Water Environment Association of Texas

TEXAS ASSOCIATION OF CLEAR WATER AGENCIES
TACWA
A CLEAR COMMITMENT TO TEXAS WATERS

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December 30, 2019

Mr. David W. Galindo
Director
Water Quality Division
Texas Commission on Environmental Quality
12100 Park 35 Circle
Austin, Texas 78753

Re: Comments related to proposed Minimum Analytical Levels specified in Appendix E of the *Procedures to Implement the Texas Surface Water Quality Standards*

Dear Mr. Galindo,

The Water Environment Association of Texas (WEAT) and Texas Association of Clean Water Agencies (TACWA) appreciate the opportunity to provide input on the above referenced Minimum Analytical Levels specified in Appendix E of the *Procedures to Implement the Texas Surface Water Quality Standards* (the "MALs"). WEAT and TACWA members are responsible for the design, operation, and maintenance of publically owned wastewater collection and treatment systems all across Texas. WEAT and TACWA are made up of environmental professionals, practitioners, operations specialists, and public officials in the water and wastewater industry working together to benefit society through protection and enhancement of the water environment. As part of our mission, a WEAT/TACWA Laboratory Committee and a Pretreatment Committee were formed.

The Laboratory Committee consists of lab professionals coming from private, municipal and commercial laboratories across Texas. The members of the Laboratory Committee have extensive experience in analytical method development and performing analyses for demonstrating compliance with Clean Water Act requirements.

The Pretreatment Committee consists of pretreatment program coordinators and consultants. The members of the Pretreatment Committee have extensive understanding of the pretreatment program regulations and experience in implementing pretreatment programs.

On November 15, 2019, the Texas Commission on Environmental Quality (TCEQ) informed stakeholders about proposed updates to the Minimal Analytical Levels (MALs) listed in Appendix E of the TCEQ *Procedures to Implement the Texas Surface Water Quality Standards* (IPs). The

proposed Appendix E provides more stringent MALs and the analytical methods used by TCEQ to derive the proposed MALs.

LABORATORY COMMITTEE COMMENTS

The WEAT Laboratory Committee would like to submit comments on the proposed changes.

Using Method Detection Limits to Establish MALs

The WEAT Laboratory Committee is concerned with the establishment of MALs based on "multiplying the method detection limit (MDL) in the analytical method by a factor of three". Method detection limits are method and technology specific. While TCEQ states that the utilize the most sensitive method to determine the MALS they do allow labs to use any approve method as long as the MAL can be met. Unfortunately for some parameters, the only way to potentially meet the MAL is to use the cited method.

With the promulgation of the Method Update Rule in 40 CFR 136 effective September 27, 2017, the procedures used to determine analytical Method Detection Limits (MDL) resulted in increased MDLs for many analytes and methods. Multiple labs have observed that this change and subsequent increased MDLs will cause a gap between many of the proposed Water Quality Standard Minimum Analytical Levels (MAL), and achievable detection limits preventing both laboratories and permitees from being able to meet required MALs.

Fundamentally, the new MDL procedure now requires that data used to calculate the MDL are representative of laboratory performance throughout the year, rather than on a single date. As a result, the new EPA definition of the MDL is: "The method detection limit (MDL) is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results." There are a number of changes within the new MDL determination procedure that will contribute to the expected increase in achievable MDLs. These include collection of data over time, inclusion of method blank data, and discontinuance of outlier removal in final calculations.

The previous MDL procedure accounted for the variability of laboratory performance by using the results from a series of spiked sample prepared and analyzed on the same day. The new procedure requires samples to be prepared and analyzed across multiple batches on different days thus introducing increased variability into the procedure. Spiked samples are also assessed every quarter throughout the year and the results of these quarterly spikes are then incorporated into the next required annual MDL re-calculation and verification. This increased variability will result in larger standard deviations and higher MDLs.

The new MDL procedure now requires the use of method blanks (MB) prepared along with the spiked samples for MDL determination. After the initial determination, method blanks prepared

with routine samples across the entire year will be assessed as part of the required annual MDL re-calculation and verification.

Table 1 shows changes that have been observed in MDLs determined using the old and the new procedures for various analytes and methods. (See Enclosure 1.) WEAT would like to request that the MALs be evaluated based on what is achievable based on the current MDL protocol. For parameters where the proposed MALs have been identified of concern, we would like to request that TCEQ petition accredited labs to provide their MDLs for realistic and achievable MALs. (Table 2 is presented in Enclosure 2.)

Proposed Modification of MALs for Methodologies Cited in 2010 MALs

The preamble to the proposed revised Appendix E is to be compliant with current methods as approved in the 2017 Method Update Rule (40 CFR 136). However, it appears that MALs for methods that were in effect when the 2010 MALs were approved were also modified. For example, Boron has a current MAL of 20 ug/L by method EPA 200.7 rev. 4.4. Boron by 200.7 rev. 4.4 was approved for use in 40 CFR 136 since at least 2007. There have been no method changes nor water quality concerns yet TCEQ is proposing to reduce the MAL by over 50% to 9 ug/L. In accordance with Chapter 20.3, TCEQ is required to follow the APA rulemaking requirements. To move forward with a final rule the agency must conclude that its proposed solution will help accomplish the goals or solve the problems identified. What are TCEQ's goals for reducing the MALs when not mandated in the EPA MUR updates?

TCEQ, per APA rulemaking requirements, must consider whether alternate solutions would be more effective or cost less. The draft proposed rule of the Appendix E MALs will have a significant economic effect when considering that some of the proposed MALs are greater than 100 times lower than the 2010 MALs. The proposed MALs in table 2 may require laboratories to invest in new equipment and spend significant time on method development and accreditation. Will TCEQ consider that the updates other than those required by the MUR update are costly and seek alternative solutions to accomplish its goals?

Table 2 lists over 50 parameters of concern. Parameters with proposed MALs listed in red are of significant concern. Due to the new MDL procedures, these MALs will not be achievable. It is not realistic to propose a reduction in the MAL for Benzo(a)anthracene from 20 ug/L to 0.059 (a reduction of over 330%) or Benzidine from 50 ug/L to 0.24 ug/L (a reduction of over 200%) when there have been no changes in the cited EPA methodologies which were approved for NPDES reporting prior to development of the 2010 MALs.

