Stakeholder Comments on Appendix E of the Procedures to Implement the Texas Surface Water Quality Standards

The Texas Commission on Environmental Quality (TCEQ) distributed the response to stakeholders' first round of comments and draft Appendix E of the *Procedures to Implement the Texas Surface Water Quality Standards* (IPs) to stakeholders on July 16, 2020. The documents were distributed to the WQ-MUR, OutReach, WQS, and WQ-Pret email lists as well as posted on TCEQ's website. The second stakeholder comment period ended on August 17, 2020.

Comment letters were received from Erick Orsak (USFWS), Austin Water/City of Austin, John Dupont (DHL Analytical), Gulf Coast Authority, City of Garland, Trinity River Authority, Daniel Brown (Eastex Environmental Lab), and combined WEAT and TACWA (Laboratory Committee and Pretreatment Committee).

Common concerns:

- *By establishing MALs that are so low only the reference method can achieve it, TCEQ is in fact requiring permittees to use the reference method.*

  The TCEQ acknowledges stakeholders' concerns. The selected 40 Code of Federal Regulations (CFR) Part 136-approved methods included in Appendix E are sufficiently sensitive in accordance with 40 CFR §122.21(e)(3). When establishing the minimum analytical levels (MALs) for pollutants with water quality criteria, the TCEQ took a conservative approach and modeled stringent Texas Toxicity Screening (TexTox) scenarios to establish the screening values for determining the sufficiently sensitive MALs. The TCEQ also modeled less stringent scenarios. Rather than establish one MAL for each parameter based solely on the most stringent scenario, the TCEQ established two MALs to provide greater flexibility to applicants. See Tables 1 and 2 at the end of this document for a list of MALs established for pollutants with criteria (Table 1) and without criteria (Table 2). **Following stakeholders' reiterated concerns, the TCEQ has expanded the number of pollutants with two MALs for additional flexibility. See Table 3 of this document for additional pollutants with two MALs.**

  Further, permittees may use any 40 CFR Part 136-approved method that is sufficiently sensitive for their specific discharge. **The TCEQ recommends the permittee refer to the TexTox screening conducted for their existing permit or pretreatment program for estimated screening levels to determine a sufficiently sensitive method.** These TexTox reports can be used to identify which MAL would be most appropriate to use for the analytical testing purposes of a parameter by selecting an MAL that is lower than the TexTox report value for that parameter.

- *Minimum levels (MLs) established by EPA in Methods 608.3, 624.1, and 625.1 were calculated using the original MDLs from Methods 608, 624, and 625 and are therefore outdated/inaccurate; and*
- *TCEQ should solicit MDL data from Texas laboratories to calculate more accurate MALs.*

When the federal Method Update Rule (MUR) was proposed in 2015, Method 608.3 contained method detection limits (MDLs) that were obtained by a single laboratory, and Methods 624.1 and 625.1 contained the 1984 MDLs. Comments regarding the 608.3 MDLs in Table 1 criticized the fact that they were derived from information from a single laboratory rather than a multiple-laboratory validation study. EPA conceded on this issue and reverted the MDLs to those from 1984. For the other two methods, commenters criticized the fact that the MDLs were based on the old procedure and not the new MDL procedure. EPA rejected the idea that the 1984 MDLs are fundamentally flawed, stating it has relied on those MDLs for many years. EPA also maintained that over the years, laboratories have been able to achieve MDLs that are 2-10 times lower than those in the analytical methods. Therefore, EPA continues to believe those MDLs are legitimate.

EPA maintained that the MDLs and MLs are reflective of what can be achieved reliably by the analytical techniques used in the revised methods (e.g. Methods 624.1 and 625.1). EPA retained the MDLs and MLs in the methods published in the 2017 MUR because

> "they are practical implementations of a detection limit and quantitation limit, respectively. EPA desires to publish revisions to the methods and the MDL procedure because the methods and the MDL procedure have not been updated since the 1980s. Although EPA could wait until there is consensus on ultimate, perfect MDL and ML procedures and values, we believe it is better to move forward with existing procedures and values until ultimate agreement is reached. The alternative is to revert to the MDL procedure promulgated in 1984 (49 FR 43234)."

The TCEQ concurs with EPA and has adopted EPA's MDLs and MLs (as MALs), as appropriate, stated in the published methods when establishing MALs in Appendix E. The TCEQ will explore the possibility of developing MALs based on MDLs using the revised MDL procedure; however, to do so will be a lengthy, resource intensive, and involved process that is beyond the scope of the current IPs revision.

- *Laboratories will need time and money to get new equipment for other methods included in Appendix E and time to seek accreditation as needed; and*
- *Request a 6-month - 1.5-year delay in implementing revised MALs once adopted in IPs.*

The TCEQ does not consider laboratory costs in establishing MALs. The TCEQ will delay implementation of the revised MALs to allow laboratories time to acquire the needed equipment and seek accreditation. **The revised MALs will be implemented one year from the date of adoption by the Commission.**

