

SUMMARY OF EXPRESS TERMS

This notice of proposed rulemakings amends 10 NYCRR Subpart 5-1 to include maximum contaminant levels (MCL) of 10 parts per trillion (ppt) of Perfluorooctanesulfonic acid (PFOS), 10 ppt for Perfluorooctanoic acid (PFOA) and 1 part per billion (ppb) for 1,4-dioxane. Additionally, a new subdivision was added to allow water systems to request a deferral from the MCL for PFOS, FPOA and 1,4-dioxane and updates to additional tables and Appendix 5-C to ensure clarity with implementation of the MCLs.

Pursuant to the authority vested in the Public Health and Health Planning Council and the Commissioner of Health by section 225 of the Public Health Law, Subpart 5-1 of Title 10 (Health) of the Official Compilation of Codes, Rules and Regulations of the State of New York is amended, to be effective upon publication of a Notice of Adoption in the New York State Register, to read as follows:

A new subdivision (p) is added to Section 5-1.51 to read as follows:

(p) A system implementing corrective actions to comply with the MCL for Perfluorooctanesulfonic acid (PFOS), Perfluorooctanoic acid (PFOA), and 1,4-dioxane listed in section 5-1.52 table 3 of this subpart may request that the State defer actions for determining MCL violations prescribed in section 5-1.52 table 3 of this subpart for up to 24 months past the effective date of the PFOS, PFOA or 1,4-dioxane MCL. The system shall make such requests in writing within 90 days of the effective date of such MCL. Requests shall document that a deferral period is necessary for a system to implement corrective actions to achieve compliance with the MCL for PFOS, PFOA or 1,4-dioxane and include a timeline with specific milestones for State review and approval. A public notice shall be distributed within 30 days of receiving notification from the State that a deferral has been granted. Systems operating with a deferral approved by the State shall comply with any interim monitoring, public notification or other conditions required by the State, including but not limited to a timeline for implementation of a corrective action plan. Deferrals granted under this subdivision may be renewed, upon request, for up to an additional twelve months if the system establishes to the satisfaction of the State that it is taking all practical steps to meet the corrective action plan on which the initial deferral was conditioned. Failure to meet any deferral conditions shall constitute a violation of this section and may result in immediate deferral revocation. Notice of revocation of a deferral shall will be issued in writing by the State.

Section 5-1.52, Table 3 is amended to read as follows:

Table 3. Organic Chemicals Maximum Contaminant Level Determination

Contaminants	MCL (mg/L)	Type of water system	Determination of MCL violation
General organic chemicals		Community, NTNC and Noncommunity	If the results of a monitoring sample analysis exceed the MCL, the supplier of water shall collect one to three more samples from the same sampling point, as soon as practical, but within 30 days. An MCL violation occurs when at least one of the confirming samples is positive ¹ and the average of the initial sample and all confirming samples exceeds the MCL.
Principal organic contaminant (POC)	0.005		
Unspecified organic contaminant (UOC)	0.05		
Total POCs and UOCs	0.1		
Disinfection byproducts ^{2,3}		Community and NTNC	For systems required to monitor quarterly, the results of all analyses at each monitoring location per quarter shall be arithmetically averaged and shall be reported to the State within 30 days of the public water system's receipt of the analyses. A violation occurs if the average of the four most recent sets of quarterly samples at a particular monitoring location (12-month locational running annual average (LRAA)) exceeds the MCL. If a system collects more than one sample per quarter at a monitoring location, the system shall average all samples taken in the quarter at that location to determine a quarterly average to be used in the LRAA calculation. If a system fails to complete four consecutive quarters of monitoring, compliance with the MCL will be based on an average of the available data from the most recent four quarters. An MCL violation for systems on annual or less frequent monitoring that have been increased to quarterly monitoring as outlined in Table 9A, is determined after four quarterly samples are taken.
Total trihalomethanes	0.080		
Haloacetic acids	0.060		
		Transient noncommunity	Not applicable.