In addition to a general concern that the MALs in table 2 will be difficult, if not impossible for laboratories to meet, specific concerns are as follows:

- Boron – As mentioned previously, the proposed MAL is a reduction of > 50% utilizing the same method as cited in 2010. Footnote 9 states that "The application screening level for

boron is 100 µg/L. Boron is a toxic pollutant that does not have numerical criteria in the TSWQS and is of potential concern only at concentrations substantially higher than the MAL." The reduced MAL will be difficult to meet for many labs. The proposed change is of concern due to difficulty to achieve and the lack of water quality driver to achieve the low MAL.

- For organics that cite EPA 610 and 612 as the reference methods for MAL determination - There are currently no TCEQ accredited labs analyzing samples by EPA Method 610 or 612. Laboratories are able to meet current MALs for these parameters of concern utilizing other methodologies. To meet the proposed 610 and 612 limits would require significant method development. For laboratories seeking accreditation for EPA 610 and 612, they will require time for method development and approximately another two months for application review by TCEQ.
- For Parameters by EPA 300.0 – Please note that the proposed MALs are lower than the levels tested during method development. Section 1.4 of the methods cites the ranges tested for use. Please note that that the proposed MALs are based on a single laboratory MDL study performed using the old MDL procedure under ideal conditions in 1993 and are not applicable to what is achievable today.
- Parameters by 200.8. Several parameters have proposed MALs that do not match the 3x's MDL approach. These are Thallium (mdl=0.3 ug/L, proposed MAL=0.3 ug/L), Beryllium (mdl= 0.3 ug/L, proposed MAL=0.5 ug/L) and Selenium (mdl=7.9 ug/L, proposed MAL=1.5 mg/L).

Requirements for Phenol versus Total Phenolics

WEAT would like TCEQ to provide guidance on the testing requirements for Phenols versus Phenolics, total. 40 CFR 136 Table 1B requires that Phenols be analyzed by EPA 420.1, EPA 420.4 SM 5530B or ASTM D1783. Table 1C lists EPA 625.1 as an approved method for phenol. Phenolics, total is not listed in 40 CFR 136. In addition, laboratory clients and the DMRQA program typically require phenols to be analyzed by a 4-APP method. If a permit requires monitoring by a 4-APP method, the 625.1 phenol MAL will not be achievable.

In summary the Technical Concerns are two-fold: The effects of the new MDL procedure are not being considered. For MALS with extreme changes, laboratories may need to do significant method development or bring new methods online in order to meet the newly proposed MALs. For proposed changes to MALs with references methods that were in effect for the 2010 MALs, there is insufficient justification for the change. While the draft Appendix E states that the intent is for the MALs to be used for application screening purposes and permit reporting, the MALs are frequently required for Pretreatment Programs. Pretreatment samples often exhibit significant matrix interferences. The techniques required to overcome the matrix interferences often result in reporting limits higher than the MALs. Often Control Authorities require the MALs to be met regardless of sample concentration. We would like to request that Appendix E clarify the

required use of MALs for pretreatment reporting – i.e. are MALs required to be met for samples with detections or demonstrated matrix interferences.

PRETREATMENT COMMITTEE COMMENTS

Areas of concern that the WEAT Pretreatment Committee has regarding the proposed MALs are as follows:

- The proposed MALs will significantly increase the costs of labor and laboratory expenses for pretreatment programs.
- The IPs are unclear about implementation when more than one MAL is specified for a pollutant.
- The Pretreatment Committee requests the basis for proposing MALs that are are significantly more stringent than EPA Region 6 requirements.

Concerns are discussed below.

Increased Costs for Sample Collection and Analysis

Publicly Owned Treatment Works (POTWs) with approved pretreatment programs are required in their Texas Pollutant Discharge Elimination System (TPDES) permits to sample at a designated frequency the toxic pollutants listed in the Texas Surface Water Quality Standards [30 TAC Chapter 307], and 40 CFR Part 122, Appendix D, Table II, and Table III. If based upon information available to the permittee, there is reason to suspect the presence of any toxic or hazardous pollutants listed in 40 CFR Part 122, Appendix D, Table V, these pollutants have the potential to be sampled as well. The TCEQ requires that the regular sampling and analysis for POTWs with approved pretreatment programs meet the Appendix E MALs for TPDES Permit Application Screening established in the IPs. The TPDES permit sampling requirement for pretreatment programs is not mandated in applicable statutes or regulations. Therefore, it should not be overly burdensome to the POTWs with pretreatment programs.

The Pretreatment Committee is concerned with the economic burden associated with the proposed MALs. The group of pollutants that will greatly impact the costs associated with the collection and analysis are the volatiles, semi volatiles, and pesticides listed in 40 CFR Part 122, Appendix D, Table II. Many pretreatment programs have laboratories that utilize EPA 624.1, EPA 625.1, and EPA 608.3 for the analysis of the Table II pollutants. Most laboratories in Texas recently underwent the accreditation process for EPA 624.1, EPA 625.1 and EPA 608.3 (new methods) as instructed by TCEQ due to the 2017 Method Updates Rule of 40 CFR Part 136. This process was prior to the announcement of TCEQ's approach to the selection of the proposed MALs. As a result, some pretreatment programs are indicating their contract and in-house labs cannot meet the proposed MALs for all the constituents that are analyzed by the newly accredited methods. Analytical methods other than the three new methods are required to achieve the proposed MAL levels, which will result in increased costs.

Enclosed is a table provided by an accredited environmental laboratory, which presents the number of additional methods the lab must perform in addition to EPA 624.1, EPA 625.1 and EPA 608.3 in order to meet the proposed MALs for Table II pollutants. (See Enclosure 3.) Also detailed in the enclosure is a list of the additional containers and specialty preservation techniques required. Implementing the specialty preservation techniques will require additional staff training, sampling time, and resources. In addition, where mercuric chloride is used as a preservative, environmental concerns are warranted.

As indicated in the proposed Appendix E, TCEQ determined MALs for some pollutants using the Method Detection Limits (MDL) established in EPA Methods 601, 602, and 603. These are specialty methods that will measure low levels for few pollutants; however, finding a laboratory to conduct them is a concern. MALs for fifteen pollutants are based on EPA Method 601. One MAL pollutant is based on EPA Method 602. Two pollutants are based on EPA Method 603. At this time, a lab accredited for EPA Method 601 and EPA Method 602 could not be located in the state of Texas. No lab has been located that is accredited to conduct EPA Method 603.

