Sufficiently Sensitive Test Methods FAQs

General

1) What is the Sufficiently Sensitive Rule and where can I find it?

- The purpose of this rule is to clarify that applicants and permittees in the National Pollutant Discharge Elimination System Program (in NJ this is the NJPDES program) must use EPA-approved analytical methods that are capable of detecting and measuring the pollutants at, or below, the applicable water quality criteria or permit limits.

An EPA fact sheet is available at:

http://water.epa.gov/polwaste/npdes/basics/upload/Public-Fact-Sheet-Sufficiently-Sensitive-Methods-Rule-8-18-14-Final.pdf

The rule itself is available at:

https://www.federalregister.gov/articles/2014/08/19/2014-19265/national-pollutant-discharge-elimination-system-npdes-use-of-sufficiently-sensitive-test-methods-for.

2) When do the Sufficiently Sensitive Test Methods (SSTM) requirements become effective?

- This final rule became effective on September 18, 2014 and all analytical monitoring was required to immediately come into compliance with the final rule.

3) What are the criteria for determining if the test method is sufficiently sensitive?

- An EPA-approved method is sufficiently sensitive where:

  A. The method minimum level is at or below the level of the applicable water quality criterion or permit limitation for the measured pollutant or pollutant parameter; or

  B. The method minimum level is above the applicable water quality criterion, but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge; or

  C. The method has the lowest minimum level of the EPA-approved analytical methods.

4) What is EPA's definition of method minimum level (ML)?

- The term method ''minimum level'' refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL). For the purposes of this rulemaking, EPA is considering the following terms related to analytical method sensitivity to be synonymous: ''quantitation limit,'' ''reporting limit,'' ''level of quantitation,'' and ''minimum level.'' (footnotes #5 & #6 on page 49003 of the rule which can be found at http://www.gpo.gov/fdsys/pkg/FR-2014-08-19/pdf/2014-19265.pdf)

  NOTE: The method minimum level is not the same as method detection level.

5) Is there a list available of the acceptable quantitation levels or range for each toxic pollutant I have to monitor in my effluent? Will NJDEP be establishing its own MLs for each approved analytical method?

- Yes. Attached to this guidance is a table which represents the best currently available Quantitation Levels and appropriate technologies for the purposes of compliance with the SSTM Rule in consideration of the three possible scenarios described in item 3. These values were selected by reviewing analytical capabilities within approved methods; reviewing data provided by certified laboratories; comparing these values to surface water quality standards (see http://www.nj.gov/dep/rules/rules/njac7_9b.pdf) and consideration of Practical Quantitation Levels as established in rule within the Ground Water Quality Standards at N.J.A.C. 7:9C. The values aslisted in the table are considered guidance and, if a more sensitive technology is approved within 40 CFR Part 136, then the Recommended Quantitation Level and relevant technique contained herein may change.

While the Department anticipates that this table will be useful for most circumstances, there may be situations where data from an individual facility show quantifiable values in the effluent, even with a relatively high quantitation limit. In this case, a method utilizing a greater sensitivity is not required since all of the data is already detectable and quantifiable (Scenario 3.B above).

Specific Questions / Examples

6) **I have a NJPDES permit limit for chlorine produced oxidants and routinely submit non-detectable values on my monitoring report form. I have historically reported <0.1 mg/L per past Department guidance rather than the actual laboratory analytical quantitation limit. Should I continue this practice?**

   - No. Under this scenario, reporting <0.1 mg/L on a Discharge Monitoring Report form is no longer acceptable and is not in compliance with the new SSTM rule. Laboratories must report the actual concentration obtained at testing, and not simply reporting the data as <0.1 mg/L. For example, if the analytical quantitation level is 0.02 mg/L and the result is "ND" or non-detectable, the permittee shall report <0.02 mg/L.

7) **I have a NJPDES permit limit of 0.007 mg/L for chlorine produced oxidants and my NJPDES permit states "Where the WQBELs are more stringent than the quantification limit (i.e. 0.1 mg/L), effluent compliance will be determined by comparing the reported value against the applicable quantification limit. Therefore, the enforceable daily maximum and monthly average concentration limitation is 0.1 mg/L." Will my compliance still be judged against the reporting level of 0.1 mg/L for CPO?**

   - Yes, for permits that still contain this language indicating that compliance is judged against the RQL, permit compliance will continue to be assessed against the 0.1 mg/L level. However, if the RQL of 0.1 mg/L is less stringent (a higher number) than your water quality based effluent limitation, it is likely that this reporting level is not in compliance with the SSTM rule. If the method cannot detect to a level equal to or more sensitive than the WQBEL, a new test method may be necessary. Note that New Jersey laboratory certification is required for all methods performed to demonstrate compliance with this rule.