Table 3. Organic Chemicals Maximum Contaminant Level Determination (continued)

Contaminants	MCL (mg/L)	Type of Water System	Determination of MCL violation
Specific Organic Chemicals		Community, NTNC and Noncommunity	If the results of a monitoring sample analysis exceed the MCL, the supplier of water shall collect one to three more samples from the same sampling point, as soon as practical, but within 30 days. An MCL violation occurs when at least one of the confirming samples is positive ¹ and the average of the initial sample and all confirming samples exceeds the MCL.
Alachlor	0.002		
Aldicarb	0.003		
Aldicarb sulfone	0.002		
Aldicarb sulfoxide	0.004		
Atrazine ⁴	0.003		
Benzo(a)pyrene	0.0002		
Carbofuran	0.04		
Chlordane	0.002		
Di(2-ethylhexyl)phthalate	0.006		
Dibromochloropropane (DBCP)	0.0002		
2,4-D	0.05		
Dinoseb	0.007		
<u>1,4-Dioxane</u>	<u>0.0010</u>		
Diquat	0.02		
Endrin	0.0020.0000		
Ethylene dibromide (EDB)	5		
Heptachlor	0.0004		
Heptachlor epoxide	0.0002		
Hexachlorobenzene	0.001		
Lindane	0.0002		
Methoxychlor	0.04		
Methyl-tertiary-butyl-ether (MTBE)	0.010		
Pentachlorophenol	0.001		
<u>Perfluorooctanesulfonic acid (PFOS)</u>	<u>0.0000100</u>		
<u>Perfluorooctanoic acid (PFOA)</u>	<u>0.0000100</u>		
Polychlorinated biphenyls (PCBs) ⁵	0.0005		
Propylene glycol	1.0		
Simazine	0.004		
Toxaphene	0.003		
2,4,5-TP (Silvex)	0.01		
2,3,7,8-TCDD (Dioxin)	0.00000003		
Vinyl chloride	0.002		

Table 3 (continued)

¹ A sample is considered positive when the quantity reported by the State approved laboratory is greater than or equal to the method detection limit.

² For systems monitoring yearly or less frequently, the sample results for each monitoring location is considered the LRAA for that monitoring location. Systems required to conduct monitoring at a frequency that is less than quarterly shall monitor in the calendar month identified in the monitoring plan developed under section 5- 1.51(c). Compliance calculations shall be made beginning with the first compliance sample taken after the compliance date.

³ Systems that are demonstrating compliance with the avoidance criteria in section 5-1.30(c), shall comply with the TTHM and HAA5 LRAA MCLs; however the LRAA MCLs are not considered for avoidance purposes. For avoidance purposes, TTHMs and HAA5s are based on a running annual average of analyses from all monitoring locations.

⁴ Syngenta Method AG-625, "Atrazine in Drinking Water by Immunoassay," February 2001, available from Syngenta Crop Protection, Inc., 410 Swing Road, P.O. Box 18300, Greensboro, NC 27419. Telephone: 336-632-6000, may not be used for the analysis of atrazine in any system where chlorine dioxide is used for drinking water treatment. In samples from all other systems, any result for atrazine generated by Method AG-625 that is greater than one-half the maximum contaminant level (MCL) (in other words, greater than 0.0015mg/L or 1.5 µg/L) must be confirmed using another approved method for this contaminant and should use additional volume of the original sample collected for compliance monitoring. In instances where a result from Method AG-625 triggers such confirmatory testing, the confirmatory result is to be used to determine compliance

⁵ If PCBs (as one of seven Aroclors) are detected in any sample analyzed using EPA Method 505 or 508, the system shall reanalyze the sample using EPA Method 508A to quantitate PCBs (as decachlorobiphenyl). Compliance with the PCB MCL shall be determined based upon the quantitative results of analyses using Method 508A.

Section 5-1.52, Table 9C is repealed and replaced with a new Table 9C to reads as follows:

Table 9C. Additional Organic Chemicals - Minimum Monitoring Requirements

Contaminant		Type of water system	Initial requirement ¹	Continuing requirement where detected ^{1,2,3,4}	Continuing requirement where not detected ¹			
Alachlor Aldicarb Aldicarb sulfone Aldicarb sulfoxide Aldrin Atrazine Benzo(a)pyrene Butachlor Carbaryl Carbofuran Chlordane Dalapon Di(2-ethylhexyl)adipate Di(2-ethylhexyl)phthalate Dibromochloropropane Dicamba 2,4-D Dieldrin Dinoseb 1,4-Dioxane Diquat Endothall Endrin	Ethylene Dibromide	Community and Nontransient Noncommunity serving 3,300 or more persons ³	Quarterly sample per source, for one year ⁵	Quarterly	One sample every eighteen months per source ^{6,7,8}			
	Glyphosate							
	Heptachlor							
	Heptachlor epoxide	Community and Nontransient Noncommunity serving fewer than 3,300 persons and more than 149 service connections	Quarterly samples per entry point, for one year ^{6,7,8}	Quarterly	Once per entry point every three years ^{6,7,8}			
	Hexachlorobenzene							
	Hexachlorocyclopentadiene							
	3-Hydroxycarbofuran							
	Lindane							
	Methomyl							
	Methoxychlor							
	Metolachlor							
	Metribuzin							
	Oxamyl (vydate)							
	Pentachlorophenol							
	Perfluorooctanesulfonicacid (PFOS)					Community and Nontransient Noncommunity serving fewer than 3,300 persons and fewer than 150 service connections	Quarterly samples per entry point for one year ^{6,7,8}	Quarterly
Perfluorooctanoic acid (PFOA)								
Picloram								
Polychlorinated biphenyls								
Propachlor								
Simazine								
2,3,7,8-TCDD (Dioxin)								
2,4,5-TP (Silvex)								
Toxaphene								
	Noncommunity excluding NTNC	State discretion ⁹	State discretion ⁹	State discretion ⁹				

Table 9C (continued)

¹The location for sampling of each ground water source of supply shall be between the individual well and at or before the first service connection and before mixing with other sources, unless otherwise specified by the State to be at the entry point representative of the individual well. Public water systems which take water from a surface water body or watercourse shall sample at points in the distribution system representative of each source or at entry point or points to the distribution system after any water treatment plant.

²The State may decrease the quarterly monitoring requirement to annually provided that system is reliably and consistently below the MCL based on a minimum of two quarterly samples from a ground water source and four quarterly samples from a surface water source. Systems which monitor annually must monitor during the quarter that previously yielded the highest analytical result. Systems serving fewer than 3,300 persons and which have three consecutive annual samples without detection may apply to the State for a waiver in accordance with footnote 6.

³If a contaminant is detected, repeat analysis must include all analytes contained in the approved analytical method for the detected contaminant.

⁴Detected as used in the table shall be defined as reported by the State approved laboratory to be greater than or equal to the method detection limit.

⁵The State may allow a system to postpone monitoring for a maximum of two years, if an approved laboratory is not reasonably available to do a required analysis within the scheduled monitoring period.

⁶The State may waive the monitoring requirement for a public water system that submits information every three years to demonstrate that a contaminant or contaminants was not used, transported, stored or disposed within the watershed or zone of influence of the system.

⁷The State may reduce the monitoring requirement for a public water system that submits information every three years to demonstrate that the public water system is invulnerable to contamination. If previous use of the contaminant is unknown or it has been used previously, then the following factors shall be used to determine whether a waiver is granted.

- a. Previous analytical results.
- b. The proximity of the system to a potential point or nonpoint source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities. Nonpoint sources include the use of pesticides to control insect and weed pests on agricultural areas, forest lands, home and gardens, and other land application uses.
- c. The environmental persistence and transport of the pesticide, PCBs, PFOA, PFOS or 1,4-dioxane.
- d. How well the water source is protected against contamination due to such factors as depth of the well and the type of soil and the integrity of the well casing.
- e. Elevated nitrate levels at the water supply source.
- f. Use of PCBs in equipment used in production, storage or distribution of water.

⁸The State may allow systems to composite samples in accordance with the conditions in Appendix 5-C of this Title.

⁹State discretion shall mean requiring monitoring when the State has reason to believe the MCL has been violated, the potential exists for an MCL violation or the contaminant may present a risk to public health.

