EPA
United States Environmental Protection Agency

The Standardized Monitoring Framework: A Quick Reference Guide

Overview of the Framework

Title*	The Standardized Monitoring Framework (SMF), promulgated in the Phase II Rule on January 30, 1991 (56 FR 3526).
Purpose	To standardize, simplify, and consolidate monitoring requirements across contaminant groups. The SMF increases public health protection by simplifying monitoring plans and synchronizing monitoring schedules leading to increased compliance with monitoring requirements.
General Description	The SMF reduces the variability within monitoring requirements for chemical and radiological contaminants across system sizes and types.

*This document provides a summary of federal drinking water requirements; to ensure full compliance, please consult the federal regulations at 40 CFR 141 and any approved state requirements.

Additional Requirements

The SMF outlined on these pages summarizes existing systems' ongoing federal monitoring frequencies only, primacy agencies may have more stringent requirements. Primacy agencies with an EPA-approved waiver program have the flexibility to issue waivers, which take into account regional and state specific characteristics and concerns. To determine exact monitoring frequencies, the SMF must be used in conjunction with any EPA approved waiver program and/or additional requirements as determined by the primacy agency.

Additional sampling to confirm a result also may be required. New water systems may have different and additional requirements as determined by the primacy agency.

Regulated Contaminants

Inorganic Contaminants (IOCs)	Fifteen (15) (Nitrate, Nitrite, and Asbestos are exceptions to SMF)
Synthetic Organic Contaminants (SOCs) & Volatile Organic Contaminants (VOCs)	Fifty-One (51) (Vinyl chloride for ground water systems is an exception to SMF)
Radionuclides	Four (4) (Does not include beta particles and photon emitters)

Applicable PWS

All PWSs	Nitrate Nitrite
CWSs	IOCs SOCs VOCs Radionuclides
NTNCWSs	IOCs SOCs VOCs

Legend for SMF Tables

* = 1 sample at each entry point to distribution system (EPTDS).
** = 2 quarterly samples at each EPTDS. Samples must be taken during 1 calendar year during each 3-year compliance period.
**** = 4 quarterly samples at each EPTDS within time frame designated by the primacy agency.
X = No sample required unless specified by primacy agency. However, waivers must be renewed at the frequency shown and system must demonstrate that the sources are not vulnerable.
= Systems must monitor at a frequency specified by the primacy agency.
Detect = Federally defined detection limit.

For additional information:

Access the EPA Safe Drinking Water website at https://www.epa.gov/safewater or contact your primacy agency's drinking water representatives.

See 40 CFR 141.23 for IOCs, nitrate, and nitrite; 40 CFR 141.24 for VOCs and SOCs; and 40 CFR 141.26 for Radionuclides.

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STANDARDIZED MONITORING FRAMEWORK

		Fourth Cycle									Fifth Cycle								
		1st Period			2nd Period			3rd Period			1st Period			2nd Period			3rd Period		
	CWSs & NTNCWSs	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Inorganic Contaminants (IOCs)	**Ground Water**																		
	Waiver[1]					*									*				
	≤ MCL and No Waiver		*			*			*			*			*			*	
	Reliably and Consistently < MCL[2]		*			*			*			*			*			*	
	> MCL or Not Reliably and Consistently < MCL[3]	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****
	Surface Water																		
	Waiver[1]					*									*				
	≤ MCL and No Waiver	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Reliably and Consistently < MCL[2]	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	> MCL or Not Reliably and Consistently < MCL[3]	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****
Synthetic Organic Contaminants (SOCs)	**CWSs & NTNCWSs**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**
	All Population Sizes																		
	Reliably and Consistently < MCL[2, 4, 5, 6]	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	≥ Detect or Not Reliably and Consistently < MCL[3]	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****
	Waiver with Vulnerability Assessment Every 3 Years[7]		X			X			X			X			X			X	
	Population > 3,300																		
	< Detect and No Waiver		**			**			**			**			**			**	
	Population ≤ 3,300																		
	< Detect and No Waiver		*			*			*			*			*			*	
Volatile Organic Contaminants (VOCs)	**CWSs & NTNCWSs**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**
	Ground Water																		
	Waiver with Vulnerability Assessment Every 3 Years[7, 8]					*									*				
	< Detect and No Waiver[9]	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	< Detect After at Least 3 Annual Samples[10]		*			*			*			*			*			*	
	Reliably and Consistently < MCL[2, 4, 5]	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	≥ Detect or Not Reliably and Consistently < MCL[3]	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****
	Surface Water																		
	Waiver with Vulnerability Assessment Every 3 Years[7]		X			X			X			X			X			X	
	< Detect and No Waiver[9]	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Reliably and Consistently < MCL[2, 4, 5]	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	≥ Detect or Not Reliably and Consistently < MCL[3]	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****
Asbestos	**CWSs & NTNCWSs**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**
	Waiver with Vulnerability Assessment Every 3 Years[11]		X			X			X			X			X			X	
	No Waiver, Reliably and Consistently < MCL,[2] or Vulnerable to Asbestos Contamination[12]		*									*							
	> MCL or Not Reliably and Consistently < MCL[3]	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****

