



TRH/BTEXN, F1 & F2 to meet the 2013 NEPM

INTRODUCTION

TPH had been reported in Australia for many years in four fractions i.e. C6 - C9 (Volatiles fraction) and C10 - C14, C15 - C28 and C29 - C36 (Semi-Volatiles).

The long awaited draft revision of the NEPM was released for public comment on 24th September 2010 with one of the most significant changes being the inclusion of HILs for petroleum hydrocarbons. The rationale behind the development of the fractions is outlined within Schedule B1, section 2.4.5. This in effect allocates HILs on the basis of a combined aliphatic and aromatic fraction (assuming the constitution of fresh, unweathered petrol and/or diesel). HILs are expressed for the Volatile fraction C6 - C10, and the Semi-Volatile fractions >C10 - C16, >C16 - C34 and >C34.

With the release of the new NEPM in May 2013 this update seeks to communicate future reporting from ALS.

TPH vs. TRH TERMINOLOGY

For TRH, there is no change in extraction methods. TRH simply better reflects what has previously been listed in guidelines and reported as TPH. ALS will continue to apply the terminology "TPH" to the legacy and "TRH" to the new/current fractions in order to maintain continuity with historical data and Electronic Data Deliverables (EDDs).

F1 and F2

The 2013 NEPM guideline value for the 'C6 - C10 fraction minus BTEX' is now termed "F1". ALS has reported 'F1' as a routine parameter along with TRH/C6 - C10/BTEX from April 2011.

The first semi-volatile guideline fraction, '>C10 - C16 minus Naphthalene' is now termed "F2". To facilitate the application of guideline levels for F2, ALS will automatically report Naphthalene as part the volatile TRH C6 - C10/BTEXN suite and utilise the volatile Naphthalene data to calculate and report F2. For guidance on the science behind the decision to use the Naphthalene from the volatile fraction please refer to ALS EnviroMail 68.

REPORTING and PLANNING

ALS recognised the challenges for industry of transitioning historical data. In consultation with key industry clients, ALS made the decision to report both the old "TPH/BTEX" and new 'TRH/BTEXN' fractions for both soils and waters in April 2011. From July 2013, ALS reporting will also include F2 and reference the new NEPM.

This will allow industry to match historical data (especially for ground water) and assess whether any variance in data is due to changes in fraction reporting or a real change in sample results. This dual reporting will continue for a period of time as some current waste classifications require the 'legacy' fractions. **This dual reporting will facilitate site assessment results to be used for waste classification thereby avoiding additional costs.**

ALS codes, analytes and LORs are summarized below with the legacy ten TPH/BTEX parameters shaded in yellow and the newer reported ten TRH/BTEXN reported parameters shaded in green. All 20 parameters will be reported as default by ALS from July 2013.

	Waters LOR		Soils LOR	
EP080/071: Total Petroleum Hydrocarbons				
C6 - C9 Fraction	20	µg/L	10	mg/kg
C10 - C14 Fraction	50	µg/L	50	mg/kg
C15 - C28 Fraction	100	µg/L	100	mg/kg
C29 - C36 Fraction	50	µg/L	100	mg/kg
C10 - C36 Fraction ^A	50	µg/L	50	mg/kg
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013				
C6 - C10 Fraction	20	µg/L	10	mg/kg
C6 - C10 Fraction minus BTEX (F1) [*]	20	µg/L	10	mg/kg
>C10 - C16 Fraction	100	µg/L	50	mg/kg
>C10 - C16 Fraction minus Naphthalene (ex. VOC) (F2) [*]	100	µg/L	50	mg/kg
>C16 - C34 Fraction	100	µg/L	100	mg/kg
>C34 - C40 Fraction	100	µg/L	100	mg/kg
>C10 - C40 Fraction ^A	100	µg/L	50	mg/kg
EP080: BTEXN				
Benzene	1	µg/L	0.2	mg/kg
Toluene	2	µg/L	0.5	mg/kg
Ethylbenzene	2	µg/L	0.5	mg/kg
meta- & para-Xylene	2	µg/L	0.5	mg/kg
ortho-Xylene	2	µg/L	0.5	mg/kg
Sum of BTEX ^A	2	µg/L	0.2	mg/kg
Total Xylenes ^A	2	µg/L	0.5	mg/kg
Naphthalene	5	µg/L	1	mg/kg

^A = Calculated as the sum of individual analytes reported at or above the LOR.
^{*} F1 is calculated as the difference between the C6 - C10 fraction and Sum of BTEX.
^{*} F2 is calculated as the difference between the C10 - C16 and Naphthalene.