Section 5-1.52 Table 13 is amended to read as follows:

Table 13 – REQUIRED NOTIFICATIONS

Contaminant/Situation (Subpart 5-1 citations)	Single sample exceeds MCL/MRDL¹	MCL/MRDL/TT¹ violation	Failure to meet monitoring requirements and/or failure to use applicable testing procedure
Public Health Hazard (Section 5-1.1(bz)) ²	Not applicable	State Tier 1	State Tier 1
<i>Escherichia coli</i> (<i>E. coli</i>) in distribution system (Section 5-1.52, Tables 6, 11 and 11B)	State ³ Not applicable, or Tier 1 ⁴	State Tier 1	State Tier 3, or Tier 1 ⁵
<i>E. coli</i> or other fecal indicator detected in ground water source at system not providing both 4-log virus treatment and process compliance monitoring (Section 5-1.52, Tables 6, 11 and 11B)	Tier 1 ^{2,3,5,6}	Tier 1 ⁶	State Tier 3, or Tier 1 ^{2,5,7}
Total coliform in distribution system (Section 5-1.52, Tables 6, 11 and 11B)	Not applicable	State ⁸ Tier 2, or Tier 1 ⁹	State Tier 3, or Tier 2 as directed by State
Entry Point Turbidity monthly average (Section 5-1.52, Tables 4 and 10)	State ¹⁰	State Tier 2	State Tier 3
Entry Point Turbidity two-day average (Section 5-1.52, Tables 4 and 10)	State	State Tier 2, or Tier 1 ¹¹	State Tier 3
Raw Water Turbidity (Subdivision 5-1.30(d) and Section 5-1.52, Table 10A)	State	State Tier 2, or Tier 1 ¹¹	State Tier 3
Filtered Water Turbidity Single exceedance of the maximum allowable Turbidity level (Section 5-1.52, Tables 4A and 10A)	State	State Tier 2, or Tier 1 ¹¹	State Tier 3
Filtered Water Turbidity Treatment Technique violation (Section 5-1.52, Tables 4A and 10A)	Not applicable	State Tier 2	State Tier 3

Table 13 (cont.)

Contaminant/Situation (Subpart 5-1 citations)	Single sample exceeds MCL/MRD^L	MCL/MRD^L/TT¹ violation	Failure to meet monitoring requirements and/or failure to use applicable testing procedure
Distribution Point Turbidity (Section 5-1.52, Tables 5, 10 and 10A)	Not applicable	State Tier 2	State Tier 3
Treatment Technique violations other than turbidity ^{12,13} (Sections 5-1.12, 5-1.30, 5-1.32, 5-1.81, and 5-1.83 and Subdivision 5- 1.71(d))	Not applicable	State Tier 2, or Tier 1 ^{2,13}	State Tier 3 ¹³ , or Tier 2 ¹²
Free chlorine residual less than 0.2 mg/L at the entry point ¹⁴ (Subdivision 5-1.30(d))	Not applicable	State	Not applicable
Free chlorine residual less than required minimum for a ground water system or ground water source required to provide 4-log virus treatment ¹⁵ (Subdivision 5- 1.30(a))	Not applicable	State Tier 2, or Tier 1 ⁹	Tier 2
Inorganic chemicals and physical characteristics listed in Tables 8A and 8B (Section 5-1.52, Tables 1, 8A, and 8B)	State	State Tier 2	State Tier 3
Chloride, iron, manganese, silver, sulfate, and zinc (Section 5-1.52, Tables 1 and 8D)	Not applicable	State Tier 3	State Tier 3
Sodium (Section 5-1.52, Tables 1 and 8D)	State if the level exceeds 20 mg/L	Tier 2 if the level exceeds 270 mg/L	Tier 3
Nitrate, Nitrite, Total Nitrate and Nitrite (Section 5-1.52, Tables 2 and 8C)	State	State Tier 1	State Tier 1, or Tier 3 ¹⁶
Lead and Copper (Sections 5- 1.40 to 1.48)	Not applicable	State Tier 2	State Tier
Organic Chemicals Group 1 and 2 (Section 5-1.52, Table 9C)	State	State Tier 2	State Tier 3

Table 13 (cont.)