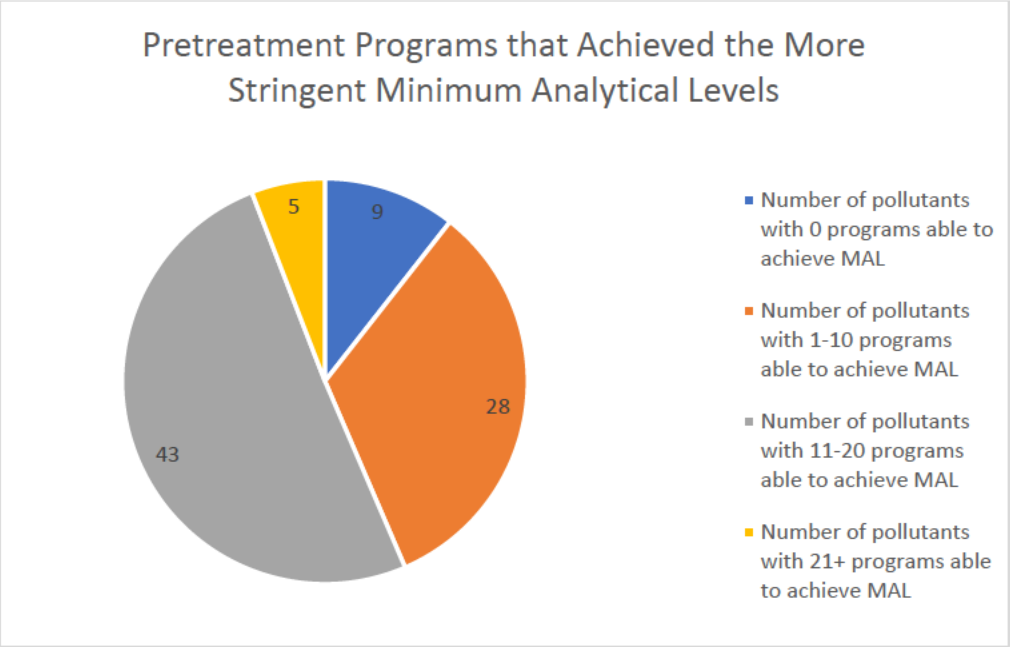
- *Since laboratories cannot achieve the more stringent MALs, more data will be screened as hard values, resulting in more permit limits. For some, it will only be an issue until laboratories are equipped to analyze samples down to the lower MALs; and*
- *Permittees will contest permits.*

An analytical result is deemed sufficiently sensitive when it is either 1) below the appropriate regulatory level for a specific discharge to determine compliance or make a regulatory decision, or 2) at the established MAL defined in Appendix E for the respective analyte. When the MAL is below the appropriate regulatory level for a specific discharge, the level of detection needs to be below the appropriate regulatory level specified but **does not necessarily have to meet the MAL established in Appendix E**. In this situation, any 40 CFR Part 136-approved test method that will achieve a level of detection below the appropriate regulatory level may be used. When the appropriate regulatory level for a specific discharge (i.e. a specific pollutant from a specific outfall) is below the MAL established in Appendix E, it is critical for the analytical data to meet the MAL in order for the TCEQ to consider the result as a non-detect. In this situation, any 40 CFR Part 136-approved test method that will achieve a level of detection below the MAL established in Appendix E may be used. **Permittees may develop permit-specific MDLs and MALs for TCEQ review and approval.**

Further, the TCEQ reviewed effluent wastewater treatment plant analytical data (from 2018-2020) from 35 approved TPDES pretreatment programs across the state submitted in annual reports. These annual reports are required by the TPDES permits and are signed and certified that the information reported is true and accurate. The numerical data reported in the pretreatment program annual reports are not detection limits or MDLs. As required, the program reports the less than the MAL (<MAL) values if the program can report that the analytical result was below the MAL. Some programs report the laboratory Reporting Limit (RL) as less than the RL (<RL) when the RL is less than the MAL.

Of the 85 pollutants with more stringent MALs established in the draft Appendix E, existing data from the pretreatment programs reviewed were at or below the more stringent MAL for all but six pollutants (see Figure 1 on the next page). An additional three pollutants—boron, chlorine, and manganese—are data deficient because monitoring is not required for pretreatment programs for those pollutants. The most stringent MAL was evaluated for pollutants with two MALs established in the draft Appendix E. None of the 35 pretreatment programs reviewed achieved the most stringent MALs for benzidine, benzo(a)anthracene, 3,3-dichlorobenzidine, 1,2-dichloroethane, tetrachloroethane, and 1,1,2-trichloroethane; however, several pretreatment programs achieved the second, less stringent MAL established for 3,3-dichlorobenzidine, 1,2-dichloroethane, tetrachloroethane, and 1,1,2-trichloroethane. See Table 4 at the end of this document for a comparison of both MALs when two MALs are established for a pollutant in draft Appendix E. See Figure 2 at the end of this document for a map of the approved pretreatment programs reviewed.

Figure 1. Comparison of Existing Analytical Data from Approved Pretreatment Programs and Proposed More Stringent Minimum Analytical Levels



Concerns about more stringent MALs:

- *Lower MALs for pollutants without criteria (e.g. phenol, PCB 1242, and 1,2-trans dichloroethane) are unnecessarily burdensome.*

  The MALs established in the draft Appendix E for phenol, PCB 1242, and 1,2-trans dichloroethane are the minimum levels established in Methods 625.1 (phenol), 608.3 (PCB 1242), and 624.1 (1,2-trans dichloroethane). **The TCEQ is adopting minimum levels established in the revised methods as published in the 2017 MUR.**

- *Bromide (no WQ criteria), fluoride (WQ criteria), and nitrate-nitrogen (WQ criteria) have the same method as the 2010 IPs, but more stringent MALs in the draft Appendix E. Existing MALs took into account chloride or sulfate present in the effluent; the new MAL assumes pure, distilled water matrix.*

  The TCEQ approves of retaining the 2010 MALs established for Method 300.0, Rev. 2.1 and will include an appropriate footnote explanation.

Concerns about certain methods:

- *For some pollutants with WQ criteria, the method noted in Appendix E changed from Method 625 or 624 to another method (e.g. 601, 605, 610, or 611);*
- *TCEQ offers a field of accreditation (FoA) for Methods 605 and 610; however, no laboratories are accredited in Texas for Method 605 and only one laboratory is accredited for Method 610; and*

- *Several methods included in the revised Appendix E represent changes in reference technology (e.g. changes from GC-MS to HPLC; or require different types of GC detectors). This is an additional unnecessary cost to laboratories.*

  The number of accredited laboratories was not considered when making a sufficiently sensitive determination. For example, Method 605 represented the only sufficiently sensitive MAL for benzidine and Method 610 represented the only sufficiently sensitive MALs for benzo(a)anthracene and benzo(a)pyrene. While Method 625.1 is approved for all three analytes, the minimum level published in the method is not sufficiently sensitive for even the less stringent TexTox scenarios modelled. **However, to provide more flexibility, the TCEQ has included Methods 624.1, 625.1, and 608.3 with their respective MALs for additional pollutants when the sufficiently sensitive requirement is still met. Further, the TCEQ will delay implementation of the revised MALs for one year to allow laboratories time to acquire the needed equipment.**

Miscellaneous:

The TCEQ will provide additional clarification to Appendix E (e.g. guidance for chlordane isomers and total xylene; expanded introduction).

