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## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

May 25, 2010

To: Owners and/or Operators for Type I and Type IV Municipal Solid Waste (MSW) Landfills

Re: Progression of the Inter-Laboratory MSW-Practical Quantitation Limit (PQL) Study

Dear MSW Owner and/or Operator:

The MSW Permits Section of the Texas Commission on Environmental Quality (TCEQ) has been conducting a PQL Study of performance objectives at the PQL. We have revised the groundwater monitoring (GWM) performance objectives to better meet both the federal (40 Code of Federal Regulation (CFR) Section (§)258.53(h)(5)) and state (30 Texas Administrative Code (TAC) §330.405(f)(5)) solid waste rule requirements for the requirements to specify limits for precision and accuracy at the PQL.

The MSW Permits Section of the TCEQ is requesting that all owners/operators encourage and/or assist their analytical laboratories to participate in the MSW-PQL Study. The performance objectives (specified limits) for precision and accuracy have been incorporated into MSW facility permits, as listed below.

<b>Chemical Compound</b>	<b>Precision (% RSD)</b>	<b>Accuracy (% Recovery)</b>	<b>EPA SW-846 Analytical Method</b>
Metals	10	70-130	6010 (6020)
Volatiles	20	50-150	8260
Semi-Volatiles	30	50-150	8270

% RSD - is a measure of precision, calculated as the standard deviation of a set of values divided by the average and multiplied by 100.  
% Recovery - is defined as a measure of agreement between analytical measurements and accepted reference values (recovery % of a true value).

Analytical data has been collected from independent laboratories across the nation and processed/modeled through the American Society for Testing and Materials (ASTM) Inter-Laboratory Quantitation Estimation (IQE) Standard D6512. The IQE based MSW-PQL "benchmark" concentrations for the 40 CFR Part 258 Appendix I constituents have been established.

If analytical laboratories are unable to meet the precision and accuracy performance objectives at an MSW-PQL benchmark concentration, then a subsequent adjustment will be made and neither the owner/operator nor the analytical laboratories will be considered out of compliance.

If a facility does not wish to use the MSW-PQL benchmarks, then the facility will be required to demonstrate how the preferred reporting limits chosen are representative of the lower limit of quantitation that can meet the MSW Permits Section's interlaboratory precision and accuracy performance objectives, as listed in the table above.

We acknowledge that data collection of the background population pools may have already been initiated and/or completed. In such cases, we are suggesting that the newly acquired GWM data be assimilated directly into the existing background population pools until there are a rolling sum of eight ( $n=8$ ) data points based on the MSW-PQL benchmark concentrations. Background population pools should be updated as soon as there are a total of eight data points.

**Completion of the Inter-Laboratory MSW-PQL Study**

In order to complete the MSW-PQL concentration verification process and develop the additional MSW-PQLs for the 40 CFR §258 Appendix II compounds, additional data based on specific multi-concentration spiking levels is required. With additional data, the MSW Permits Section will re-evaluate whether the benchmark concentrations need to be adjusted (increased or decreased) and complete the development of the MSW-PQLs for the Appendix I and II metallic, volatile and semi-volatile compounds.

It is requested that analytical laboratories perform quarterly analyses (for one year) of the specified multi-concentration spiking levels under the same procedure as that which was initially collaborated through the MSW-PQL Listserv.

The additional laboratory spiking data will result in an initial/short-term increased level of effort by the participating analytical laboratories. Prior to collecting additional data, your analytical laboratory's input is requested for a collaborative determination of the appropriate multiple concentration ranges for the Appendix II semi-volatile compounds.

**MSW-PQL ListServ**

We will continue to use the MSW-PQL ListServ to convey information concerning the MSW-PQL Study and other MSW topics. If you have any questions concerning this letter or the Inter-Laboratory MSW-PQL Study, please contact Mr. Arthur Denny by phone at (512) 239-6610 or through correspondence using mail code MC 124.

If you and/or your analytical laboratory have not already joined the MSW-PQL ListServ and would like to do so, please send an e-mail to [adenny@tceq.state.tx.us](mailto:adenny@tceq.state.tx.us) so that we may add you to the e-mail list. Your cooperation is deeply appreciated.

Sincerely,



Richard C. Carmichael, Ph.D., P.E.  
Manager, Municipal Solid Waste Permits Section  
Waste Permits Division  
Texas Commission on Environmental Quality