Clarification of Required MAL

Several pollutants listed in the proposed Appendix E have more than one MAL. TCEQ indicates that a permittee has the discretion in selecting the appropriate MAL; however, TCEQ may request resampling at the lower MAL on a case-by-case basis. This uncertainty could lead POTWs to spend their resources unnecessarily to achieve low MALs in order to prevent the requirement to resample. The Pretreatment Committee requests clarification on the best way to determine which MAL will be required by TCEQ.

EPA Region 6 Approach

The Pretreatment Committee reached out to EPA Region 6 to determine what reporting levels are required for pretreatment programs in New Mexico. Required reporting levels are expressed as minimum quantitation limits (MQLs). Presented as Enclosure 4 are the MQLs that are required in New Mexico. The Pretreatment Committee is requesting clarification for why TCEQ is more stringent than EPA Region 6's approach.

We applaud TCEQ for reviewing the MALs and recognizing that different methodologies will impact MALs. We would like to request a delay in the implementation of the new MALs until TCEQ can carefully review received comments and solicit laboratory MDL data for determination of achievable MALs utilizing the new MDL procedure.

The WEAT Pretreatment Committee understands TCEQ's desire to have permittees utilize sufficiently sensitive methods but requests that TCEQ consider the economic burden the

proposed revisions to Appendix E will place on pretreatment programs. Additionally, where there is no regulatory statute or regulation, the proposed MALs are not consistent with the approach that EPA Region 6 is implementing for pretreatment programs. The Pretreatment Committee therefore requests that TCEQ delay implementation of the proposed MALs until all stakeholder concerns can be taken into consideration. This would be an excellent topic to explore more with the Pretreatment Community at large at the upcoming TCEQ Pretreatment Stakeholder meeting in January.

WEAT appreciates the opportunity to provide comments on this important issue and respectfully requests to be included in any stakeholder meetings regarding MALs. Thank you in advance for your consideration of these comments. Please contact Elizabeth Turner at (972-727-1123) or Elizabeth.Turner@pacelabs.com for additional information related to the Laboratory Committee comments and Jennifer Moore at (972) 975-4322 or MooreJ@trinityra.org with any questions about the Pretreatment Committee comments.

Sincerely,

Julie Nahrgang
WEAT / TACWA Executive Director

Cc: Erika Crespo, TCEQ Pretreatment Team Leader
Heather Cooke, WEAT President
Magda Alanis, TACWA President
Elizabeth Turner, WEAT Laboratory Committee Chair
Jennifer Moore, WEAT Pretreatment Committee Chair

Enclosure 1

Table 1 – Multi-lab comparison of MDLs using previous methodology and 2017 MUR requirements

Analyte	Method	Pace Location	MDL "old"	MDL "new"	Units
Cyanide	SM 4500-CN E	Pace Lab 1	0.002	0.004	mg/L
Lead	EPA 200.7	Pace Lab 1	2.400	3.300	ug/L
Aluminum	EPA 200.7	Pace Lab 1	21.600	40.800	ug/L
Sulfide	SM 4500-S2F	Pace Lab 2	0.700	1.000	mg/L
N+N/NO3	EPA 353.2	Pace Lab 2	0.002	0.017	mg/L
NO2	EPA 353.2	Pace Lab 2	0.001	0.012	mg/L
NH3 (undistilled)	SM4500 NH3-D	Pace Lab 2	0.020	0.068	mg/L
NH3 (distilled)	SM4500 NH3-B/D	Pace Lab 2	0.069	0.162	mg/L
Hex. Chrome	SM3500Cr-B	Pace Lab 2	0.002	0.010	mg/L
Fluoride	EPA 300.0/EPA 9056	Pace Lab 2	0.226	0.301	mg/L
Bromide	EPA 300.0/EPA 9056	Pace Lab 2	0.030	0.083	mg/L
N+N/NO3	EPA 300.0/EPA 9056	Pace Lab 2	0.090	0.210	mg/L
NO2	EPA 300.0/EPA 9056	Pace Lab 2	0.087	0.144	mg/L
O. Phos	EPA 300.0/EPA 9056	Pace Lab 2	0.126	0.139	mg/L
O. Phos	SM 4500-PE	Pace Lab 2	0.005	0.020	mg/L
T.Phos (P)	SM 4500-PE	Pace Lab 2	0.003	0.016	mg/L
Silver	EPA 200.7	Pace Lab 2	0.640	0.930	ug/L
Arsenic	EPA 200.7	Pace Lab 2	1.430	3.910	ug/L
Boron	EPA 200.7	Pace Lab 2	16.330	24.830	ug/L
Barium	EPA 200.7	Pace Lab 2	0.430	0.630	ug/L
Beryllium	EPA 200.7	Pace Lab 2	0.130	0.170	ug/L
Cadmium	EPA 200.7	Pace Lab 2	0.210	0.740	ug/L
Cobalt	EPA 200.7	Pace Lab 2	0.200	0.500	ug/L
Chromium	EPA 200.7	Pace Lab 2	0.370	2.010	ug/L
Copper	EPA 200.7	Pace Lab 2	3.000	6.260	ug/L
Potassium	EPA 200.7	Pace Lab 2	63.190	77.990	ug/L
Manganese	EPA 200.7	Pace Lab 2	2.680	5.570	ug/L
Molybdenum	EPA 200.7	Pace Lab 2	6.190	8.490	ug/L
Nickel	EPA 200.7	Pace Lab 2	0.220	1.400	ug/L
Lead	EPA 200.7	Pace Lab 2	0.590	3.550	ug/L
Antimony	EPA 200.7	Pace Lab 2	1.290	3.870	ug/L
Selenium	EPA 200.7	Pace Lab 2	2.170	5.860	ug/L
Tin	EPA 200.7	Pace Lab 2	0.400	4.840	ug/L
Strontium	EPA 200.7	Pace Lab 2	0.140	0.500	ug/L
Titanium	EPA 200.7	Pace Lab 2	2.980	8.720	ug/L
Thallium	EPA 200.7	Pace Lab 2	1.900	5.800	ug/L
Vanadium	EPA 200.7	Pace Lab 2	0.330	0.240	ug/L
Zinc	EPA 200.7	Pace Lab 2	1.140	7.310	ug/L

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Table 1 continued:

Mercury	EPA 245.1	Pace Lab 2	0.025	0.060	ug/L
Aroclor 1016	EPA 8082A	Pace Lab 3	0.026	0.074	ug/L
Aroclor 1221	EPA 8082A	Pace Lab 3	0.102	0.19	ug/L
Aroclor 1232	EPA 8082A	Pace Lab 3	0.043	0.054	ug/L
Aroclor 1242	EPA 8082A	Pace Lab 3	0.027	0.054	ug/L
Aroclor 1248	EPA 8082A	Pace Lab 3	0.024	0.095	ug/L
Aroclor 1254	EPA 8082A	Pace Lab 3	0.034	0.051	ug/L
Aroclor 1260	EPA 8082A	Pace Lab 3	0.022	0.054	ug/L
MBAS (Surfactants)	SM 5540C	Pace Lab 3	0.084	0.113	ug/L
1,2,4,5-Tetrachlorobenzene	EPA 625	Pace Lab 3	2.876	8.468	ug/L
1,2,4-Trichlorobenzene	EPA 625	Pace Lab 3	2.642	7.106	ug/L
1,2-Dichlorobenzene	EPA 625	Pace Lab 3	1.653	6.235	ug/L
1,2-Diphenylhydrazine	EPA 625	Pace Lab 3	1.346	4.291	ug/L
1,3-Dichlorobenzene	EPA 625	Pace Lab 3	1.604	6.432	ug/L
1,3-Dinitrobenzene	EPA 625	Pace Lab 3	1.778	3.861	ug/L
1,4-Dichlorobenzene	EPA 625	Pace Lab 3	1.650	6.185	ug/L
1-Methylnaphthalene	EPA 625	Pace Lab 3	2.694	6.633	ug/L
2,3,4,6-Tetrachlorophenol	EPA 625	Pace Lab 3	1.499	3.224	ug/L
2,3-Dichloroaniline	EPA 625	Pace Lab 3	1.022	4.064	ug/L
2,4,5-Trichlorophenol	EPA 625	Pace Lab 3	1.525	3.902	ug/L
2,4,6-Trichlorophenol	EPA 625	Pace Lab 3	1.872	3.347	ug/L
2,4-Dichlorophenol	EPA 625	Pace Lab 3	1.291	3.220	ug/L
2,4-Dimethylphenol	EPA 625	Pace Lab 3	1.358	3.424	ug/L
2,4-Dinitrophenol	EPA 625	Pace Lab 3	0.000	3.731	ug/L
2,4-Dinitrotoluene	EPA 625	Pace Lab 3	1.230	3.508	ug/L
2,6-Dinitrotoluene	EPA 625	Pace Lab 3	1.144	3.124	ug/L
2-Chloronaphthalene	EPA 625	Pace Lab 3	2.266	7.381	ug/L
2-Chlorophenol	EPA 625	Pace Lab 3	1.125	6.408	ug/L
2-Methylnaphthalene	EPA 625	Pace Lab 3	2.775	6.791	ug/L
2-Methylphenol	EPA 625	Pace Lab 3	1.580	2.724	ug/L
2-Nitroaniline	EPA 625	Pace Lab 3	1.630	4.853	ug/L
2-Nitrophenol	EPA 625	Pace Lab 3	1.507	2.916	ug/L
2-Picoline	EPA 625	Pace Lab 3	1.571	1.969	ug/L
3&4-Methylphenol(m&p Cresol)	EPA 625	Pace Lab 3	1.511	2.566	ug/L
3,3'-Dichlorobenzidine	EPA 625	Pace Lab 3	4.120	3.072	ug/L
3-Nitroaniline	EPA 625	Pace Lab 3	1.985	3.221	ug/L
4,6-Dinitro-2-methylphenol	EPA 625	Pace Lab 3	4.105	2.924	ug/L
4-Bromophenyl-phenylether	EPA 625	Pace Lab 3	2.553	4.165	ug/L
4-Chloro-3-methylphenol	EPA 625	Pace Lab 3	1.289	3.818	ug/L
4-Chloroaniline	EPA 625	Pace Lab 3	1.854	3.030	ug/L
4-Chlorobenzotrifluoride	EPA 625	Pace Lab 3	1.200	5.827	ug/L
4-Chlorophenyl-phenylether	EPA 625	Pace Lab 3	2.797	4.987	ug/L

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Table 1 continued:

4-Nitroaniline	EPA 625	Pace Lab 3	1.931	3.937	ug/L
4-Nitrophenol	EPA 625	Pace Lab 3	0.961	5.268	ug/L
Acenaphthene	EPA 625	Pace Lab 3	1.924	6.516	ug/L
Acenaphthylene	EPA 625	Pace Lab 3	1.674	5.700	ug/L
Acetophenone	EPA 625	Pace Lab 3	1.164	3.334	ug/L
alpha-Terpineol	EPA 625	Pace Lab 3	1.058	5.532	ug/L
Aniline	EPA 625	Pace Lab 3	1.434	2.087	ug/L
Anthracene	EPA 625	Pace Lab 3	1.426	3.044	ug/L
Atrazine	EPA 625	Pace Lab 3	1.005	2.296	ug/L
Azobenzene	EPA 625	Pace Lab 3	1.346	4.291	ug/L
Benzaldehyde	EPA 625	Pace Lab 3	1.159	1.986	ug/L
Benzidine	EPA 625	Pace Lab 3	2.153	1.770	ug/L
Benzo[a]anthracene	EPA 625	Pace Lab 3	1.016	2.871	ug/L
Benzo[a]pyrene	EPA 625	Pace Lab 3	0.891	2.754	ug/L
Benzo[b]fluoranthene	EPA 625	Pace Lab 3	1.362	2.366	ug/L
Benzo[g,h,i]perylene	EPA 625	Pace Lab 3	1.370	3.307	ug/L
Benzo[k]fluoranthene	EPA 625	Pace Lab 3	1.838	3.436	ug/L
Benzoic Acid	EPA 625	Pace Lab 3	0.000	1.664	ug/L
Benzyl alcohol	EPA 625	Pace Lab 3	1.915	2.444	ug/L
Biphenyl (Diphenyl)	EPA 625	Pace Lab 3	2.154	6.990	ug/L
bis(2chloro1methylethyl)ether	EPA 625	Pace Lab 3	0.886	3.968	ug/L
bis(2-Chloroethoxy)methane	EPA 625	Pace Lab 3	1.329	3.217	ug/L
bis(2-Chloroethyl)ether	EPA 625	Pace Lab 3	1.241	2.953	ug/L
bis(2-Chloroisopropyl)ether	EPA 625	Pace Lab 3	0.886	3.968	ug/L
bis(2-Ethylhexyl)phthalate	EPA 625	Pace Lab 3	1.446	2.986	ug/L
Butylbenzylphthalate	EPA 625	Pace Lab 3	2.263	2.460	ug/L
Caprolactam	EPA 625	Pace Lab 3	0.839	1.004	ug/L
Carbazole	EPA 625	Pace Lab 3	1.218	2.910	ug/L
Chrysene	EPA 625	Pace Lab 3	1.101	2.620	ug/L
Dibenz(a,h)anthracene	EPA 625	Pace Lab 3	1.349	3.420	ug/L
Dibenzofuran	EPA 625	Pace Lab 3	2.015	5.667	ug/L
Diethyl Aniline	EPA 625	Pace Lab 3	1.512	2.627	ug/L
Diethylphthalate	EPA 625	Pace Lab 3	1.182	2.521	ug/L
Dimethylphthalate	EPA 625	Pace Lab 3	1.248	2.892	ug/L
Di-n-butylphthalate	EPA 625	Pace Lab 3	1.317	2.665	ug/L
Di-n-octylphthalate	EPA 625	Pace Lab 3	4.905	2.848	ug/L
Fluoranthene	EPA 625	Pace Lab 3	1.514	2.581	ug/L
Fluorene	EPA 625	Pace Lab 3	2.037	5.437	ug/L
Hexachlorobenzene	EPA 625	Pace Lab 3	1.680	3.171	ug/L
Hexachlorobutadiene	EPA 625	Pace Lab 3	2.565	7.609	ug/L
Hexachlorocyclopentadiene	EPA 625	Pace Lab 3	1.285	5.758	ug/L
Hexachloroethane	EPA 625	Pace Lab 3	1.770	6.661	ug/L
Indeno(1,2,3-cd)pyrene	EPA 625	Pace Lab 3	1.306	3.162	ug/L

Enclosure 1

Table 1 continued:

Isophorone	EPA 625	Pace Lab 3	1.207	3.125	ug/L
Naphthalene	EPA 625	Pace Lab 3	2.306	5.860	ug/L
n-Decane	EPA 625	Pace Lab 3	1.251	6.430	ug/L
Nitrobenzene	EPA 625	Pace Lab 3	1.804	4.393	ug/L
N-Nitrosodimethylamine	EPA 625	Pace Lab 3	0.800	2.527	ug/L
N-Nitroso-di-n-propylamine	EPA 625	Pace Lab 3	1.110	3.463	ug/L
N-Nitrosodiphenylamine	EPA 625	Pace Lab 3	1.077	2.800	ug/L
n-Octadecane	EPA 625	Pace Lab 3	1.737	4.281	ug/L
Pentachlorophenol	EPA 625	Pace Lab 3	3.356	6.155	ug/L
Phenanthrene	EPA 625	Pace Lab 3	1.565	3.244	ug/L
Phenol	EPA 625	Pace Lab 3	0.343	1.457	ug/L
Pyrene	EPA 625	Pace Lab 3	3.778	2.820	ug/L
Pyridine	EPA 625	Pace Lab 3	1.164	1.560	ug/L
Bromochloromethane	EPA 8260 / 624.1	Pace Lab 4	0.154	0.341	ug/L
Chloromethane	EPA 8260 / 624.1	Pace Lab 4	0.172	0.512	ug/L
Bromomethane	EPA 8260 / 624.1	Pace Lab 4	0.540	4.138	ug/L
Vinyl chloride	EPA 8260 / 624.1	Pace Lab 4	0.187	0.358	ug/L
Chloroethane	EPA 8260 / 624.1	Pace Lab 4	0.791	4.270	ug/L
Methylene Chloride	EPA 8260 / 624.1	Pace Lab 4	0.273	2.184	ug/L
1,1-Dichloroethene	EPA 8260 / 624.1	Pace Lab 4	0.099	0.220	ug/L
1,1-Dichloroethane	EPA 8260 / 624.1	Pace Lab 4	0.104	0.292	ug/L
trans-1,2-Dichloroethene	EPA 8260 / 624.1	Pace Lab 4	0.132	0.228	ug/L
Chloroform	EPA 8260 / 624.1	Pace Lab 4	0.103	0.255	ug/L
1,2-Dichloroethane	EPA 8260 / 624.1	Pace Lab 4	0.160	0.177	ug/L
1,1,1-Trichloroethane	EPA 8260 / 624.1	Pace Lab 4	0.088	0.254	ug/L
Carbon tetrachloride	EPA 8260 / 624.1	Pace Lab 4	0.155	1.069	ug/L
Bromodichloromethane	EPA 8260 / 624.1	Pace Lab 4	0.159	0.142	ug/L
1,2-Dichloropropane	EPA 8260 / 624.1	Pace Lab 4	0.137	0.197	ug/L
trans-1,3-Dichloropropene	EPA 8260 / 624.1	Pace Lab 4	0.135	0.148	ug/L
Trichloroethene	EPA 8260 / 624.1	Pace Lab 4	0.214	0.335	ug/L
Dibromochloromethane	EPA 8260 / 624.1	Pace Lab 4	5.002	0.524	ug/L
1,1,2-Trichloroethane	EPA 8260 / 624.1	Pace Lab 4	0.171	0.325	ug/L
Benzene	EPA 8260 / 624.1	Pace Lab 4	0.099	0.288	ug/L
cis-1,3-Dichloropropene	EPA 8260 / 624.1	Pace Lab 4	0.125	0.135	ug/L
Bromoform	EPA 8260 / 624.1	Pace Lab 4	7.975	0.682	ug/L
Tetrachloroethene	EPA 8260 / 624.1	Pace Lab 4	0.149	0.391	ug/L
1,1,2,2-Tetrachloroethane	EPA 8260 / 624.1	Pace Lab 4	0.170	0.194	ug/L
Toluene	EPA 8260 / 624.1	Pace Lab 4	0.091	0.347	ug/L
Chlorobenzene	EPA 8260 / 624.1	Pace Lab 4	0.057	0.345	ug/L
Ethylbenzene	EPA 8260 / 624.1	Pace Lab 4	0.111	0.329	ug/L
Styrene	EPA 8260 / 624.1	Pace Lab 4	0.097	0.224	ug/L
Trichlorofluoromethane	EPA 8260 / 624.1	Pace Lab 4	0.137	0.188	ug/L
m&p-Xylene	EPA 8260 / 624.1	Pace Lab 4	0.087	3.721	ug/L