The TCEQ has denied requests to use one significant figure throughout and to host a second stakeholder meeting.

Though pretreatment concerns were raised by WEAT-TACWA, the MUR workgroup for revising Appendix E is not the appropriate venue to resolve these issues. These concerns are best addressed by the Pretreatment Team in their stakeholder outreach.

Table 1 - Comparison of MALs and methods listed in the 2010 IPs and draft Appendix E for pollutants *with* criteria in the Texas Surface Water Quality Standards (TSWQS).

Pollutant	CASRN[1]	Revised Method	Revised MAL µg/L	2010 IPs Method	2010 IPs MAL µg/L	Change from 2010 IPs MAL
Acrolein	107-02-8	603	2.2	624	50	Decrease
Acrylonitrile	107-13-1	603	2	1624B	50	Decrease
Aldrin	309-00-2	608.3	0.012	608	0.01	*Increase*
Aluminum, total	7429-90-5	200.8, Rev. 5.4	3.2	200.8	2.5	*Increase*
Anthracene	120-12-7	625.1	5.7	625	10	Decrease
Antimony, total	7440-36-0	200.8, Rev. 5.4	1.5	200.8	5	Decrease
Arsenic, total	7440-38-2	200.8, Rev. 5.4	5.0	200.8	0.5	*Increase*
Barium, total	7440-39-3	200.8, Rev. 5.4	2.5	200.8	3	Decrease
Benzene	71-43-2	602 624.1	1.0 13.2	624	10	Decrease *Increase*
Benzidine	92-87-5	605	0.3	625	50	Decrease
Benzo(*a*)anthracene	56-55-3	610	0.04	625	5	Decrease
Benzo(*a*)pyrene	50-32-8	610	0.1	625	5	Decrease
Bis(2-chloroethyl)ether	111-44-4	611 625.1	1.0 17.1	625	10	Decrease *Increase*
Bis(chloromethyl)ether	542-88-1	**TBD**	Not specified	--	--	
Bis(2-ethylhexyl)phthalate [Di(2-ethylhexyl)phthalate]	117-81-7	625.1	7.5	625	10	Decrease
Bromodichloromethane [Dichlorobromomethane]	75-27-4	624.1	6.6	624	10	Decrease
Bromoform	75-25-2	624.1	14.1	624	10	*Increase*
Cadmium, total	7440-43-9	200.8, Rev. 5.4	2	200.8	1	*Increase*
Carbaryl	63-25-2	632	0.1	632	5	Decrease
Carbon tetrachloride	56-23-5	601 624.1	0.4 8.4	624	2	Decrease *Increase*
Chlordane	57-74-9	608.3	0.042	608	0.2	Decrease
Chlorobenzene	108-90-7	624.1	18	624	10	*Increase*
Chlorodibromomethane (Dibromochloromethane)	124-48-1	624.1	9.3	624	10	Decrease
Chloroform	67-66-3	624.1	4.8	624	10	Decrease

[1] Chemical Abstracts Service Registry Number (CASRN)

Pollutant	CASRN[1]	Revised Method	Revised MAL µg/L	2010 IPs Method	2010 IPs MAL µg/L	Change from 2010 IPs MAL
Chlorpyrifos	2921-88-2	1657	0.02	1657	0.05	Decrease
Chromium, hexavalent	18540-29-9	218.6, Rev. 3.3	4.5	218.6, Rev 3.3	3	*Increase*
Chromium, trivalent	16065-83-1	Trivalent chromium (Cr) determined by subtracting hexavalent Cr from total Cr.	-	---	---	
Chrysene	218-01-9	625.1	7.5	625	5	*Increase*
Copper, total	7440-50-8	200.8, Rev. 5.4	2.0	200.8	2	**Same**
Cresols (all isomers)	1319-77-3	625.1	-	625	10	
Cyanide, free	57-12-5	OIA-1667-09	2	Not included.		
4,4'-DDD	72-54-8	608.3	0.033	608	0.1	Decrease
4,4'-DDE	72-55-9	608.3	0.012	608	0.1	Decrease
4,4'-DDT	50-29-3	608.3	0.036	608	0.02	*Increase*
2,4-D	94-75-7	615	4.0	615 or SM6640 B	0.7	*Increase*
Danitol [Fenpropathrin]	39515-41-8	**TBD**	-	--	--	
Demeton	8065-48-3	1657	0.06-0.07	1657	0.20	Decrease
Diazinon	333-41-5	614 1657	0.04 0.12	614 1657	0.1 0.5	Decrease
1,2-Dibromoethane	106-93-4	624.1	-	1624	10	
m-Dichlorobenzene [1,3-Dichlorobenzene]	541-73-1	1625B	32	624	10	*Increase*
o-Dichlorobenzene [1,2-Dichlorobenzene]	95-50-1	1625B	32	624	10	*Increase*
p-Dichlorobenzene [1,4-Dichlorobenzene]	106-46-7	1625B	32	624	10	*Increase*
3,3'-Dichlorobenzidine	91-94-1	605 625.1	0.5 49.5	625	5	Decrease *Increase*
1,2-Dichloroethane	107-06-2	601 624.1	0.1 8.4	624	10	Decrease Decrease
1,1-Dichloroethene [1,1-Dichloroethylene]	75-35-4	601 624.1	0.5 8.4	624	10	Decrease Decrease
Dichloromethane [Methylene chloride]	75-09-2	601 624.1	1.0 8.4	624	20	Decrease Decrease

