Department of Ecology EIM Environmental Information Management

EIM Help – Entering Petroleum Hydrocarbon Data

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How Do I Report Petroleum Hydrocarbon (TPH) Sample Results to EIM?

There are many analytical methods used to quantify soil, sediment, and groundwater petroleum concentrations. This document discusses the most common and has tips on reporting your results.

- **WTPH Methods -** Data generated under Washington's older suite of petroleum hydrocarbon methods, WTPH, **will not be accepted** unless it was generated prior to June 1997. Labs are no longer accredited for these methods.

- **NWTPH-HCID, NWTPH-Gx, NWTPH-Dx, NWVPH, and NWEPH -** In many cases your lab will use Washington's petroleum hydrocarbon analytical methods per Ecology Publication ECY 97-602, Analytical Methods for Petroleum Hydrocarbons, June 1997. Please see this publication to determine when each method is most appropriate.

- **HCID –** You don't need to submit Hydrocarbon Identification (HCID) data to EIM *unless they are the ONLY results for your site or an area on your site***. HCID is not quantitative**. It is a qualitative test used to identify the type of hydrocarbon present (e.g. gasoline, diesel, etc.). **Most common method = NWTPH-HCID.**

- **Hydrocarbon Ranges –** when you can't identify specific product(s), use the following terms. See the crosswalk for translating old terms to new terms (Table 1).

    - **"Gasoline Range Organics" (GRO)**: Indicates the presence of unresolved compounds eluting from toluene to dodecane (~C7->C12). **Most common method = NWTPH-Gx.** Note – the EIM parameters "Gasoline," Naphtha," and "Mineral Spirits" are for a specific compounds with specific chromatograms – not a range of compounds.

    - **"Diesel Range Organics" (DRO)**: Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24). **Most common method = NWTPH-Dx**. Note – the EIM parameters "Diesel Fuel" (#1 Diesel), "#2 Diesel," "Fuel oil, no. 2," and "Kerosene" are for specific compounds with specific chromatograms – not a range of compounds.

    - **"Lube Oil" (synonyms "Residual Range Organics" or "RRO")**: Indicates the presence of unresolved compounds eluting beyond tetracosane (>C24). Includes motor oils, hydraulic fluids, and power steering fluid when they can't be positively identified. **Most common method = NWTPH-Dx.** Note – the EIM parameters "Electrical Insulating Oil" (Transformer Oil)," "Paraffin Oils" (Mineral Oil) and "Motor Oil" are for specific compounds with specific chromatograms – not a range of compounds.

    - **"Heavy Fuel Oil"**: Indicates the presence of unresolved compounds in both the diesel and lube oil+ ranges. Includes Bunker C. "Heavy fuel oil" should not be confused with mixtures of #2 diesel and motor oils. **Most common method = NWTPH-Dx**.

Table 1: Hydrocarbon Ranges – Parameter Crosswalk

If you were using this	Use this now
Diesel Range Organics	Diesel Range Organics
TPH-GC/Diesel	
Gasoline Range Organics	Gasoline Range Organics
TPH-GC/Gasoline	
Lube Oil	Lube Oil or Residual Range Organics
Oil Range Organics	
TPH-GC/Lubeoil	
Motor Oil (unless it's for the specific product)	

- **NWVPH - Volatile Petroleum Hydrocarbon (VPH) method**: Use this method for gasoline (aromatic hydrocarbon ranges that correspond to a boiling point range of ~36-220°C), naphtha, mineral spirits and other similar light petroleum products. Your lab should report results for a series of equivalent carbon (EC) fractions (4 aliphatic and 3 aromatic). When you submit your data to EIM, use only the EC fractions provided in the method (Table 2). If your lab did not report in this format, please ask them to follow the method and report results accordingly.

Table 2: VPH Method EC Fractions/EIM Names

Aliphatics	Volatile Petroleum Hydrocarbons, C5-C6 Aliphatics Volatile Petroleum Hydrocarbons, >C6-C8 Aliphatics Volatile Petroleum Hydrocarbons, >C8-C10 Aliphatics Volatile Petroleum Hydrocarbons, >C10-C12 Aliphatics
Aromatics	Volatile Petroleum Hydrocarbons, >C8-C10 Aromatics Volatile Petroleum Hydrocarbons, >C10-C12 Aromatics Volatile Petroleum Hydrocarbons, >C12-C13 Aromatics

- **NWEPH - Extractable Petroleum Hydrocarbons (EPH):** Use this method for kerosene, jet fuels, diesel fuel and heavy oil (Aliphatic and aromatic hydrocarbon ranges correspond to a boiling point range between approximately 150-500°C) and heavy fuel oils. Your lab should report results for a series of equivalent carbon (EC) fractions (5 aliphatic and 5 aromatic). When you submit your data to EIM, use only the EC fractions provided in the method (Table 3). If your lab did not report in this format, please ask them to follow the method and report results accordingly.

Table 3: EPH Method EC Fractions/EIM Names

Aliphatics	Extractable Petroleum Hydrocarbons, C8-C10 Aliphatics Extractable Petroleum Hydrocarbons, >C10-C12 Aliphatics Extractable Petroleum Hydrocarbons, >C12-C16 Aliphatics Extractable Petroleum Hydrocarbons, >C16-C21 Aliphatics Extractable Petroleum Hydrocarbons, >C21-C34 Aliphatics
Aromatics	Extractable Petroleum Hydrocarbons, C8-C10 Aromatics Extractable Petroleum Hydrocarbons, >C10-C12 Aromatics Extractable Petroleum Hydrocarbons, >C12-C16 Aromatics Extractable Petroleum Hydrocarbons, >C16-C21 Aromatics Extractable Petroleum Hydrocarbons, >C21-C34 Aromatics

Revision History

Revision Date	Revision No.	Summary of Changes	Reviser(s)
9/26/08	1.0	Original Document	CN
8/1/13	1.1	Added Residual Range Organics and RRO as synonyms to Lube Oil	CN