive Distribution System Entry Point

CEP Monitoring (Recommended):

- Chlorine

Lateral Turnout

Lateral Turnout Pipe

Lateral Storage Tank

Lateral Transmission Pipe

Lateral Booster Chlorination Station (As Needed)

Lateral Monitoring:

- Chlorine / HPC

Lateral Main (collective sum of the lateral transmission pipes)

Public Water System (Consecutive System – 2nd)

Distribution System

Distribution Storage Tank

Distribution Pump Station

Service Connection Meter

Premise plumbing Tap

Distribution Storage Tank