Pollutant	CASRN[1]	Revised Method	Revised MAL µg/L	2010 IPs Method	2010 IPs MAL µg/L	Change from 2010 IPs MAL
1,2-Dichloropropane	78-87-5	601 624.1	0.2 18	624	10	Decrease ***Increase***
1,3-Dichloropropene	542-75-6	601 624.1	1.1 47.7	624	10	Decrease ***Increase***
Dicofol [Kelthane]	115-32-2	608.3	-	ASTM D5812-96(02)	1	
Dieldrin	60-57-1	608.3	0.006	608	0.02	Decrease
2,4-Dimethylphenol	105-67-9	625.1	8.1	625	10	Decrease
Di-n-butyl phthalate	84-74-2	625.1	7.5	625	10	Decrease
Dioxins/Furans [TCDD Equivalents]		1613B	See Appendix E	1613B	See Appendix E	**Same**
Diuron	330-54-1	632	0.05	632	0.090	Decrease
Endosulfan I (alpha)	959-98-8	608.3	0.042	608	0.01	***Increase***
Endosulfan II (beta)	33213-65-9	608.3	0.012	608	0.02	Decrease
Endosulfan sulfate	1031-07-8	608.3	0.198	608	0.1	***Increase***
Endrin	72-20-8	1656	0.02	608	0.02	**Same**
Epichlorohydrin	106-89-8	**TBD**	Not specified	ASTM D-3695	1 mg/L	
Ethylbenzene	100-41-4	624.1	21.6	624	10	***Increase***
Ethylene glycol	107-21-1	**TBD**	Not specified	Not included. New criteria.		
Fluoride	16984-48-8	300.0, Rev. 2.1	500	300.0, 300.1	500	**Same**
Guthion [Azinphos Methyl]	86-50-0	1657	0.03	1657	0.1	Decrease
Heptachlor	76-44-8	608.3	0.009	608	0.01	Decrease
Heptachlor epoxide	1024-57-3	617	0.01	608	0.01	**Same**
Hexachlorobenzene	118-74-1	612	0.16	625	5	Decrease
Hexachlorobutadiene	87-68-3	612 625.1	1.1 2.7	625	10	Decrease
alpha-Hexachlorocyclohexane [alpha-BHC]	319-84-6	608.3	0.009	608	0.05	Decrease
beta-Hexachlorocyclohexane [beta-BHC]	319-85-7	608.3	0.018	608	0.05	Decrease
gamma-Hexachlorocyclohexane [Lindane]	58-89-9	608.3	0.012	608	0.05	Decrease

Pollutant	CASRN[1]	Revised Method	Revised MAL µg/L	2010 IPs Method	2010 IPs MAL µg/L	Change from 2010 IPs MAL
Hexachlorocyclopentadiene	77-47-4	612 1625B	1.5 32	625 1625B	10	Decrease *Increase*
Hexachloroethane	67-72-1	612 625.1	0.1 4.8	625	20	Decrease Decrease
Hexachlorophene	70-30-4	604.1	4.0	604.1	10	Decrease
4,4'-Isopropylidenediphenol [Bisphenol A]	80-05-7	ASTM 7065-11	1.0	Not included. New criteria.		
Lead, total	7439-92-1	200.8, Rev. 5.4	2.0	200.8	0.5	*Increase*
Malathion	121-75-5	1657	0.04	1657 SM6630 C	0.1	Decrease
Mercury, total	7439-97-6	245.7 1631E	0.005 0.0005	245.7, Rev. 2.0 1631E	0.005 0.0005	**Same** **Same**
Methoxychlor	72-43-5	617 1656	0.6 0.1	617 SM6630 B SM6630 C	2	Decrease
Methyl ethyl ketone	78-93-3	1624B	159	624	50	*Increase*
Methyl tert-butyl ether [MTBE]	1634-04-4	624.1	-	Not included. New criteria.		
Mirex	2385-85-5	SM 6630	0.02	SM6630 B SM6630 C	0.02	**Same**
Nickel, total	7440-02-0	200.8, Rev 5.4	2.0	200.8	2	**Same**
Nitrate-nitrogen	14797-55-8	300.0, Rev 2.1	100	300.0, Rev. 2.1 300.1, Rev. 1.0	100	**Same**
Nitrobenzene	98-95-3	625.1	5.7	625	10	Decrease
N-Nitrosodiethylamine	55-18-5	625.1	-	625	20	
N-Nitroso-di-n-butylamine	924-16-3	624.1	-	625	20	
Nonylphenol	25154-52-3	D7065-11	3.0	1625	333	Decrease
Parathion (ethyl)	56-38-2	1657	0.032	1657 SM6630 C	0.1	Decrease
Pentachlorobenzene	608-93-5	625.1	-	625	20	
Pentachlorophenol	87-86-5	625.1	10.8	625	5	*Increase*