8) **What are the criteria for determining if the test method is sufficiently sensitive for the parameters that do not have an assigned limit? In my NJPDES permit, lead is a "report only" parameter and the permit does not specify an RQL.**

- For parameters without a permit limitation, permittees should choose a method that can quantify down to the sensitivity of the water quality criterion if possible. The water quality criteria in the State of New Jersey are the New Jersey Surface Water Quality Standards which are available at:

  http://www.nj.gov/dep/rules/rules/njac7_9b.pdf

  In addition, please refer to the table at the end of this document. In this example, lead is a "report only" parameter. As indicated in this table, the permittee should utilize an analytical method that can achieve 5 ug/L or less in order to ensure compliance with the SSTM Rule. This level should be attainable using GFAA or ICP/MS.

9) My NJPDES/Discharge to Surface Water permit contains specific Recommended Quantitation Levels (RQLs) for many parameters with more stringent effluent limitations. Will permit compliance continue to be assessed against the RQLs?

- Yes. Permit compliance against RQLs will continue as long as the RQLs are retained in the current permit. The federal rule is in effect as of September 18th, 2014 and currently applies to all permittees/applicants in the NJPDES Surface Water Permitting Program.

  Permittees and certified labs are encouraged to evaluate the table at the end of this document to determine if the methods currently used are in compliance with the SSTM rule. Appropriate changes may need to be made to the sampling, reporting, or methodology in order to comply. In addition new lab certifications may be required if a method change becomes necessary.

  While the Department has prepared this guidance document, it is not the Department's intent to incorporate these Quantitation Levels into NJPDES permits as has been the Department's previous practice. However, there are a limited number of circumstances (i.e. chlorine produced oxidants) where "Required Quantitation Levels" will continue to be included in the NJPDES permit dependent on site-specific factors. If this is the case, the incorporation of the Required Quantitation Level will be clearly documented in the Fact Sheet, along with a basis and background, as well as in Part III of the NJPDES permit.

10) For the parameter, Arsenic, our WQBEL is 0.017 ug/L which is less than the most sensitive analytical method of EPA approved methods which is 2 ug/L. How do I comply with the SSTM rule?

- As per the attached table, since the method used has the lowest minimum level of the EPA-approved analytical methods (which can be attained using GFAA or ICP/MS) it is in compliance with the SSTM rule.

Questions for Laboratories

11) I am a contract certified laboratory that is performing the testing for the permittees as my client, how is my laboratory responsible for complying with the SSTM rule?

- All laboratories, whether they be contract laboratories or affiliated with the actual permittee, are required to ensure they conduct compliance testing in accordance with their client's specifications, and that they maintain the required certification for any methods used for that testing to ensure compliance with the applicable regulations. All laboratories are strongly encouraged to consult with their clients and obtain a copy of the most current and effective permit to ensure that the most sensitive methods are being used at the laboratory for non-potable water testing.

12) My New Jersey certified laboratory is located at or associated with the regulated discharge from my treatment facility, is my laboratory responsible for meeting the SSTM rule requirement for the parameters and methods I use at the laboratory?

- Yes. This testing is performed to demonstrate compliance with the requirements of the permittee's regulated discharges.

Contact Information/Questions

13) If I have questions relating to lab methods for Sufficiently Sensitive Test Methods (SSTM) or issues with a particular method in meeting the specified quantitation level, whom should I call?

- For questions regarding the applicability of the rule and whether or not the facility is complying with the target level of sensitivity, contact Steve Seeberger of the Bureau of Surface Water Permitting at (609) 292-4860 or via email at Stephen.Seeberger@dep.nj.gov

- For questions regarding laboratory methodologies, certifications, or specifics relating to quantitation limits associated with individual test methods, contact Ryan Larum of the Office of Quality Assurance at 609-292-3950 or via email at Ryan.Larum@dep.nj.gov

Current Quantitation Levels (QLs)

Below is a list of what the Department has determined to be the most sensitive achievable quantitation levels available for the analysis of wastewater pollutants as of the date of this document. This list can be used as a reference in order to comply with the SSTM rule found at 40 CFR Parts 122 and 136.

While the below is being provided as guidance, note that the rule is comprised of three possible situations in which each must be evaluated for individual pollutants. Therefore, it is not possible to disseminate a list of universally acceptable test methodologies for all monitored parameters for all NJPDES permits. For example, if facilities with relatively high detectable levels for a particular parameter are reported, a method utilizing a greater sensitivity is not required since all of the data is already detectable and quantifiable. In addition, if a permit limit is a large number as compared to the SWQS (e.g., due to high dilution numbers), an extremely sensitive method may not be necessary in order to meet the SSTM rule. The following list is simply a list of what is currently considered achievable.

