

Polycyclic Aromatic Hydrocarbons (PAHs) in a Residential Driveway Stormwater Sample

Dover, New Hampshire, Great Bay-Piscataqua Watershed

Test results indicate significant levels of carcinogenic PAHs in a stormwater sample collected on a public street in a residential neighborhood adjacent to a driveway which had been sealcoated three months earlier.

- A New Hampshire resident¹ collected one ~200 mL stormwater sample and one 250 mL (laboratory supplied) field blank during a moderate rain event on October 21, 2023 in front of a sloped, sealcoated driveway which drains directly to the street. (See Image 1)
- This sample was collected 94 days after sealcoating had been applied to the (~ 1,500 ft²) driveway.²

Image 1



Google Maps satellite image³ with sampling area circled

- Samples were refrigerated immediately after collection and packed on ice immediately prior to overnight shipment (FedEx) to Eurofins Lancaster Laboratories Environment Testing, LLC in Lancaster, PA.
- Samples were analyzed via Method: 8270E - Semivolatile Organic Compounds (GC/MS) for eighteen (18) polycyclic aromatic hydrocarbons (PAHs).
- Eleven (11) of the 18 PAHs were detected and are detailed in Table 1 below.

¹ Stormwater samples collected by Diana Carpinone, [Non Toxic Communities](#).

² Driveway sealcoat applied on July 19, 2023. Stormwater samples collected on October 21, 2023.

³ Google aerial image captured prior to 2023 sealcoating.

- Six (6) of the detected analytes are considered carcinogenic⁴ and have federal regulatory limits. They are depicted with red in Table 1 and Figures 1a and 1b.⁵
- Each of these 6 carcinogenic analytes was detected at concentrations above its EPA maximum contaminant levels (MCL) in drinking water.
- The EPA recommends a maximum contaminant level *goal* (MCLG) of **zero** for carcinogenic PAHs in ambient water.⁶

Table 1

Analyte	Result ⁷	Reporting Limit ⁷	Method Detection Limit ⁷	EPA Limit ⁸	Unit ^{7,8}
Anthracene	0.81	0.51	0.10		ug/L
Benzo[a]anthracene	1.10	0.51	0.10	0.10	ug/L
Benzo[a]pyrene	1.30	0.51	0.11	0.20	ug/L
Benzo[b]fluoranthene	1.60	0.51	0.10	0.20	ug/L
Benzo[g,h,i]perylene	1.00	0.51	0.10		ug/L
Benzo[k]fluoranthene	0.68	0.51	0.10	0.20	ug/L
Chrysene	2.00	0.51	0.10	0.20	ug/L
Indeno[1,2,3-cd]pyrene	0.99	0.51	0.11	0.30	ug/L
Phenanthrene	1.50	0.51	0.11		ug/L
Pyrene	5.40	0.51	0.10		ug/L
Fluoranthene	9.70	0.51	0.10		ug/L

⁴ <https://www.epa.gov/risk/other-carcinogenic-polycyclic-aromatic-hydrocarbons>

⁵ Stormwater Data Graphs Created By: Kristen Mello, MSc, WRAFT.org

⁶ <https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations#Organic>

⁷ from Eurofins analytical laboratory report here:

<https://drive.google.com/file/d/1rxrT-ARPeXyXUuwixoC70wehBXkDT8Du/view?usp=sharing>

⁸ from the Agency for Toxic Substances and Disease Registry (ATSDR)

https://www.atsdr.cdc.gov/csem/polycyclic-aromatic-hydrocarbons/standards_and_regulations_for_exposure.html

Figure 1a

Polycyclic Aromatic Hydrocarbons (PAHs) in a Driveway Runoff Sample (Fluoranthene and Pyrene Removed)

Sealcoating Applied: 19 July 2023; Stormwater Sampled: 21 Oct 2023 from Gov. Sawyer Lane, Dover, NH

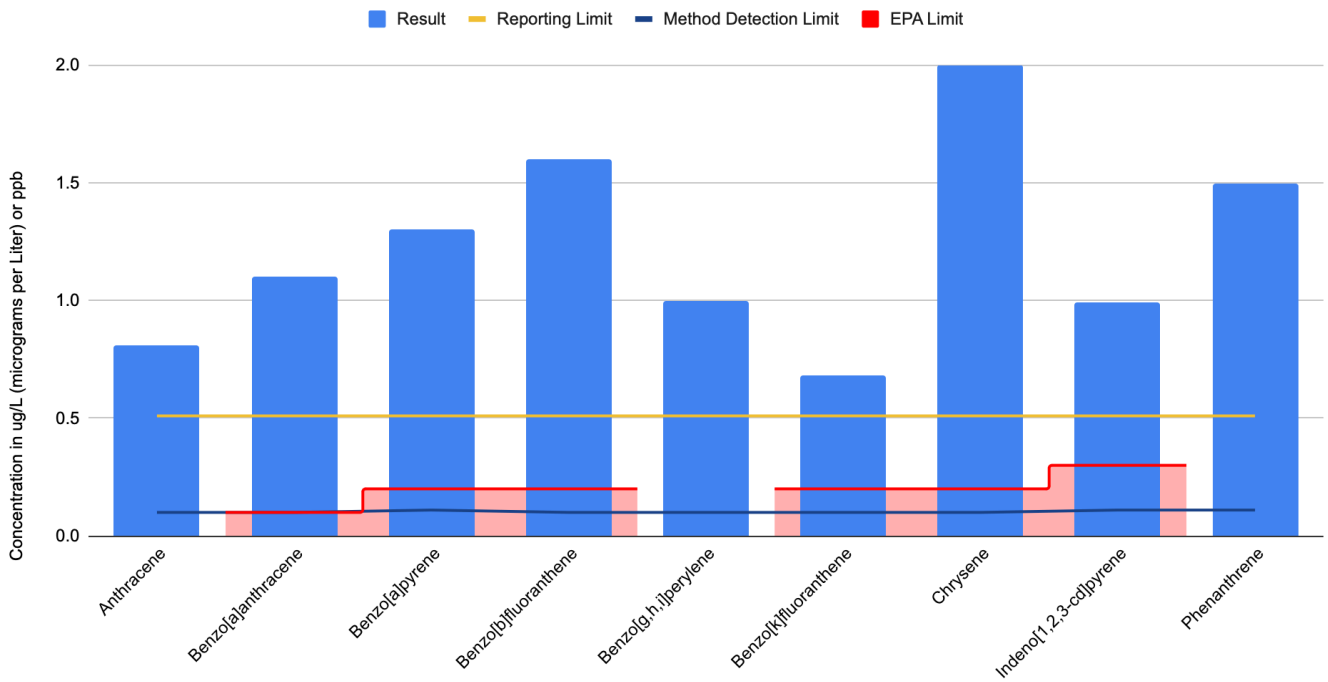


Figure 1b

Polycyclic Aromatic Hydrocarbons (PAHs) in a Driveway Stormwater Sample

Sealcoating Applied: 19 July 2023; Stormwater Sampled: 21 Oct 2023 from Gov. Sawyer Lane, Dover, NH