Pollutant	CASRN[1]	Revised Method	Revised MAL µg/L	2010 IPs Method	2010 IPs MAL µg/L	Change from 2010 IPs MAL
Phenanthrene	85-01-8	610 625.1	2.0 16.2	625	10	Decrease *Increase*
Polychlorinated biphenyls (PCBs)	1336-36-3	1668B	0.0005			
PCB-77	32598-13-3	1668B	0.0005	1668B	0.0005	**Same**
PCB-81	70362-50-4	1668B	0.0005	1668B	0.0005	**Same**
PCB-126	57465-28-8	1668B	0.0005	1668B	0.0005	**Same**
PCB-169	32774-16-6	1668B	0.0005	1668B	0.0005	**Same**
Pyridine	110-86-1	625.1	-	625	20	
Selenium, total	7782-49-2	200.8, Rev 5.4	24	200.8	5	*Increase*
Silver, total	7440-22-4	200.8, Rev. 5.4	0.5	200.8	0.5	**Same**
1,2,4,5-Tetrachlorobenzene	95-94-3	625.1	-	1625	20	
1,1,2,2-Tetrachloroethane	79-34-5	601 624.1	0.1 20.7	624	10	Decrease *Increase*
Tetrachloroethene [Tetrachloroethylene]	127-18-4	601 624.1	0.1 12.3	624	10	Decrease *Increase*
Thallium, total	7440-28-0	200.8, Rev. 5.4	1.0	200.8	0.5	*Increase*
Toluene	108-88-3	624.1	18	624	10	*Increase*
Toxaphene	8001-35-2	608.3	0.72	608	0.3	*Increase*
2,4,5-TP [Silvex]	93-72-1	615	1.0	SM6640 B	0.3	*Increase*
Tributyltin [TBT]	688-73-3	**TBD**	Not specified	TNRCC 1001	0.01	
1,1,1-Trichloroethane	71-55-6	624.1	11.4	624	10	*Increase*
1,1,2-Trichloroethane	79-00-5	601 624.1	0.1 15	624	10	Decrease *Increase*
Trichloroethene [Trichloroethylene]	79-01-6	601 624.1	0.4 5.7	624	10	Decrease Decrease
2,4,5-Trichlorophenol	95-95-4	1625B	30	1625	50	Decrease
TTHM (Total Trihalomethanes) Bromodichloromethane Dibromochloromethane Tribromomethane [Bromoform] Trichloromethane [Chloroform]	75-27-4 124-48-1 75-25-2 67-66-3	624.1	6.6 9.3 14.1 4.8	624	10 10 10 10	Decrease Decrease *Increase* Decrease
Vinyl chloride	75-01-4	601	0.6	624	10	Decrease
Zinc, total	7440-66-6	200.8, Rev. 5.4	6.0	200.8	5	*Increase*

Table 2 - Comparison of MALs and methods listed in the 2010 IPs and draft Appendix E for pollutants ***without*** criteria in the TSWQS. If the method previously established in the June 2010 IPs is other than the 608.3, 624.1, or 625.1 method ***and*** is still approved in 40 CFR Part 136, it is retained in the revision; however, the MAL is recalculated as 3.18 x MDL and rounded.

Pollutant	CASRN	Revised Method	Revised MAL µg/L	2010 IPs Method	2010 IPs MAL µg/L	Change from 2010 IPs MAL
Acenaphthene	83-32-9	***625.1***	5.7	625	10	**Decrease**
Acenaphthylene	208-96-8	***625.1***	10.5	625	10	***Increase***
Acetaldehyde	75-07-0	1667	50	1667	50	**Same**
Allyl alcohol	107-18-6	***624.1***	-	1624	50	
Allyl chloride	107-05-1	***624.1***	-	1624	10	
Amyl acetate	628-63-7	1666	16	1666	5	***Increase***
Aniline	62-53-3	***625.1***	-	625	10	
Asbestos	1332-21-4	**TBD**	Not specified	100.1 & 100.2	Not specified	
Benzo(*b*)fluoranthene	205-99-2	***625.1***	14.4	625	10	***Increase***
Benzo(*g,h,i*)perylene	191-24-2	***625.1***	12.3	625	20	**Decrease**
Benzo(*k*)fluoranthene	207-08-9	***625.1***	7.5	625	5	***Increase***
Benzonitrile	100-47-0	**TBD**	Not specified	ASTM D3371	1 mg/L	
Benzyl chloride	100-44-7	**TBD**	Not specified	**TBD**	Not specified	
Beryllium, total	7440-41-7	200.8, Rev. 5.4	1	200.8	0.5	***Increase***
Bis(2-chloroethoxy)methane	111-91-1	***625.1***	15.9	625	10	***Increase***
Bis(2-Chloro-1-methylethyl) ether	108-60-1	***625.1***	17.1	625	10	***Increase***
Boron, total	7440-42-8	200.7, Rev. 4.4	10	200.7	20	**Decrease (but same screening level of 100 ug/L)**
Bromide	—	300.0, Rev. 2.1 300.1, Rev. 1.0	400	300.0, Rev. 2.1 300.1, Rev. 1.0	400	**Same**
4-Bromophenyl phenyl ether	101-55-3	***625.1***	5.7	625	10	**Decrease**
Butyl acetate	540-88-5	1666	5.0	1666	5	**Same**
n-Butylamine	109-73-9	**TBD**	Not specified	**TBD**	Not specified	