Parameter	Units	Current best available QL	Sufficiently Sensitive Technique from 40 CFR 136
Chlorine Produced Oxidants (CPO)	mg/l	0.02	Spectrophotometric, or Amperometric Titration
Metals and Cyanide			
Antimony, Total	µg/L	4	GFAA or ICP/MS
Arsenic, Total	µg/L	2	GFAA or ICP/MS
Barium, Total	µg/L	4	ICP/MS
Beryllium, Total,	µg/L	1	GFAA or ICP/MS
Cadmium, Total	µg/L	1	GFAA or ICP/MS
Chromium, Total	µg/L	4	ICP/MS
Copper, Total	µg/L	4	ICP/MS
Lead, Total	µg/L	2	GFAA or ICP/MS
Parameter	**Units**	**Current best available QL**	**Sufficiently Sensitive Technique from 40 CFR 136**
Manganese, Total	µg/L	4	ICP/MS
Mercury, Total	µg/L	0.0005	CVAFS
Nickel, Total	µg/L	4	ICP/MS
Selenium, Total	µg/L	4	GFAA or ICP/MS
Silver, Total	µg/L	2	GFAA or ICP/MS
Thallium, Total	µg/L	2	GFAA or ICP/MS
Zinc, Total	µg/L	10	ICP/MS

Cyanide, Total	µg/L	20	Spectrophotometric
Volatiles			
Acrolein	µg/L	5	GC or GC/MS
Acrylonitrile	µg/L	2	GC or GC/MS
Benzene	µg/L	1	GC or GC/MS
Bromoform	µg/L	4	GC or GC/MS
Carbon Tetrachloride	µg/L	1	GC or GC/MS
Chlorobenzene	µg/L	1	GC or GC/MS
Chlorodibromomethane (Dibromochloromethane)	µg/L	1	GC or GC/MS
Chloroform	µg/L	1	GC or GC/MS
Dichlorobromomethane (Bromodichloromethane)	µg/L	1	GC or GC/MS
1,2-Dichloroethane	µg/L	2	GC or GC/MS
1,1-Dichloroethylene (1,1-Dichloroethene)	µg/L	1	GC or GC/MS
1,2-Dichloropropane	µg/L	1	GC or GC/MS
1,3 Dichloropropene	ug/L	1	GC or GC/MS
Ethylbenzene	µg/L	2	GC or GC/MS
Methyl Bromide (Bromomethane)	µg/L	1	GC or GC/MS
Methylene Chloride	µg/L	1	GC or GC/MS
1,1,2,2-Tetrachloroethane	µg/L	1	GC or GC/MS
Tetrachloroethylene (Tetrachloroethene)	µg/L	1	GC or GC/MS
Toluene	µg/L	1	GC or GC/MS
1,2-Transdichloroethylene or Trans - 1,2-Dichloroethene	µg/L	1	GC or GC/MS
1,1,1-Trichloroethane	µg/L	1	GC or GC/MS
1,1,2-Trichloroethane	µg/L	1	GC or GC/MS
Trichloroethylene (Tetrachloroethene)	µg/L	1	GC or GC/MS
Vinyl Chloride	µg/L	1	GC or GC/MS

Parameter	Units	Current best available QL	Sufficiently Sensitive Technique from 40 CFR 136
Acid Compounds			
2-Chlorophenol	µg/L	10	GC/MS
2,4-Dichlorophenol	µg/L	10	GC/MS
2,4-Dimethylphenol	µg/L	10	GC/MS
4,6-Dinitro-O-Cresol	µg/L	10	GC/MS
2,4-Dinitrophenol	µg/L	20	GC/MS
Pentachlorophenol	µg/L	0.3	GC/MS (SIM)
Phenol	µg/L	10	GC/MS
2,4,5 Trichlorophenol	ug/L	10	GC or GC/MS
2,4,6-Trichlorophenol	µg/L	10	GC/MS
Base/Neutral			
Acenaphthene	µg/L	9.5	GC or GC/MS
Anthracene	µg/L	10	GC or GC/MS
Benzidine	µg/L	10	GC or GC/MS
Benzo (a) Anthracene	µg/L	0.1	GC/MS (SIM)
Benzo (a) Pyrene	µg/L	0.1	GC/MS (SIM)
3,4-Benzofluoranthene (Benzo(b)fluoranthene)	µg/L	0.2	GC/MS (SIM)
Benzo (k) Fluoranthene	µg/L	0.3	GC/MS(SIM)
Bis (2-Chloroethyl) Ether	µg/L	2	GC or GC/MS
Bis (2-Chloroisopropyl) Ether	µg/L	10	GC or GC/MS
Bis (2-Ethylhexyl) Phthalate	µg/L	3	GC or GC/MS
Butyl Benzyl Phthalate	µg/L	7.5	GC or GC/MS
2 Chloronaphthalene	ug/L	9.5	GC or GC/MS
Chrysene	µg/L	2.5	GC or GC/MS
Dibenzo (a,h) Anthracene	µg/L	0.3	GC/MS (SIM)
1,2-Dichlorobenzene	µg/L	5	GC or GC/MS
1,3-Dichlorobenzene	µg/L	5	GC or GC/MS
1,4-Dichlorobenzene	µg/L	5	GC or GC/MS
3,3'-Dichlorobenzidine	µg/L	10	GC or GC/MS
Diethyl Phthalate	µg/L	10	GC or GC/MS
Di-N-Butyl Phthalate	µg/L	10	GC or GC/MS
2,4-Dinitrotoluene	µg/L	7.5	GC or GC/MS
1,2-Diphenylhydrazine	µg/L	20	GC or GC/MS
Fluoranthene	µg/L	10	GC or GC/MS
Fluorene	µg/L	5	GC or GC/MS
Hexachlorobenzene	µg/L	0.02	GC/MS (SIM)
Hexachlorobutadiene	µg/L	5	GC or GC/MS
Hexachlorocyclopentadiene	µg/L	2.5	GC or GC/MS

