

Rating Guide Appendix for the

# **CCME Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method**

(Note: Checklist incorporates requirements from Dec 2000 version + Addendum 1)

(CCME CWS PHC)

**Laboratory Name**

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**Assessor**

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**Date**

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\* NOTE: for assessment of Petroleum Hydrocarbons (PHC) in soil by CCME only; for analysis of PHC in soil by other reference methods or PHC in water, please use A03-Appendix to the CALA Rating Guide.

## TEST SPECIFIC CHECKLIST FOR CCME PETROLEUM HYDROCARBONS

Item	Clause	Requirement	1 2 3 Comments	1 2 3 Comments	1 2 3 Comments NA = not applicable
			(F1) C6 - C10 Hydrocarbons	(F2-F4) C10 - C50 Hydrocarbons	(F4G) Gravimetric Heavy Hydrocarbons and % Moisture
<b>01.01</b>		<b>TEST METHOD CURRENCY</b>			
	4.3	Verify that the current authorized test method and necessary supporting work instructions are available to the analyst.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>02.01</b>		<b>TEST METHOD VALIDATION</b>			
	5.4	Validation data exists for the method as implemented in the lab under assessment against the CCME PHC benchmark method.  NOTE: for records of method validation cite B.03.09 in A02.	benchmark CCME PHC method is purge and trap GC/FID  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> implemented method comparable within 20% of CCME PHC method  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> accuracy assessed by acceptable recoveries from samples validated by the CCME method	benchmark CCME PHC method is 16-24 hour soxhlet extraction, rotovap, silica gel, GC/FID  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> implemented method comparable within 20% of CCME PHC method  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> accuracy assessed by acceptable recoveries from samples validated by the CCME method	benchmark CCME PHC method is 16-24 hour soxhlet extraction, rotovap, gravimetric (% moisture is gravimetric to constant weight)  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> implemented method comparable within 20% of CCME PHC method  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> accuracy assessed by acceptable recoveries from samples validated by the CCME method
	5.4	MDL is done on 7 or more replicates at the 99% CI	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> MDL for F1 - C6 to C10 is less than 12 mg/kg using soil spiked with gasoline at 50 to 200 mg/kg or 20% of Tier 1 guidelines, whichever is higher.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> MDL for F2 - C10 to C16 and F3 C16 to C34 done with weathered diesel spiked soil at 20 to 100 mg/kg and is less than 3.9 and 9.0 mg/kg. F4 C34 to C50 is done with SAE	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> MDL for F4 - gravimetric heavy hydrocarbons done using soil spiked with 30 weight motor oil at 2,000 to 10,000 mg/kg.  MDL includes silica gel cleanup

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			(F1) C6 - C10 Hydrocarbons	(F2-F4) C10 - C50 Hydrocarbons	(F4G) Gravimetric Heavy Hydrocarbons and % Moisture
				30 motor oil and is less than 8 mg/kg or 20% Of Tier 1 guidelines, whichever is higher.	and is less than 290 mg/kg or 20% of Tier 1 guidelines, whichever is higher.
	5.4	precision at levels greater than 10 times MDL meets:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> C6 to C10 hydrocarbons 30%	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> C10 to C50 hydrocarbons 20%	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> GHH 30%
<b>03.01</b>		<b>TEST METHOD CONTENT- TEST PROCEDURE</b>			
	4.2.1 5.4.1	Verify that all necessary successive steps in the test procedure (including details on reagent preparation, storage and shelf life) are adequately documented in the test method.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> method is based on CCME PHC Tier 1 Method including 100% poly(dimethylsiloxane) low bleed column using GC/FID  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> methanol extraction is done (minimum 2:1 methanol: wet solid)  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> samples are diluted to be less than highest calibration peak  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> integration is from the beginning of the nC6 peak to the apex of the nC10 peak	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> method is based on CCME PHC Tier 1 Method including 100% poly(dimethylsiloxane) low bleed column using GC/FID  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> samples are diluted to be less than highest calibration peak  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> chromatogram is inspected for return to baseline before C50; if it does not, then GHH required  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> all samples are cleaned with 0.6 grams per gram dry sample 100% activated 60-200 mesh silica gel	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> method is based on CCME PHC Tier 1 Method  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> if GHH result without silica gel is less than 50% of CWS PHC criteria then report - if higher, then must do silica gel procedure  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> if polar/nonpolar separation is required, sample is redissolved in 50:50 Hexane:DCM  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> sample is shaken with 0.6 grams per gram dry sample of 100% activated 60 - 200 mesh silica gel for at least 5 minutes one time only

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			(F1) C6 - C10 Hydrocarbons	(F2-F4) C10 - C50 Hydrocarbons	(F4G) Gravimetric Heavy Hydrocarbons and % Moisture
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> methanol extraction is done within 48 hours of arrival at lab and analyzed within 40 days	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> toluene is added before evaporation, evaporation avoids nC10 loss  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> integration is from apex to apex for C10-C16, C16-C34 and C34-C50  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> extracted within 14 days and analyzed within 40 days	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> was high temperature GC done  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> GHH is not added to GC data  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> GHH is dried at 100°C - 110°C to constant weight  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> % moisture is dried at 100°C - 110°C overnight or to constant weight
<b>04.01</b>		<b>TEST METHOD CONTENT-SAMPLE HISTORY</b>			
	5.7	Ensure sample history requirements are adequate and either included or referenced in the test method.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> samples are stored at 4°C, no headspace or preservation  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> sample is not dried with Na <sub>2</sub> SO <sub>4</sub>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> sample label is complete	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> samples are stored at 4°C, no headspace or preservation  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> sample is dried with Na <sub>2</sub> SO <sub>4</sub>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> sample label is complete	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> samples are stored at 4°C, no headspace or preservation  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> sample is not dried with Na <sub>2</sub> SO <sub>4</sub>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> sample label is complete

