

ADDENDUM TO THE 2015 TREATMENT SUBCOMMITTEE MCL SUPPORT DOCUMENT

“RECOMMENDATION ON PERFLUORINATED
COMPOUND TREATMENT OPTIONS FOR DRINKING
WATER”

NEW JERSEY DRINKING WATER QUALITY INSTITUTE
TREATMENT SUBCOMMITTEE

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NEW JERSEY DRINKING WATER QUALITY INSTITUTE TREATMENT SUBCOMMITTEE

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DWQI TREATMENT SUBCOMMITTEE

Commissioner Bob Martin of the New Jersey Department of Environmental Protection requested that the DWQI develop recommended maximum contaminant levels (MCL) for three long-chain perfluorinated compounds (PFC):

- Perfluorononanoic acid (PFNA)
- Perfluorooctanoic acid (PFOA)
- Perfluorooctanesulfonic acid (PFOS).

2015 RECOMMENDATION

The Treatment Subcommittee found that the best available treatment for all three compounds was the same.

Accordingly, in 2015, when the DWQI issued its recommended MCL for PFNA, the Treatment Subcommittee released one document to address treatment for these three compounds, entitled: *Recommendation on Perfluorinated Compound Treatment Options for Drinking Water*

REVIEW OF NEW AVAILABLE TECHNICAL INFORMATION

The Treatment subcommittee did the following to ensure that the 2015 document was still applicable:

- Identified new relevant information:
 - Data from full scale GAC treatment facilities treating PFOS across the nation.
 - NSF International certification for treatment devices that remove PFOS and PFOA from drinking water.
- Reviewed the 2015 document to ensure that the identified treatment methods could achieve the draft health-based MCL of 13 ng/L.

ADDENDUM

Purpose: To update and supplement the 2015 report.

Granular Activated Carbon (GAC) Facilities

- New Jersey American Water – Logan System Birch Creek
 - Minimum reporting level (MRL) = 5 ng/L; Any results below the MRL are reported as “non-detect.”
 - Average raw water PFOS levels of 7 ng/L between 2014 – 2017.
 - Post-GAC treatment PFOS levels were non-detectable.

Source: (New Jersey American Water, 2017)

ADDENDUM

GAC Facilities

- New Jersey American Water – Penns Grove
 - Water blended from shallow wells and deeper wells to balance elevated levels of PFOS and sodium in source water.
 - MRL = 5 ng/L; Any results below the MRL are reported as as “non-detect.”
 - Raw water PFOS levels in the shallow wells as high as 13 ng/L between October 2nd, 2014 and January 6th, 2017.
 - Post-GAC treatment levels of PFOS were non-detectable

Source: (New Jersey American Water, 2017)

ADDENDUM

GAC Facilities

- Oakdale, Minnesota
 - Method Detection Limit (MDL) = 0.5 ng/L. MRL = 5 ng/L (Rinker, 2017).
 - Raw water PFOS levels from 2 wells were 540 ng/L and 620 ng/L, respectively.
 - Post-GAC treatment levels of PFOS were non-detectable.

Source: (Bachmeier, 2017)

ADDENDUM

GAC Facilities

- Horsham Water & Sewer Authority, Horsham, PA
 - Temporary GAC 2-vessel series; Purolite resin as a polisher.
 - Flow rate capacity 700gpm; Size per vessel holds 20,000 lbs of carbon media
 - MRL = 2.5 ng/L; Any results below the MRL are reported as as “non-detect.”
 - Raw water PFOS levels ranged between 230-1297 ng/L with an average = 629.2 ng/L.
 - Post-GAC treatment levels of PFOS were non-detectable

Source: (O'Rourke, 2017)

ADDENDUM

Other Treatment Technologies

- Ion Exchange - Purolite
 - Purolite Corp. markets a proprietary resin for removal of PFASs.
 - The resin “acts as both an ion exchange resin and an adsorbent resin with exceptionally high kinetics and selectivity for removing PFASs.”
 - Purolite maintains that the resin can remove PFASs, without re-contaminating the system and can remove it to non-detectable levels of about 1-5 ppt.

Source: (Purolite, 2017)

ADDENDUM

NSF Certified Treatment

- For private well owners
- NSF International developed Protocol P473 for point-of-use water treatment systems designed to remove PFOS and PFOA from drinking water.
- Protocol evaluates whether drinking water treatment units can reduce levels of PFOS and PFOA. Currently, 65 products have been certified from four different manufacturers.

CONCLUSIONS

The Treatment Subcommittee concludes that it has been demonstrated that PFOS can be reliably and feasibly removed by carefully designed GAC treatment to below the recommended health-based MCL of 13 ng/L.