Contaminant/Situation (Subpart 5-1 citations)	Single sample exceeds MCL/MRDL¹	MCL/MRDL/TT¹ violation	Failure to meet monitoring requirements and/or failure to use applicable testing procedure
Acrylamide and Epichlorohydrin (Subdivision 5-1.51(m))	Not applicable	State Tier 2	Not applicable
Operation under a variance [or] ² exemption or deferral (sections 5- 1.90 to 5-1.96 and section 5- 1.51(p))	Not applicable	Tier 3	Not applicable
Violation of conditions of a variance [or], exemption or deferral (sections 5-1.90 to 5-1.96 and section 5-1.51(p))	Not applicable	State Tier 2	Not applicable
Disruption of water service of four hours or more (Subdivision 5-1.23(b))	Not applicable	State ¹⁹	Not applicable

¹MCL-maximum contaminant level, MRDL-maximum residual disinfectant level, TT-treatment technique

²Community systems must describe in their annual water supply statement (see section 5-1.72(e) and (f)) any Public Health Hazard that is determined to be a violation, and any uncorrected significant deficiency, and must indicate whether corrective action has been completed. This notice must be repeated every year until the annual report documents that corrective action has been completed in accordance with section 5-1.22 of this Subpart.

³State notification must be made by the supplier of water within 24 hours of learning of an *E. coli* positive sample.

⁴Public notification normally does not have to be issued for an *E. coli* positive sample prior to the results of the repeat samples. However, there may be situations where the State determines that a Tier 1 notification is necessary to protect the public health. The supplier of water must provide the Tier 1 notification no later than 24 hours after learning of the State's determination.

⁵Failure to test for *E. coli* requires a Tier 1 notification if testing is not performed after any repeat sample tests positive for coliform. All other *E. coli* monitoring and testing procedure violations require Tier 3 notification.

⁶At a ground water system, Tier 1 notification is required after initial detection of *E. coli* or other fecal indicator in raw source water, if the system does not provide 4-log virus treatment and process compliance monitoring. Confirmation of *E. coli* or other fecal indicator in the source water requires Tier 1 notification. Failure to take confirmatory samples may be a public health hazard requiring Tier 1 notification.

⁷Notice of the fecal indicator positive raw water sample must be made in the annual water supply statement (see section 5-1.72(e)), until the annual report documents that corrective action has been completed.

⁸State notification must be made by the supplier of water within 24 hours of learning of the violation.

Table 13 (cont)

⁹Tier 2 notification is normally required; however, there may be situations where the State determines that a Tier 1 notification is necessary to protect the public health. The supplier of water must provide the Tier 1 notification no later than 24 hours after learning of the State's determination.

¹⁰If the daily entry point analysis exceeds one NTU, a repeat sample must be taken as soon as practicable, and preferably within one hour. If the repeat sample exceeds one NTU, the supplier of water must make state notification.

¹¹Systems must consult with the State within 24 hours after learning of the violation. Based on this consultation, the State may subsequently decide to elevate the violation from a Tier 2 to a Tier 1 notification. If consultation does not take place within the 24-hour period, the water system must distribute a Tier 1 notification no later than 48 hours after the system learns of the violation.

¹²These violations include the following: failure to comply with the treatment technique or monitoring requirements in section 5-1.30(a), (b), (c), and (g) of this Subpart; failure to comply with the avoidance criteria in section 5-1.30(c) of this Subpart; failure to cover a finished water storage facility or treat its discharge required in section 5-1.32 of this Subpart; failure to report to the state information required in section 5-1.72(c)(3) of this Subpart; failure to maintain records required in section 5-1.72(d)(7) of this Subpart; and failure to meet the treatment and bin classification requirements associated with *Cryptosporidium* in section 5-1.83 of this Subpart. Failure to collect three or more samples for *Cryptosporidium* analysis as required in section 5-1.81 of this Subpart is a Tier 2 violation requiring public notification. Failure to perform any other monitoring and testing procedure as required in section 5-1.81 of this Subpart is a Tier 3 violation.

¹³Any significant deficiency that is not corrected, or where correction has not begun according to a State-approved corrective action plan within 120 days, or as directed by the State, is a TTV and must be addressed in accordance with section 5-1.12. If the deficiency is a public health hazard, the deficiency must be addressed as directed by the State and Tier 1 notification is required.

¹⁴Applies to systems that have surface water or groundwater directly influenced by surface water as a source and use chlorine. The system must make State notification whether the residual was restored to at least 0.2 mg/L within four hours.

¹⁵Required minimum chlorine residual at point that demonstrates adequate CT for disinfected water from ground water sources at first customer.

¹⁶Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial sample exceeds the MCL requires a Tier 1 notification. Other monitoring violations for nitrate or nitrite require a Tier 3 notification.