RCC/ALD/dd

Enclosure

Analyte	Method	DW MCL (ug/l)	DW TPCL (ug/l)	Rounded IQE (ug/l)	Rounded IQE PQL Met P&A Criteria (Y/N)	Rounded IQE PQL Met Both Reg Criteria (Y/N)	Initial MSW-PQL (ug/l)
Acetone	SW 846 8260	NA	22000	20	Y	Y	20
Acrylonitrile	SW 846 8260	NA	1.7	50	Y	N	50
Benzene	SW 846 8260	5	5	1	Y	Y	1
Bromochloromethane	SW 846 8260	NA	980	1	Y	Y	1
Bromodichloromethane	SW 846 8260	NA	15	1	Y	Y	1
Bromoform; Tribromomethane	SW 846 8260	NA	120	5	Y	Y	5
Carbon disulfide	SW 846 8260	NA	2400	5	Y	Y	5
Carbon tetrachloride	SW 846 8260	5	5	5	Y	Y	5
Chlorobenzene	SW 846 8260	100	100	1	Y	Y	1
Chloroethane; Ethyl chloride	SW 846 8260	NA	9800	5	Y	Y	5
Chloroform; Trichloromethane	SW 846 8260	NA	240	1	Y	Y	1
Dibromochloromethane; Chlorodibromomethane	SW 846 8260	NA	11	2	Y	Y	2
1,2-Dibromo-3-chloropropane; DBCP	SW 846 8260	0.2	0.2	5	Y	N	5
1,2-Dibromoethane; Ethylene dibromide; EDB	SW 846 8260	0.05	0.05	1	Y	N	1
o-Dithlorobenzene; 1,2-Dichlorobenzene	SW 846 8260	600	600	2	Y	Y	2
p-Dichlorobenzene; 1,4-Dichlorobenzene	SW 846 8260	75	75	2	Y	Y	2
trans-1,4-Dichloro-2-butene	SW 846 8260	NA	140	100	Y	Y	100
1, 1-Dichloroethane; Ethylidene chloride	SW 846 8260	NA	4900	1	Y	Y	1
1,2-Dichloroethane; Ethylene dichloride	SW 846 8260	5	5	1	Y	Y	1
1, 1-Dichloroethylene; 1-1-Dichloroethene	SW 846 8260	7	7	1	Y	Y	1
cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	SW 846 8260	70	70	1	Y	Y	1
trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	SW 846 8260	100	100	1	Y	Y	1
1,2-Dichloropropane; Propylene dichloride	SW 846 8260	5	5	1	Y	Y	1
cis-1,3-Dichloropropene	SW 846 8260	NA	1.7	2	Y	N	2
g:ans-1,3-Dichloropropene	SW 846 8260	NA	9.1	5	Y	Y	5
Ethylbenzene	SW 846 8260	700	700	2	Y	Y	2
2-hexanone; Methyl butyl ketone	SW 846 8260	NA	1500	5	Y	Y	5
Methyl bromide; Bromomethane	SW 846 8260	NA	34	10	Y	Y	10
Methyl chloride; Chloromethane	SW 846 8260	NA	70	5	Y	Y	5
Methylene bromide Dibromomethane	SW 846 8260	NA	120	1	Y	Y	1
Methylene chloride; Dichloromethane	SW 846 8260	NA	5	5	Y	Y	5
Methyl ethyl ketone; MEK; 2-Butanone	SW 846 8260	NA	15000	5	Y	Y	5
Methyl iodide; Iodomethane	SW 846 8260	NA	34	5	Y	Y	5
4-Methyl-2-pentanone; Methyl isobutyl isobutyl ketone	SW 846 8260	NA	2000	5	Y	Y	5
Styrene	SW 846 8260	100	100	2	Y	Y	2
1, 1, 1,2-Tetrachloroethane	SW 846 8260	NA	35	2	Y	Y	2
1, 1,2,2-Tetrachloroethane	SW 846 8260	NA	4.6	1	Y	Y	1
Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	SW 846 8260	5	5	5	Y	Y	5

Benchmark MSW-PQLs (02-24-2010)

<b>Analyte</b>	<b>Method</b>	<b>DW MCL (ug/l)</b>	<b>DW TPCL (ug/l)</b>	<b>Rounded IQE (ug/l)</b>	<b>Rounded IQE PQL Met P&amp;A Criteria (Y/N)</b>	<b>Rounded IQE PQL Met Both Reg Criteria (Y/N)</b>	<b>Initial MSW- PQL (ug/l)</b>
Toluene	SW 846 8260	1000	1000	1	Y	Y	1
1, 1, 1-Trichloroethane; Methylchloroform	SW 846 8260	200	200	1	Y	Y	1
1, 1,2-Trichloroethane	SW 846 8260	5	5	1	Y	Y	1
Trichloroethylene; Trichlorethene	SW 846 8260	5	5	5	Y	Y	5
Trichlorofluoromethane; CFC-11	SW 846 8260	NA	7300	10	Y	Y	10
1,2,3-Trichloropropane	SW 846 8260	NA	0.13	1	Y	N	1
Vinyl acetate	SW 846 8260	NA	24000	NONE	N	N	100*
Vinyl chloride	SW 846 8260	2	2	2	Y	Y	2
m, p-Xylenes	SW 846 8260	NA	NA	5	Y	Y	5
o-Xylene	SW 846 8260	NA	NA	2	Y	Y	2
Total Xylenes	SW 846 8260	10000	10000	10	Y	Y	10
Antimony	SW 846 6020	6	6	5	Y	Y	5
Arsenic	SW 846 6020	10	10	5	Y	Y	5
Barium	SW 846 6010	2000	2000	10	Y	Y	10
Beryllium	SW 846 6010	4	4	5	Y	N	4
Cadmium	SW 846 6010	5	5	2	Y	Y	2
Chromium	SW 846 6010	100	100	20	Y	Y	20
Cobalt	SW 846 6010	200	200	5	Y	Y	5
Copper	SW 846 6010	1300	1300	10	Y	Y	10
Lead	SW 846 6010	15	15	20	Y	N	15
Nickel	SW 846 6010	NA	490	20	Y	Y	20
Selenium	SW 846 6010	50	50	50	Y	Y	50
Silver	SW 846 6010	120	120	10	Y	Y	10
Thallium	SW 846 6010	2	2	1	Y	Y	1
Vanadium	SW 846 6010	NA	170	10	Y	Y	10
Zinc	SW 846 6010	NA	730	100	Y	Y	100
Benchmark MSW-PQL concentration to be evaluated							
*Highest study concentration spiked							