Pollutant	CASRN	Revised Method	Revised MAL µg/L	2010 IPs Method	2010 IPs MAL µg/L	Change from 2010 IPs MAL
sec-Butylamine	13952-84-6	**TBD**	Not specified	**TBD**	Not specified	
tert-Butylamine	75-64-9	**TBD**	Not specified	**TBD**	Not specified	
Butylbenzyl phthalate	85-68-7	***625.1***	7.5	625	10	**Decrease**
Captan	133-06-2	SM6630B	0.4	SM6630B	0.4	**Same**
Carbazole	86-74-8	1625	64	1625	20	***Increase***
Carbofuran	1563-66-2	632	10	632	3	***Increase***
Carbon disulfide	75-15-0	1624C	-	1624	10	
Chlorine	7782-50-5	4500-Cl E or G	32	4500-Cl E or G	33	**Decrease**
Chloroethane	75-00-3	1624B	50	624	50	**Same**
2-chloroethylvinyl ether	110-75-8	1624B	10	624	10	**Same**
2-Chloronaphthalene	91-58-7	***625.1***	5.7	625	10	**Decrease**
2-Chlorophenol	95-57-8	***625.1***	9.9	625	10	**Decrease**
4-Chlorophenyl phenyl ether	7005-72-3	***625.1***	12.6	625	10	***Increase***
Chromium, total	7440-47-3	200.8, Rev. 5.4	3.0	200.8	3	**Same**
Cobalt, total	7440-48-4	200.8, Rev. 5.4	0.3	200.8	0.3	**Same**
Coumaphos	56-72-4	1657	0.1	1657	0.025	***Increase***
m-Cresol	108-39-4	***625.1***	-	625	10	
o-Cresol	95-48-7	***625.1***	-	625	10	
p-Cresol [4-Methylphenol]	106-44-5	***625.1***	-	625	10	
Crotonaldehyde	4170-30-3	***624.1***	-	1624	10	
Cyanide, total	57-12-5	335.4, Rev 1.0	16	335.4 or 4500CN D or 4500-CN E	10	***Increase***
Cyanide, available	57-12-5	4500-CN G OIA-1677	10 2	4500-CN G OIA-1677	10 2	**Same**
Cyclohexane	110-82-7	1666	5	1666	5	**Same**
n-Decane	124-18-5	**TBD**	Not specified	625	30	
Dibenzo(a,h)anthracene	53-70-3	***625.1***	7.5	625	5	***Increase***
Dicamba	1918-00-9	1658	0.4	1658	0.110	***Increase***
Dichlobenil	1194-65-6	**TBD**	Not specified	**TBD**	Not specified	

Pollutant	CASRN	Revised Method	Revised MAL µg/L	2010 IPs Method	2010 IPs MAL µg/L	Change from 2010 IPs MAL
Dichlone	117-80-6	1656	_	1656	Not specified	
1,1-Dichloroethane	75-34-3	***624.1***	14.1	624	10	***Increase***
2,4-Dichlorophenol	120-83-2	***625.1***	8.1	625	10	**Decrease**
2,2-Dichloropropionic acid [Dalapon]	75-99-0	615	18	615	2	***Increase***
Dichlorvos	62-73-7	1657	0.02	1657	0.004	***Increase***
Diethyl amine	109-89-7	1671	159 mg/L	1671	50 mg/L	***Increase***
Diethyl phthalate	84-66-2	***625.1***	5.7	625	10	**Decrease**
Dimethyl amine	124-40-3	1671	159 mg/L	1671	50 mg/L	***Increase***
Dimethyl phthalate	131-11-3	***625.1***	4.8	625	10	**Decrease**
Dinitrobenzene	25154-54-5	***625.1***	Not specified	1625	10	
2,4-Dinitrophenol	51-28-5	***625.1***	126	625	50	***Increase***
2,4-Dinitrotoluene	121-14-2	***625.1***	17.1	625	10	***Increase***
2,6-Dinitrotoluene	606-20-2	***625.1***	5.7	625	10	**Decrease**
Di-n-octyl phthalate	117-84-0	***625.1***	7.5	625	10	**Decrease**
1,2-Diphenylhydrazine (as Azobenzene)	122-66-7	1625	64	1625	20	***Increase***
Diquat	2764-72-9	**TBD**	Not specified	549, 549.1	1.5	
Disulfoton	298-04-4	1657	0.1	1657	0.032	***Increase***
Endrin aldehyde	7421-93-4	***608.3***	0.07	608	0.1	**Decrease**
Ethion	563-12-2	1657	0.05	1657	0.02	***Increase***
Ethylenediamine	107-15-3	**TBD**	Not specified	**TBD**	Not specified	
Ethylene dibromide	106-93-4	**TBD**	Not specified	1624	10	
Formaldehyde	50-00-0	1667	159	1667	50	***Increase***
Fluoranthene	206-44-0	***625.1***	6.6	625	10	**Decrease**
Fluorene	86-73-7	***625.1***	5.7	625	10	**Decrease**
Furfural	98-01-1	1667	50 mg/L	1667	50 mg/L	**Same**
delta-Hexachlorocyclohexane [delta-BHC]	319-86-8	***608.3***	0.027	608	0.05	**Decrease**
Indeno(1,2,3-cd)pyrene	193-39-5	***625.1***	11.1	625	5	***Increase***
Iron, total	7439-89-6	200.7, Rev. 4.4	95	200.7	7	***Increase***

Pollutant	CASRN	Revised Method	Revised MAL µg/L	2010 IPs Method	2010 IPs MAL µg/L	Change from 2010 IPs MAL
Isophorone	78-59-1	***625.1***	6.6	625	10	**Decrease**
Isopropanolamine dodecylbenzenesulfonate	42504-46-1	**TBD**	Not specified	**TBD**	Not specified	
Kepone	143-50-0	1656	0.3	1656	0.3	**Same**
Magnesium, total	7439-95-4	200.7, Rev. 4.4	64	200.7	20	***Increase***
Manganese, total	7439-96-5	200.8, Rev. 5.4	0.32	200.8	0.5	**Decrease (but same screening level of 50 ug/L)**
Mercaptodimethur [Methiocarb]	2032-65-7	632	0.06	632	0.06	**Same**
Methyl bromide [Bromomethane]	74-83-9	1624	159	624	50	***Increase***
Methyl chloride [Chloromethane]	74-87-3	***624.1***	8.4	624	50	**Decrease**
Methyl mercaptan	74-93-1	**TBD**	Not specified	**TBD**	Not specified	
Methyl methacrylate	80-62-6	***624.1***	-	1624	10	
Methyl parathion	298-00-0	1657	0.06	1657 SM6630C	0.05	***Increase***
Mevinphos	7786-34-7	1657	0.24	1657	0.2	***Increase***
Mexacarbate	315-18-4	632	2.0	632	1.5	***Increase***
Molybdenum, total	7439-98-7	200.8, Rev 5.4	1.0	200.8	1	**Same**
Monoethyl amine	75-04-7	**TBD**	Not specified	**TBD**	Not specified	
Monomethylamine	74-89-5	**TBD**	Not specified	1667	50 mg/L	
Naled	300-76-5	1657	0.054	1657	0.05	***Increase***
Naphthalene	91-20-3	***625.1***	4.8	625	10	**Decrease**
Napthenic acid	1338-24-5	**TBD**	Not specified	**TBD**	Not specified	
2-Nitrophenol	88-75-5	***625.1***	10.8	625	20	**Decrease**
4-Nitrophenol	100-02-7	***625.1***	7.2	625	50	**Decrease**
N-Nitrosodimethylamine	62-75-9	1625B	50	625 1625B	50	**Same**
N-Nitroso-di-n-propylamine	621-64-7	1625B	64	625 1625B	20	***Increase***