¹⁷Failure to monitor for chlorine dioxide at the entrance to the distribution system the day after exceeding the MRDL at the entrance to the distribution system requires a Tier 2 notification. Other monitoring violations for chlorine dioxide at the entrance to the distribution system require a Tier 3 notification.

¹⁸If any daily sample taken at the entrance to the distribution system exceeds the MRDL for chlorine dioxide and one or more samples taken in the distribution system the next day exceed the MRDL, Tier 1 notification is required. Failure to take the required samples in the distribution system the day after the MRDL is exceeded at the entry point also triggers Tier 1 notification.

¹⁹Tier 1 notification is required if the situation meets the definition of a public health hazard.

Section 5-1.91 (d) is amended to read as follows:

(d) The technologies listed in this section are the best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for organic chemicals listed in section 5-1.52 table 3 of this Subpart:

BEST AVAILABLE TECHNOLOGIES (BATs)

Contaminant	Best Available Technologies		
	PTA ¹	GAC ²	OX ³
Alachlor		X	
Aldicarb		X	
Aldicarb sulfone		X	
Aldicarb sulfoxide		X	
Atrazine		X	
Benzene	X	X	
Benzo(a)pyrene		X	
Carbofuran		X	
Carbon tetrachloride	X	X	
Chlordane		X	
Dalapon		X	
Di(2-ethylhexyl)adipate	X	X	
Di(2-ethylhexyl)phthalate		X	
2,4-D		X	
Dibromochloropropane	X	X	
1,1-Dichloroethylene	X	X	
para-Dichlorobenzene	X	X	
o-Dichlorobenzene	X	X	
1,2-Dichloroethane	X	X	
cis-1,2-Dichloroethylene	X	X	
trans-1,2-Dichloroethylene	X	X	
Dichloromethane	X		
1,2-Dichloropropane	X	X	
Dinoseb		X	
<u>1,4-Dioxane</u>			<u>X</u>
Endothal		X	
Endrin		X	

Ethylbenzene	X	X	
Ethylene dibromide	X	X	
Glyphosate			X
Heptachlor		X	
Heptachlor epoxide		X	
Hexachlorobenzene		X	
Hexachlorocyclopentadiene	X	X	
Lindane		X	
Methoxychlor		X	
Monochlorobenzene	X	X	
Oxamyl (Vydate)		X	
PCBs		X	
Pentachlorophenol		X	
Perfluorooctanesulfonic acid (PFOS)		X	
Perfluorooctanoic acid (PFOA)		X	
Picloram		X	
Simazine		X	
Styrene	X	X	
2,3,7,8-TCDD (Dioxin)		X	
Tetrachloroethylene	X	X	
Toluene	X	X	
Toxaphene		X	
2,4,5-TP		X	
1,2,4-Trichlorobenzene	X	X	
1,1,1-Trichloroethane	X	X	
1,1,2-Trichloroethane	X	X	
Trichloroethylene	X	X	
Vinyl chloride	X		
Xylenes (total)	X	X	
TTHM, HAA5, Bromate, Chlorite ⁴			

¹Packed Tower Aeration

²Granular Activated Carbon

³Oxidation (Chlorination or Ozonation) and Advanced Oxidation Process (AOP)

⁴For surface water systems or ground water systems influenced by surface water, GAC10, as defined in section 5-1.1 of this Subpart, is the BAT for compliance with the TTHM and HAA5 MCL as a Running Annual Average (RAA). The other BAT for RAA compliance is enhanced coagulation for TTHM and HAA5 precursor removal, as described in section 5-1.60 of this Subpart. For compliance with the MCLs for TTHM and HAA5 as LRAAs, the following are the BATs: enhanced coagulation or enhanced softening, plus GAC10; GAC20, as defined in section 5-1.1 of this Subpart; or nanofiltration with a molecular weight cutoff less than or equal to 100 Daltons. Refer to section 5-1.65 of this Subpart for BATs for TTHM, HAA5, Bromate, and Chlorite.

The title of subdivision (B) of section (II) of Appendix 5-C is amended to read as follows:

B. Water Sample Compositing Requirements for Pesticides, Dioxin, [and] PCBs, PFOA, PFOS, and 1,4-Dioxane