

NJDWQI Testing Subcommittee



Report on the Development of a Practical Quantitation Limit (PQL) for 1,2,3-Trichloropropane

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1,2,3-Trichloropropane

2009 PQL Recommendation

- In 2009, the Testing Subcommittee recommended a PQL of 0.03 $\mu\text{g}/\text{L}$ to the NJDEP
- The 123TCP data used for the 2009 PQL recommendation was obtained through the NJ Synthetic organic compound (SOC) monitoring program which is based on the federal SOC rule.
- EPA 504.1 is one of the SOC drinking water methods required for analysis of the SOCs, EDB and DBCP. 123TCP is a target analyte in EPA 504.1

1,2,3-Trichloropropane

2009 PQL Recommendation

- NJDEP collects the samples from a subset of CWS and NTNC every three year compliance period
- The NJ DOH laboratory analyzed those SOC samples used for the 2009 recommendation
- The 504.1 analysis included results for 123TCP which was not a regulated SOC.
- The MDL used by DOH for 123TCP was 0.005 $\mu\text{g}/\text{L}$
- The PQL was derived:
 $0.005 \mu\text{g}/\text{L} \times 5 = 0.025 \mu\text{g}/\text{L}$, rounded to 0.03 $\mu\text{g}/\text{L}$

1,2,3-Trichloropropane PQL re-evaluation

The Testing Subcommittee obtained reporting limits and MDLs from the 15 labs currently certified by NJ OQA for 123TCP analysis using EPA 504.1

Lab Name	NJ Lab ID	State	MDL µg/L	Reporting Limit µg/L
EMSL ANALYTICAL INC	03036	NJ	0.0062	0.02
CAPE ENVIRONMENTAL LABORATORY	05679	NJ	0.0047	0.025
NEW JERSEY DEPARTMENT OF HEALTH	11036	NJ	0.002	0.02
ACCUTEST LABORATORIES	12129	NJ	0.015	0.02
INTEGRATED ANALYTICAL LABORATORIES	14751	NJ	0.009	0.0286
PRECISION ANALYTICAL SERVICES INC	15001	NJ	0.006	0.0114
BRICK TOWNSHIP MUNICIPAL UTILITIES AUTHORITY	15006	NJ	0.06	0.25
EUROFINS EATON ANALYTICAL, INC	CA008	CA	0.011	0.04
SUMMIT ENVIRONMENTAL TECHNOLOGIES, INC.	OH006	OH	0.09	0.1
AQUA PENNSYLVANIA INC	PA007	PA	0.006	0.0625
ALS ENVIRONMENTAL - MIDDLETOWN	PA010	PA	0.01	0.02
EUROFINS LANCASTER LABS ENVIRONMENTAL	PA011	PA	0.0143	0.0429
EUROFINS QC, INC.	PA166	PA	0.0046	0.0286
TESTAMERICA LABORATORIES INC. BURLINGTON	VT972	VT	0.0038	0.02
EDGE ANALYTICAL INC	WA013	WA	0.01	0.02

1,2,3-Trichloropropane PQL re-evaluation

The Testing Subcommittee selected a subset of UCMR3 labs approved by EPA to analyze 123TCP by EPA 524.3 for consideration of the PQL.

Criteria by which labs were selected:

- Holds NJ OQA certification for VOC drinking water analytical methods
- Currently submits VOC drinking water analyses for NJ public water systems
- Have analyzed UCMR3 123TCP samples for NJ water systems

1,2,3-Trichloropropane PQL re-evaluation

UCMR3 Approved laboratories & NJ OQA Vetted Laboratories with MDL and MRL for EPA 524.3

Lab Name	Lab Number	State	MDL (µg/L)	Reporting Limit (µg/L)
EUROFINS EATON ANALYTICAL, INC	CA008	CA	0.002	0.005
AQUA PENNSYLVANIA INC	PA007	PA	NA	0.03
ALS ENVIRONMENTAL - MIDDLETOWN	PA010	PA	0.015	0.03
EUROFINS EATON ANALYTICAL, INC	IN598	IN	0.015	0.03
SUBURBAN TESTING	PA081	PA	NA	0.03
AMERICAN WATER CENTRAL SERVICE LABS	IL547	IL	NA	0.03