Enclosure 1

Table 1 continued:

cis-1,2-Dichloroethene	EPA 8260 / 624.1	Pace Lab 4	0.137	0.228	ug/L
o-Xylene	EPA 8260 / 624.1	Pace Lab 4	0.047	0.255	ug/L
1,2,3-Trichloropropane	EPA 8260 / 624.1	Pace Lab 4	0.317	1.228	ug/L
1,3-Dichlorobenzene	EPA 8260 / 624.1	Pace Lab 4	0.116	0.309	ug/L
1,4-Dichlorobenzene	EPA 8260 / 624.1	Pace Lab 4	0.097	0.288	ug/L
Dibromomethane	EPA 8260 / 624.1	Pace Lab 4	0.265	1.836	ug/L
1,2-Dichlorobenzene	EPA 8260 / 624.1	Pace Lab 4	0.143	0.288	ug/L
Dichlorodifluoromethane	EPA 8260 / 624.1	Pace Lab 4	0.122	0.244	ug/L
2,2-Dichloropropane	EPA 8260 / 624.1	Pace Lab 4	0.204	0.256	ug/L
1,1-Dichloropropene	EPA 8260 / 624.1	Pace Lab 4	0.066	0.283	ug/L
1,3-Dichloropropane	EPA 8260 / 624.1	Pace Lab 4	0.146	0.291	ug/L
1,2-Dibromoethane (EDB)	EPA 8260 / 624.1	Pace Lab 4	0.177	0.321	ug/L
1,1,1,2-Tetrachloroethane	EPA 8260 / 624.1	Pace Lab 4	0.177	0.291	ug/L
Isopropylbenzene (Cumene)	EPA 8260 / 624.1	Pace Lab 4	0.053	0.263	ug/L
Bromobenzene	EPA 8260 / 624.1	Pace Lab 4	0.152	0.214	ug/L
n-Propylbenzene	EPA 8260 / 624.1	Pace Lab 4	0.065	0.330	ug/L
2-Chlorotoluene	EPA 8260 / 624.1	Pace Lab 4	0.093	0.196	ug/L
4-Chlorotoluene	EPA 8260 / 624.1	Pace Lab 4	0.090	0.209	ug/L
1,3,5-Trimethylbenzene	EPA 8260 / 624.1	Pace Lab 4	0.088	0.196	ug/L
tert-Butylbenzene	EPA 8260 / 624.1	Pace Lab 4	0.103	0.144	ug/L
1,2,4-Trimethylbenzene	EPA 8260 / 624.1	Pace Lab 4	0.040	0.181	ug/L
sec-Butylbenzene	EPA 8260 / 624.1	Pace Lab 4	0.097	0.213	ug/L
p-Isopropyltoluene	EPA 8260 / 624.1	Pace Lab 4	0.085	0.193	ug/L
n-Butylbenzene	EPA 8260 / 624.1	Pace Lab 4	0.114	0.144	ug/L
1,2-Dibromo-3-chloropropane	EPA 8260 / 624.1	Pace Lab 4	0.777	1.968	ug/L
1,2,4-Trichlorobenzene	EPA 8260 / 624.1	Pace Lab 4	0.157	0.369	ug/L
Hexachloro-1,3-butadiene	EPA 8260 / 624.1	Pace Lab 4	0.275	1.520	ug/L
Naphthalene	EPA 8260 / 624.1	Pace Lab 4	0.168	0.209	ug/L
1,2,3-Trichlorobenzene	EPA 8260 / 624.1	Pace Lab 4	0.344	0.366	ug/L
Acrolein	EPA 8260 / 624.1	Pace Lab 4	1.958	3.893	ug/L
1,1,2-Trichlorotrifluoroethane	EPA 8260 / 624.1	Pace Lab 4	0.137	0.194	ug/L
Carbon disulfide	EPA 8260 / 624.1	Pace Lab 4	0.149	0.365	ug/L
Acetone	EPA 8260 / 624.1	Pace Lab 4	1.199	7.079	ug/L
Acrylonitrile	EPA 8260 / 624.1	Pace Lab 4	0.905	1.743	ug/L
Methyl-tert-butyl ether	EPA 8260 / 624.1	Pace Lab 4	0.076	1.509	ug/L
Vinyl acetate	EPA 8260 / 624.1	Pace Lab 4	0.134	0.160	ug/L
4-Methyl-2-pentanone (MIBK)	EPA 8260 / 624.1	Pace Lab 4	0.279	0.271	ug/L
2-Hexanone	EPA 8260 / 624.1	Pace Lab 4	0.367	0.417	ug/L
2-Butanone (MEK)	EPA 8260 / 624.1	Pace Lab 4	0.302	1.976	ug/L
Iodomethane	EPA 8260 / 624.1	Pace Lab 4	0.243	9.890	ug/L
Acetonitrile	EPA 8260 / 624.1	Pace Lab 4	1.448	33.346	ug/L
Allyl chloride	EPA 8260 / 624.1	Pace Lab 4	0.107	0.885	ug/L
Propionitrile	EPA 8260 / 624.1	Pace Lab 4	1.107	1.489	ug/L

Enclosure 1

Table 1 continued:

Methacrylonitrile	EPA 8260 / 624.1	Pace Lab 4	1.111	2.201	ug/L
Isobutyl Alcohol	EPA 8260 / 624.1	Pace Lab 4	5.874	85.327	ug/L
Methyl methacrylate	EPA 8260 / 624.1	Pace Lab 4	0.193	0.190	ug/L
Ethyl methacrylate	EPA 8260 / 624.1	Pace Lab 4	0.277	1.058	ug/L
Pentachloroethane	EPA 8260 / 624.1	Pace Lab 4	0.333	2.833	ug/L
Chloroprene	EPA 8260 / 624.1	Pace Lab 4	0.214	0.312	ug/L
1,2,3-Trimethylbenzene	EPA 8260 / 624.1	Pace Lab 4	0.202	0.168	ug/L
Diethyl ether (Ethyl ether)	EPA 8260 / 624.1	Pace Lab 4	0.446	0.292	ug/L
tert-Butyl Alcohol	EPA 8260 / 624.1	Pace Lab 4	1.129	12.376	ug/L
Diisopropyl ether	EPA 8260 / 624.1	Pace Lab 4	0.090	0.220	ug/L
tert-Amyl Alcohol	EPA 8260 / 624.1	Pace Lab 4	4.314	51.145	ug/L
n-Hexane	EPA 8260 / 624.1	Pace Lab 4	0.456	1.562	ug/L
Methyl acetate	EPA 8260 / 624.1	Pace Lab 4	0.566	5.799	ug/L
Ethyl-tert-butyl ether	EPA 8260 / 624.1	Pace Lab 4	0.127	0.313	ug/L
Tetrahydrofuran	EPA 8260 / 624.1	Pace Lab 4	1.173	1.357	ug/L
Methylcyclohexane	EPA 8260 / 624.1	Pace Lab 4	0.165	0.314	ug/L
tert-Amylmethyl ether	EPA 8260 / 624.1	Pace Lab 4	0.143	0.210	ug/L
cis-1,4-dichloro-2-butene	EPA 8260 / 624.1	Pace Lab 4	0.401	1.309	ug/L
Cyclohexane	EPA 8260 / 624.1	Pace Lab 4	0.143	0.201	ug/L
tert-Butyl Formate	EPA 8260 / 624.1	Pace Lab 4	0.827	0.848	ug/L

Enclosure 2

Table 2 – Proposed MALs of Concern

Pollutant	CASRN	2010 MAL	Proposed MAL (µg/L)	MAL Source
Acrolein	107-02-8	50	2.1	603
Acrylonitrile	107-13-1	50	1.5	603
Benzene[8]	71-43-2	10	**0.6**	602
			13.2	624.1
Benzidine	92-87-5	50	**0.24**	605
Benzo(*a*)anthracene	56-55-3	5	**0.039**	610
Benzo(*a*)pyrene	50-32-8	5	**0.069**	610
Bis(2-chloroethyl)ether[8]	111-44-4	10	**0.3**	611
			17.1	625.1
Boron, total	7440-42-8	20	9	200.7, Rev. 4.4
Bromide	—	400	**30**	300.0, Rev. 2.1 or
				300.1, Rev. 1.0
Carbaryl (Sevin)	63-25-2	5	0.06	632
Chlordane	57-74-9	0.2	0.042	608.3
Chloroform	67-66-3	10	4.8	624.1
Chlorpyrifos	2921-88-2	0.05	0.012	1657
m-Dichlorobenzene [1,3-Dichlorobenzene]	541-73-1	10	0.96	601
o-Dichlorobenzene [1,2-Dichlorobenzene]	95-50-1	10	0.45	601
p-Dichlorobenzene [1,4-Dichlorobenzene]	106-46-7	10	0.72	601
3,3'-Dichlorobenzidine[8]	91-94-1	5	0.39	605
			49.5	625.1
Dichloromethane[8]	75-09-2	20	0.75	601
[Methylene Chloride]			8.4	624.1
1,2-Dichloropropane[8]	78-87-5	10	0.12	601
			18	624.1
1,3-Dichloropropene	542-75-6	10	1.02	601

Enclosure 2

Dieldrin	60-57-1	0.02	0.006	608.3
2,3,7,8-TCDF	51207-31-9	100	10 ppq	1613B
Diuron	330-54-1	0.09	0.027	632
Fluoride	16984-48-8	500	30	300.0, Rev. 2.1
Guthion [Azinphos Methyl]	86-50-0	0.1	0.027	1657
Heptachlor	76-44-8	0.01	0.0045	508
Hexachlorobenzene	118-74-1	5	**0.15**	612
Hexachlorobutadiene	87-68-3	10	1.02	612
alpha-Hexachlorocyclohexane [alpha-BHC]	319-84-6	0.05	0.009	608.3
beta-Hexachlorocyclohexane [beta-BHC]	319-85-7	0.05	0.018	608.3
gamma-Hexachlorocyclohexane [Lindane]	58-89-9	0.05	0.012	608.3
Hexachlorocyclopentadiene	77-47-4	10	1.2	612
Hexachloroethane	67-72-1	20	**0.09**	612
			4.8	625.1
Hexachlorophene	70-30-4	10	3.6	604.1[1]
Malathion	121-75-5	0.1	0.033	1657
Manganese, total[2]	7439-96-5	0.5	0.3	200.8, Rev. 5.4[5]
Methyl bromide [Bromomethane]	74-83-9	50	3.54	601
Methyl chloride [Chloromethane]	74-87-3	50	8.4	624.1
Nitrate-nitrogen	14797-55-8	100	6	300.0, Rev 2.1
Nonylphenol	25154-52-3	333	2.7	D7065-11
Pentachlorophenol	87-86-5	5	**0.3**	515.1
Phenanthrene	85-01-8	10	1.92	610
Phenol	108-95-2	10	4.5	625.1
Phenolics, total			-[2]	420.4
1,1,2,2-Tetrachloroethane	79-34-5	10	**0.09**	601
Tetrachloroethene [Tetrachloroethylene]	127-18-4	10	**0.09**	601
1,2-Trans-dichloroethene [Trans-1,2-dichloroethylene]	156-60-5	10	4.8	624.1

Enclosure 2

1,1,2-Trichloroethane[8]	79-00-5	10	0.06	601
			15	624.1
Trichloroethene[8] [Trichloroethylene]	79-01-6		0.36	601
		10	5.7	624.1
Vinyl chloride	75-01-4	10	0.54	601

Enclosure 3. Sample Collection/Preservation Requirements by Method

EPA 624.1	Purgeable GC/MS	16 – 40mL vials (ZHS, unpreserved)

EPA 624.1	Purgeable GC/MS	16 - 40mL vials (ZHS, unpreserved)
EPA 601	Purgeable GC w/ Halide Specific Detector	16 - 25mL vials (ZHS, unpreserved)
EPA 602	Purgeable GC w/ Photoionization detector	4 – 500mL bottles (ZHS, pH<2 w/ HCl)
EPA 603	Purgeable GC w/ Flame Ionization Detector	16 – 25mL vials (ZHS, unpreserved)