Parameter	Units	Current best available QL	Sufficiently Sensitive Technique from 40 CFR 136
Hexachloroethane	µg/L	5	GC or GC/MS
Indeno (1,2,3-cd) Pyrene	µg/L	0.2	GC/MS (SIM)
Isophorone	µg/L	10	GC or GC/MS
Nitrobenzene	µg/L	5	GC or GC/MS
N-Nitrosodi-n-butylamine	ug/L	5	GC/MS
N-Nitrosodiethylamine	µg/L	5	GC/MS
N-Nitrosodimethylamine	µg/L	6	GC/MS
N-Nitrosodiphenylamine	µg/L	5	GC/MS
N-Nitrosopyrrolidine	µg/L	5	GC/MS
Pentachlorobenzene	ug/L	5	GC/MS
Pyrene	µg/L	10	GC or GC/MS
1,2,4-Trichlorobenzene	µg/L	9	GC or GC/MS
Pesticides and Dioxin			
Aldrin	µg/L	0.04	GC
Alpha-BHC	µg/L	0.02	GC
Beta-BHC	µg/L	0.04	GC
Gamma-BHC	µg/L	0.03	GC
Chlordane	µg/L	0.5	GC
Chlorpyrifos	µg/L	20	GC
4,4'-DDT	µg/L	0.05	GC
4,4'-DDE	µg/L	0.05	GC
4,4'-DDD	µg/L	0.02	GC
Demeton	µg/L	1	GC
Dieldrin	µg/L	0.03	GC
Alpha-Endosulfan (Endosulfan I)	µg/L	0.02	GC
Beta-Endosulfan (Endosulfan II)	µg/L	0.04	GC
Endosulfan Sulfate	µg/L	0.02	GC
Endosulfans, Total (alpha and beta)	µg/L		
Endrin	µg/L	0.02	GC
Endrin Aldehyde	µg/L	0.04	GC
Guthion (Azinphos methyl)	µg/L	2.7	GC
Heptachlor	µg/L	0.02	GC
Heptachlor Epoxide	µg/L	0.2	GC
Malathion	µg/L	2	GC
Methoxychlor	µg/L	0.1	GC
Mirex	µg/L	0.05	GC

Parameter	Units	Current best available QL	Sufficiently Sensitive Technique from 40 CFR 136
Parathion	ug/L	4	GC
PCB-1016	µg/L	0.5	GC
PCB-1221	µg/L	0.5	GC
PCB-1232	µg/L	0.5	GC
PCB-1242	µg/L	0.5	GC
PCB-1248	µg/L	0.5	GC
PCB-1254	µg/L	0.5	GC
PCB-1260	µg/L	0.5	GC
Toxaphene	µg/L	1	GC
1,2,4,5-Tetrachlorobenzene	µg/L	5	GC/MS
2,3,7,8 Tetrachloro dibenzo p dioxin	ug/L	0.00275	GC/MS

GFAA = Graphite Furnace Atomic Absorption
ICP/MS = Inductively Coupled Plasma/Mass Spectrometry
GC = Gas Chromatography
GC/MS = Gas Chromatography/ Mass Spectrometry
CVAFS = Cold Vapor Atomic Fluorescence Spectrometry
GC/MS (SIM) = Gas Chromatography/Mass Spectrometry with Selected Ion Monitoring (SIM)