MDL and RL Data Used for the current PQL Evaluation

Lab Name	NJ Lab ID	State	Certified/ Approved Method	MDL (µg/L)	RL (µg/L)
EUROFINS EATON ANALYTICAL, INC	CA008	CA	EPA 524.3 SIM	0.002	0.005
NEW JERSEY DEPARTMENT OF HEALTH	11036	NJ	EPA 504.1	0.002	0.02
TESTAMERICA LABORATORIES INC. BURLINGTON	VT972	VT	EPA 504.1	0.0038	0.02
EUROFINS QC, INC.	PA166	PA	EPA 504.1	0.0046	0.0286
CAPE ENVIRONMENTAL LABORATORY	05679	NJ	EPA 504.1	0.0047	0.025
PRECISION ANALYTICAL SERVICES INC	15001	NJ	EPA 504.1	0.006	0.0114
AQUA PENNSYLVANIA INC	PA007	PA	EPA 504.1	0.006	0.0625
EMSL ANALYTICAL INC	03036	NJ	EPA 504.1	0.0062	0.02
INTEGRATED ANALYTICAL LABORATORIES	14751	NJ	EPA 504.1	0.009	0.0286
ALS ENVIRONMENTAL - MIDDLETOWN	PA010	PA	EPA 504.1	0.01	0.02
EDGE ANALYTICAL INC	WA013	WA	EPA 504.1	0.01	0.02
EUROFINS EATON ANALYTICAL, INC	CA008	CA	EPA 504.1	0.011	0.04
EUROFINS LANCASTER LABS ENVIRONMENTAL	PA011	PA	EPA 504.1	0.0143	0.0429
ACCUTEST LABORATORIES	12129	NJ	EPA 504.1	0.015	0.02
ALS ENVIRONMENTAL - MIDDLETOWN	PA010	PA	EPA 524.3 SIM	0.015	0.03
EUROFINS EATON ANALYTICAL, INC	IN598	IN	EPA 524.3 SIM	0.015	0.03
BRICK TOWNSHIP MUA	15006	NJ	EPA 504.1	0.06	0.25
SUMMIT ENVIRONMENTAL TECHNOLOGIES, INC.	OH006	OH	EPA 504.1	0.09	0.1
AQUA PENNSYLVANIA INC	PA007	PA	EPA 524.3 SIM	NA	0.03
SUBURBAN TESTING	PA081	PA	EPA 524.3 SIM	NA	0.03
AMERICAN WATER CENTRAL SERVICE LABS	IL547	IL	EPA 524.3 SIM	NA	0.03

MEDIAN MDL:

0.0095

MEAN of RL:

0.041

MEDIAN RL:

0.029

Bootstrap Estimate of the Inter-laboratory MDLs Without Outliers

Lower Confidence Limit ($\mu\text{g/L}$)	Mean ($\mu\text{g/L}$)	Upper Confidence Limit ($\mu\text{g/L}$)	Confidence Level Range	Number of Randomly Selected Values
0.004	0.005	0.006	95%	2000

Using the Upper Confidence Limit of this data from nine laboratories results in a calculated PQL of $0.006 \mu\text{g/L} \times 5 = 0.030 \mu\text{g/L}$

1,2,3-Trichloropropane PQL re-evaluation

The reporting limits and MDLs from the fifteen EPA 504.1 laboratories were considered with those of the six UCMR3 labs for calculating a PQL. A summary of the different approaches is below:

Summary of approaches for calculating a PQL

PQL Approach	Value (µg/L)
Median MDL x 5	0.048
Mean of RL	0.041
Median of RL	0.029
Bootstrap Upper Confidence Limit of MDL x 5	0.030
Bootstrap Upper Confidence Limit of RL	0.033