RIGHT SOLUTIONS RIGHT PARTNER

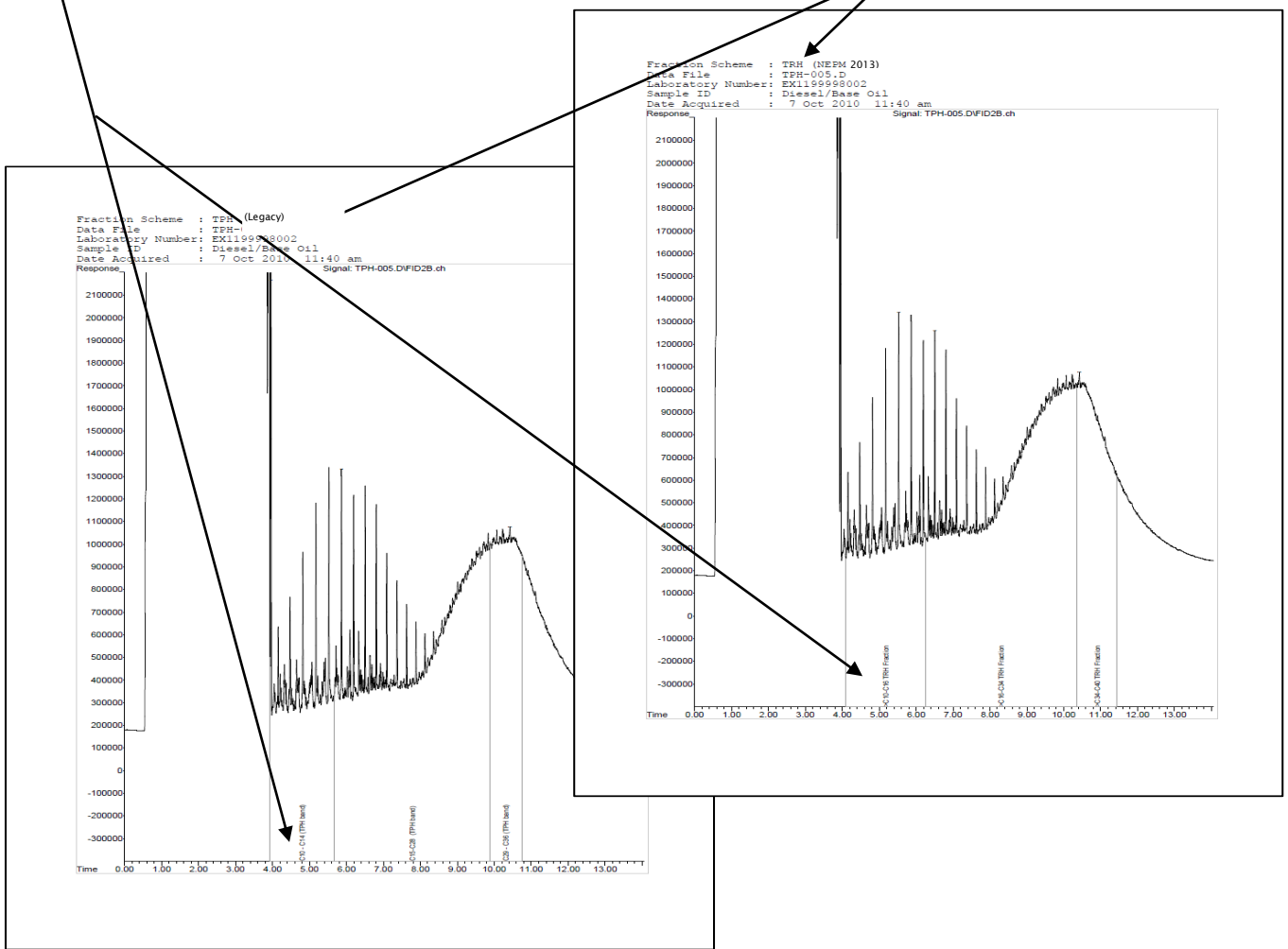
DEFINITIONS FOR TRH FRACTIONS AND ACCREDITATION

Old fractions, e.g. C6 - C9 and C10 - C14 were discontinuous and this did lead to some inconsistencies in the definition of boundaries by different laboratories. The new fractions e.g. C6 - C10 and >C10 - C16 are continuous and unambiguously defined. In this case, the first fractions would include all compounds falling in a boiling point range between n-hexane and n-decane, including hexane and decane and the second fraction would include all compounds with a boiling point greater than that of n-decane but including that of n-hexadecane.

ALS completed the necessary NATA submissions and provided fully accredited reporting of the new fractions in 2011.

CHROMATOGRAMS

ALS provides (upon request) a PDF Chromatogram of the Semi-Volatile TPH and/or TRH. Where data has been acquired for the legacy 'TPH' and new 'TRH' fractions, separate chromatograms will be supplied and will be labelled 'TRH (NEPM 2013)'. This will be listed in the top row of the chromatogram page header (see arrows below). Exact fractions will be labelled as indicated.



SAMPLING, PRESERVATION AND SUITES

ALS TPH/TRH/BTEXN sampling bottles and preservation remain unchanged. All major suites will automatically be updated to include the additional compounds.

REFERENCES

[1] "Schedule B1: Guideline on the Investigation Levels for Soil and Groundwater" of the OPC50357-B / F2013L00768, National Environment Protection Council.

RIGHT SOLUTIONS RIGHT PARTNER

Brisbane - Adelaide - Bendigo - Canberra - Geelong - Gladstone - Melbourne (Scoresby) - Melbourne (Springvale) - Mudgee - Newcastle - Nowra - Perth - Wollongong - Sydney - Townsville - Traralgon - Wangaratta

www.alsglobal.com