EPA 608.3	GC w/ Electron Capture Detector	1 - 1L amber jar 4-1L refrigerated amber jars (composite sample)

EPA 608.3	GC w/ Electron Capture Detector	1 – 1L amber jar 4-1L refrigerated amber jars (composite sample)
EPA 1656	Capillary column GC w/ ECD, microcoulemetric detector or electrolytic conductivity detector	1 – 1L amber jar 4-1L refrigerated amber jars (composite sample)
EPA 508 (Application – Ground Water or finished drinking water)	GC w/ Electron Capture Detector	1 – 1L amber jar 4-1L refrigerated amber jars (composite sample)
EPA 617	GC w/ Electron Capture Detector	1-1L amber jar (grab sample) 4-1L refrigerated amber jars (composite sample)

Enclosure 3. Sample Collection/Preservation Requirements by Method

EPA 625.1	GC/MS	1 - 1L amber jar 4-1L refrigerated amber jars (composite sample)

EPA 625.1	GC/MS	1 – 1L amber jar 4-1L refrigerated amber jars (composite sample)
EPA 605	HPLC w/ electorchemical detector	1-1L amber jar (grab sample) 4-1L refrigerated amber jars (composite sample) pH adjust if 1,2-phenylhydrazine is suspected to be present
EPA 610	HPLC w/ UV & Flourescence detector or GC with Flame Ionization Detector	1-1L amber jar (grab sample) 4-1L refrigerated amber jars (composite sample)
EPA 624.1	Purgeable GC/MS	16 - 40mL vials (ZHS, unpreserved)
EPA 611	GC w/ Halide Specific Detector	1-1L amber jar (grab sample) 4-1L refrigerated amber jars (composite sample)
EPA 612	GC w/ Electron Capture Detector	1-1L amber jar (grab sample) 4-1L refrigerated amber jars (composite sample)
EPA 515.1	Capillary Column GC w/ Electron Capture Detector	1-1L amber jar preserved with Mercuric Chloride 4-1L refrigerated amber jars (composite sample)

Enclosure 4
EPA Region 6 Reporting Levels

APPENDIX A of PART II

The following Minimum Quantification Levels (MQL's) are to be used for reporting pollutant data for NPDES permit applications and/or compliance reporting.

POLLUTANTS	MQL µg/l	POLLUTANTS	MQL µg/l
METALS, RADIOACTIVITY, CYANIDE and CHLORINE			
Aluminum	2.5	Molybdenum	10
Antimony	60	Nickel	0.5
Arsenic	0.5	Selenium	5
Barium	100	Silver	0.5
Beryllium	0.5	Thalllium	0.5
Boron	100	Uranium	0.1
Cadmium	1	Vanadium	50
Chromium	10	Zinc	20
Cobalt	50	Cyanide	10
Copper	0.5	Cyanide, weak acid dissociable	10
Lead	0.5	Total Residual Chlorine	33
Mercury *1	0.0005 0.005		
DIOXIN			
2,3,7,8-TCDD	0.00001		
VOLATILE COMPOUNDS			
Acrolein	50	1,3-Dichloropropylene	10
Acrylonitrile	20	Ethylbenzene	10
Benzene	10	Methyl Bromide	50
Bromoform	10	Methylene Chloride	20
Carbon Tetrachloride	2	1,1,2,2-Tetrachloroethane	10
Chlorobenzene	10	Tetrachloroethylene	10
Clorodibromomethane	10	Toluene	10
Chloroform	50	1,2-trans-Dichloroethylene	10
Dichlorobromomethane	10	1,1,2-Trichloroethane	10
1,2-Dichloroethane	10	Trichloroethylene	10
1,1-Dichloroethylene	10	Vinyl Chloride	10
1,2-Dichloropropane	10		
ACID COMPOUNDS			
2-Chlorophenol	10	2,4-Dinitrophenol	50
2,4-Dichlorophenol	10	Pentachlorophenol	5
2,4-Dimethylphenol	10	Phenol	10
4,6-Dinitro-o-Cresol	50	2,4,6-Trichlorophenol	10

POLLUTANTS	MQL µg/l	POLLUTANTS	MQL µg/l
	BASE/NEUTRAL		
Acenaphthene	10	Dimethyl Phthalate	10
Anthracene	10	Di-n-Butyl Phthalate	10
Benzidine	50	2,4-Dinitrotoluene	10
Benzo(a)anthracene	5	1,2-Diphenylhydrazine	20
Benzo(a)pyrene	5	Fluoranthene	10
3,4-Benzofluoranthene	10	Fluorene	10
Benzo(k)fluoranthene	5	Hexachlorobenzene	5
Bis(2-chloroethyl)Ether	10	Hexachlorobutadiene	10
Bis(2-chloroisopropyl)Ether	10	Hexachlorocyclopentadiene	10
Bis(2-ethylhexyl)Phthalate	10	Hexachloroethane	20
Butyl Benzyl Phthalate	10	Indeno(1,2,3-cd)Pyrene	5
2-Chloronapthalene	10	Isophorone	10
Chrysene	5	Nitrobenzene	10
Dibenzo(a,h)anthracene	5	n-Nitrosodimethylamine	50
1,2-Dichlorobenzene	10	n-Nitrosodi-n-Propylamine	20
1,3-Dichlorobenzene	10	n-Nitrosodiphenylamine	20
1,4-Dichlorobenzene	10	Pyrene	10
3,3'-Dichlorobenzidine	5	1,2,4-Trichlorobenzene	10
Diethyl Phthalate	10		
	PESTICIDES AND PCBS		
Aldrin	0.01	Beta-Endosulfan	0.02
Alpha-BHC	0.05	Endosulfan sulfate	0.02
Beta-BHC	0.05	Endrin	0.02
Gamma-BHC	0.05	Endrin Aldehyde	0.1
Chlordane	0.2	Heptachlor	0.01
4,4'-DDT and derivatives	0.02	Heptachlor Epoxide	0.01
Dieldrin	0.02	PCBs	0.2
Alpha-Endosulfan	0.01	Toxaphene	0.3

(MQL's Revised November 1, 2007)

Footnotes:

*1 Default MQL for Mercury is 0.005 unless Part I of your permit requires the more sensitive Method 1631 (Oxidation / Purge and Trap / Cold vapor Atomic Fluorescence Spectrometry), then the MQL shall be 0.0005.