STANDARDIZED MONITORING FRAMEWORK

		Fourth Cycle									Fifth Cycle								
		1st Period			2nd Period			3rd Period			1st Period			2nd Period			3rd Period		
	CWSs & NCWSs	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Nitrate	**Ground Water**																		
	< 1/2 MCL	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Reliably and Consistently < MCL[2, 5]	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	≥ 1/2 MCL[13] or Not Reliably and Consistently < MCL	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****
	Surface Water																		
	After 4 Consecutive Quarters < 1/2 MCL[5]	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	≥ 1/2 MCL Within Last Four Quarters[13]	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****
	Ground Water and Surface Water TNCWSs																		
	All Systems[13]	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Nitrite	**CWSs & NCWSs**	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
	< 1/2 MCL	#									#								
	Reliably and Consistently < MCL[2, 5]	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	≥ 1/2 MCL or Not Reliably and Consistently < MCL	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****
Radio-nuclides	**CWSs[14]**	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
	< Detect[15]	*						*			*						*		
	≥ Detect and ≤ 1/2 MCL	*						*						*					
	> 1/2 MCL and ≤ MCL		*			*			*			*			*			*	
	> MCL[3, 16]	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****

[1]Based on 3 rounds of monitoring at each EPTDS with all analytical results < MCL. No monitoring required for cyanide waivers provided that the primacy agency determines that the system is not vulnerable due to lack of any industrial source of cyanide.

[2]A result above a trigger level triggers quarterly sampling at that EPTDS. Trigger level is > MCL for IOCs; > detection limit for VOCs and SOCs; and ≥ 1/2 MCL for nitrate and nitrite. Frequency may be reduced if the primacy agency determines the sampling point is reliably and consistently (R&C) < MCL. No R&C < MCL determination may be made for surface water systems for nitrate.

[3]If the running annual average (RAA) of quarterly sampling is > MCL, the system remains on quarterly monitoring until it meets the conditions to be determined R&C < MCL.

[4]Systems can apply for a waiver after 3 consecutive annual sampling results are below the detection limit.

[5]Annual samples must be taken during the quarter which previously resulted in the highest analytical result.

[6]Primacy agencies must re-confirm every 3 years that the system is not vulnerable or the system must sample based on system population and no waiver.

[7]Systems must update their vulnerability assessments during the time the waiver is effective. Primacy agencies must re-confirm every 3 years that a system is not vulnerable or the system must return to annual monitoring.

[8]Waiver is effective for two compliance periods (6 years), and these periods can span compliance cycles.

[9]If all monitoring results during initial quarterly monitoring are < the detection limit, the system can take annual samples. Systems are also eligible for a waiver.

[10]After a minimum of 3 years of annual sampling all results < the detection limit, they can take 1 sample during each compliance period. Systems are also eligible for a waiver.

[11]Primacy agencies must reconfirm every 3 years that the system is not vulnerable or the system must return to 1 sample in the first 3-year compliance period of every 9-year compliance cycle.

[12]Systems are required to monitor for asbestos during the first 3-year compliance period of each 9-year compliance cycle. A system vulnerable to asbestos contamination due solely to corrosion of asbestos-cement pipe must take 1 sample at a tap served by that pipe. A system vulnerable to asbestos contamination at the source must sample at each EPTDS.

[13]An MCL of 20 mg/L may be approved by the primacy agency for NCWSs that do not supply water to children under 6 months of age and additional criteria are met. [CFR 141.11(d)].

[14]Radionuclides information below specifies the requirements for gross alpha particle activity, radium-226, radium-228, and uranium. Beta particle and photon radioactivity are not included, refer to CFR 141.26(b) for more details.

[15]Systems must collect at least one sample every nine years if average of initial monitoring results is < detect.

[16]Systems must sample at least four consecutive quarters with results below the MCL before the monitoring frequency can be reduced.