Pollutant	CASRN	Revised Method	Revised MAL µg/L	2010 IPs Method	2010 IPs MAL µg/L	Change from 2010 IPs MAL
N-Nitrosodiphenylamine	86-30-3	1625B	64	625 1625B	20	***Increase***
Nitrotoluene	1321-12-6	**TBD**	Not specified	**TBD**	Not specified	
para-Nonylphenol	84852-15-3	**TBD**	Not specified	1625	333	
n-Octadecane	593-45-3	***625.1***	-	625	30	
Phenol	108-95-2	***625.1***	4.5	625	10	**Decrease**
p-Phenolsulfonate	127-82-2	**TBD**	Not specified	**TBD**	Not specified	
Phosgene	75-44-5	Degrades in water	-	Degrades in water	--	
PCB-1016	12674-11-2	***608.3***	-	608	0.2	
PCB-1221	11104-28-2	***608.3***	-	608	0.2	
PCB-1232	11141-16-5	***608.3***	-	608	0.2	
PCB-1242	53469-21-9	***608.3***	0.195	608	0.2	**Decrease**
PCB-1248	12672-29-6	***608.3***	-	608	0.2	
PCB-1254	11097-69-1	***608.3***	-	608	0.2	
PCB-1260	11096-82-5	***608.3***	-	608	0.2	
Propargite	2312-35-8	**TBD**	Not specified	GCMS	0.02	
Propylene oxide	75-56-9	**TBD**	Not specified	624 Heated Purge	25	
Pyrene	129-00-0	***625.1***	5.7	625	10	**Decrease**
Pyrethrin I	121-21-1	1660	3.1	1660	3.1	**Same**
Pyrethrin II	121-29-9	1660	3.3	1660	3.3	**Same**
Quinoline	91-22-5	**TBD**	Not specified	ASTM D-4763	1 mg/L	
Resorcinol	108-46-3	**TBD**	Not specified	1625	100	
Strontium	7440-24-6	200.7, Rev. 4.4	2.5	200.7	1	***Increase***
Strychnine	57-24-9	**TBD**	Not specified	1625	40	
Styrene	100-42-5	1625B	32	1625	10	***Increase***
Tin, total	7440-31-5	200.9, Rev. 2.2	5.4	200.7 200.9	5	***Increase***
Titanium, total	7440-32-6	283.2	30	283.2	30	**Same**

Pollutant	CASRN	Revised Method	Revised MAL µg/L	2010 IPs Method	2010 IPs MAL µg/L	Change from 2010 IPs MAL
1,2-Trans-dichloroethene [Trans-1,2-dichloroethylene]	156-60-5	***624.1***	4.8	624	10	**Decrease**
1,2,4-Trichlorobenzene	120-82-1	***625.1***	5.7	625	10	**Decrease**
Trichlorofon	52-68-6	1657	0.45	1657	0.45	**Same**
2,4,6-Trichlorophenol	88-06-2	***625.1***	8.1	625	10	**Decrease**
Triethanolmine dodecylbenzenesulfonate	27323-41-7	**TBD**	Not specified	**TBD**	Not specified	
Triethylamine	121-44-8	1671	50 mg/L	1667	50 mg/L	**Same**
Trimethylamine	75-50-3	**TBD**	Not specified	1666	Not specified	
Uranium, total	7440-61-1	200.8, Rev. 5.4	0.5	200.8	0.5	**Same**
Vanadium, total	7440-62-2	200.8, Rev. 5.4	8.0	200.8	5	***Increase***
Vinyl acetate	108-05-4	1624C	-	1624	50	
Xylenes, total	1330-20-7	1624C	10	1624C	10	**Same**
Xylenol	1300-71-6	**TBD**	Not specified	625	30	
Zirconium	7440-67-7	1620	318	1620	100	***Increase***

Table 3 - Pollutants with criteria and added "second-line option". Newly added method and MAL in *blue*.

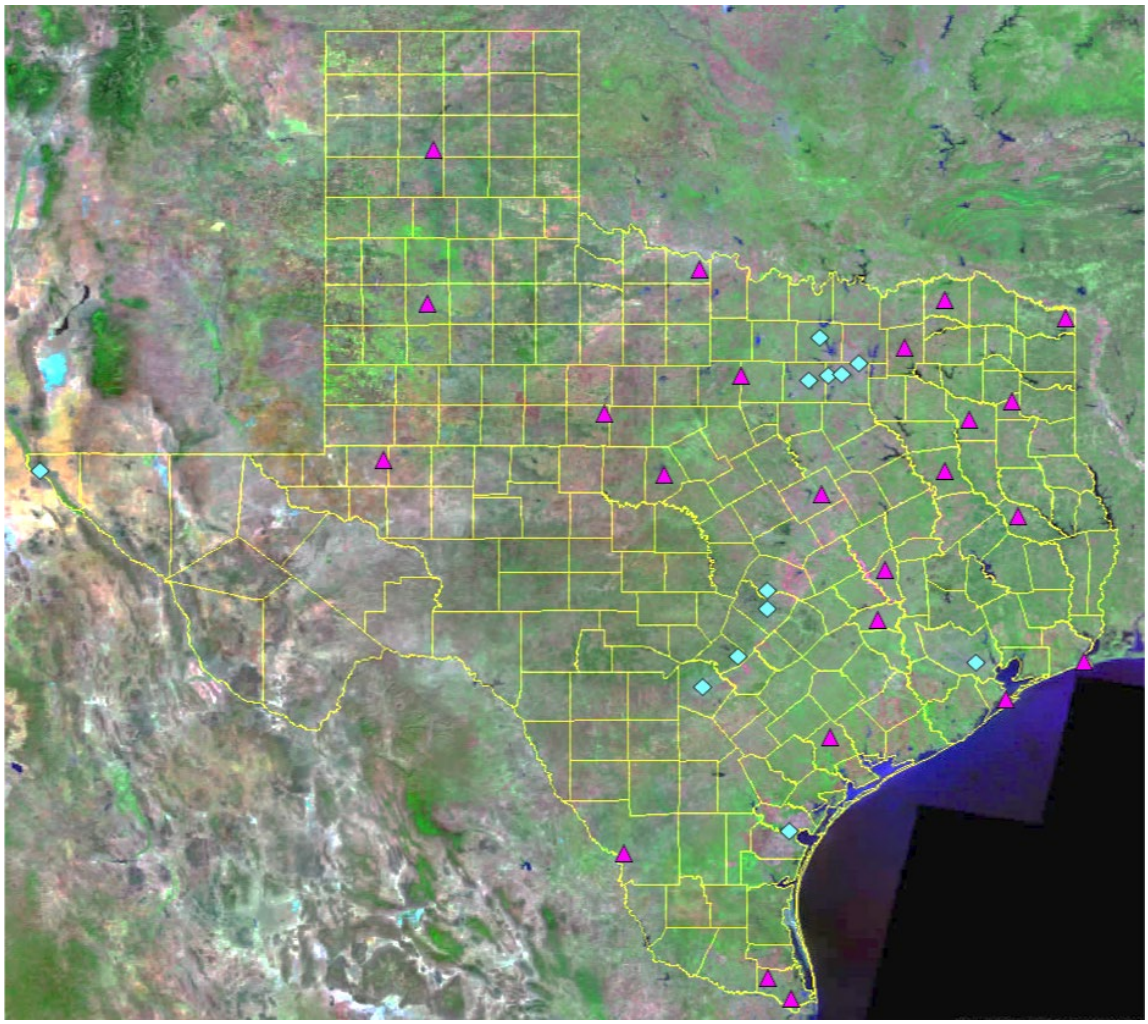
	Appendix E		Sufficiently Sensitive Determination		
Pollutant	**2010 MAL µg/L (Method)**	**Proposed MAL µg/L (Method)**	**Most Stringent Scenario - 70% of Daily Avg. µg/L**	**Menu 4 - 70% of Daily Avg. µg/L**	**Menu 5 - 70% of Daily Avg. µg/L**
Diazinon	0.1 (614) 0.5 (1657)	0.04 (614) *0.12 (1657)*	0.0559	0.0932	0.898
1,3-Dichloropropene	10 (624)	1.1 (601) *47.7 (624.1)*	2.67	33.4	2846
Hexachlorobutadiene	10 (625)	1.1 (612) *2.7 (625.1)*	0.200	2.51	5.26
Hexachlorocyclopentadiene	10 (625)	1.5 (612) *32 (1625B)*	10.2	127	277
Methoxychlor	2 (617)	0.6 (617) *0.1 (1656)*	0.0188	0.125	0.235
Phenanthrene *	10 (625)	2.0 (610) *16.2 (625.1)*	2.53	16.4	8.45
1,1,2,2-Tetrachloroethane	10 (624)	0.1 (601) *20.7 (624.1)*	1.56	19.6	630
Tetrachloroethene	10 (624)	0.1 (601) *12.3 (624.1)*	4.78	59.8	6698

* Second-line option requested by stakeholders because of lack of accredited labs for EPA Method 610.

Table 4 - Pollutants with "second line options" and the number of approved pretreatment programs reviewed that achieved each MAL.

Pollutant	**Most Stringent MAL µg/L**	**No. of programs meeting MAL**	**Second Option MAL µg/L**	**No. of programs meeting MAL**
Benzene	1	13	13.2	35
Bis(2-chloroethyl)ether	1	5	17.1	35
Carbon tetrachloride	0.4	2	8.4	35
3,3'-Dichlorobenzidine	0.5	0	49.5	35
1,2-Dichloroethane	0.1	0	8.4	21
1,1-Dichloroethene [1,1-Dichloroethylene]	0.5	2	8.4	21
Dichloromethane [Methylene chloride]	1	8	8.4	16
1,2-Dichloropropane	0.2	1	18	35
1,3-Dichloropropene	1.1	14	47.7	35
Hexachlorocyclopentadiene	1.5	10	32	35
Hexachloroethane	0.1	1	4.8	19
Phenanthrene	2	15	16.2	35
1,1,2,2-Tetrachloroethane	0.1	1	20.7	35
Tetrachloroethene [Tetrachloroethylene]	0.1	0	12.3	35
1,1,2-Trichloroethane	0.1	0	15	35
Trichloroethene [Trichloroethylene]	0.4	2	5.7	21

Figure 2 - Thirty-five approved pretreatment programs that were reviewed for their ability to meet the proposed MALs:



◇ **Larger programs:** Denton, Garland, Trinity River Authority Central, Austin, Round Rock, Dallas, San Antonio Water System, Houston, Corpus Christi, Fort Worth, and El Paso.

▲ **Smaller programs:** Waco et. al, Mineral Wells, Abilene, Paris, Amarillo, Odessa, Palestine, Harlingen, Brownsville, Galveston, Lufkin, Laredo, New Braunfels, Lubbock, Victoria, Port Arthur, Greenville, Brownwood, Brenham, Tyler, Wichita Falls, Texarkana, Longview, and Bryan