Item	Clause	Requirement	1 2 3 Comments	1 2 3 Comments	1 2 3 Comments NA = not applicable
			(F1) C6 - C10 Hydrocarbons	(F2-F4) C10 - C50 Hydrocarbons	(F4G) Gravimetric Heavy Hydrocarbons and % Moisture
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> chain of custody  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> BTEX is sampled from the same bottle, if required  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> separate 5g samples are taken	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> chain of custody  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> PAH and GHH are sampled from the same bottle, if required  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> separate 5g samples are taken	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> chain of custody  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> PAH, % moisture and C10-C50 are sampled from the same bottle, if required  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> separate 5g samples are taken for both GHH and % moisture
04.02		TEST METHOD CONTENT-TEST ORGANISM HISTORY	NA	NA	NA
05.01		TEST METHOD CONTENT-METHOD CALIBRATION			
	5.4.5 5.6.2.2 5.6.3	Verify that method calibration is adequate and either included or referenced in the test method including;	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> calibrate with toluene nC6 and nC10 in methanol  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> nC6 and nC10 response factors are within 30% of toluene  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> nC6 separates from solvent peak	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> calibrate with C10, C16 and C34 in toluene with separate nC50 as RT marker, not for quantitation  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> nC10 separates from solvent peak  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> calibrate using average response factor for C10, C16 and C34, response factors for C10, C16 and C34 within 30% of their average and 10% of each other.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> balance is calibrated regularly

Item	Clause	Requirement	1 2 3 Comments	1 2 3 Comments	1 2 3 Comments NA = not applicable
			(F1) C6 - C10 Hydrocarbons	(F2-F4) C10 - C50 Hydrocarbons	(F4G) Gravimetric Heavy Hydrocarbons and % Moisture
			<p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> appropriate petroleum product is used as 2<sup>nd</sup> standard</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> chromatographic linearity demonstrated with products within 15% and single compounds within 10%.</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 3 point cal curve plus a blank</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> check daily and recalibrate if low standard deviates by more than 20% or midpoint standard deviates by more than 15% from the curve</p>	<p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> nC50 response factor must be no less than 70 % of average of C10, C16 and C34 response factors.</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> appropriate petroleum product is used as 2<sup>nd</sup> standard</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> linearity is demonstrated with products within 15% and single compounds within 10%</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 3 point cal curve plus a blank</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> check daily and recalibrate if low standard deviates by more than 20% or midpoint standard deviates by more than 15% from the curve</p>	

Item	Clause	Requirement	1 2 3 Comments	1 2 3 Comments	1 2 3 Comments NA = not applicable
<b>06.01</b>		<b>TEST METHOD CONTENT - METHOD QUALITY CONTROL</b>			
	5.9	Verify that method quality control is adequate and either included or referenced in the test method	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> QC samples run with each 20 samples include <ul style="list-style-type: none"> <li>• method blank</li> <li>• method duplicate</li> <li>• performance sample (clean soils spiked with petroleum product or CWS PHC reference sample) that must be recovered within 20%</li> </ul> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> suitable petroleum products are used as QC samples	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> QC samples run with each 20 samples include <ul style="list-style-type: none"> <li>• method blank</li> <li>• method duplicate</li> <li>• performance samples are clean soils spiked with petroleum product or reference sample that must be recovered within 20%</li> </ul> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> suitable petroleum products are used as QC samples	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> QC samples run with each 20 samples include <ul style="list-style-type: none"> <li>• method blank</li> <li>• method duplicate</li> <li>• performance samples are clean soils spiked with petroleum product or reference sample that must be recovered within 20%</li> </ul> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> suitable petroleum products are used as QC samples
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> identification of measurement uncertainty	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> identification of measurement uncertainty	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> identification of measurement uncertainty
<b>07.01</b>		<b>OTHER WORK INSTRUCTIONS/PROCEDURES</b>			
	5.4.1	Verify that all necessary supporting work instructions are either included or referenced in the test method; e.g., <ul style="list-style-type: none"> <li>• glassware cleaning procedures</li> <li>• supporting test methods</li> <li>• equipment instruction manuals</li> <li>• requisite reference texts</li> <li>• computer software related procedures</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Item	Clause	Requirement	1 2 3 Comments	1 2 3 Comments	1 2 3 Comments NA = not applicable
<b>08.01</b>		<b>CONDUCT OF TESTING</b>			
	5.4.1 4.2.1	Verify that the test procedure and all supporting work instructions are performed as documented	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>09.01</b>		<b>EQUIPMENT</b>			
	5.5.1 5.5.2 5.5.4 5.5.12	Verify that all instruments required for the test procedure are available, uniquely identified, functioning properly, and safeguarded from adjustments that would invalidate results.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>09.02</b>		<b>SUPPORT EQUIPMENT</b>			
	5.5.1	Verify that all equipment* required for the test procedure is available and functioning properly.  *includes computer	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>09.03</b>		<b>OUT OF SERVICE EQUIPMENT</b>			
	5.5.7 5.5.9	Verify that out of service equipment is isolated or clearly labeled or marked as being out of service, and that equipment is checked and validated before return to service.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Item	Clause	Requirement	1 2 3 Comments	1 2 3 Comments	1 2 3 Comments NA = not applicable
<b>09.04</b>		<b>EQUIPMENT REQUIRING CALIBRATION</b>			
	<b>5.5.8</b>	<p>Verify that all equipment requiring calibration is labeled to indicate calibration status, including the date last calibrated and expiry date, or date when recalibration is due.*</p> <p>* not required for equipment checked daily or as-used</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>10.01</b>		<b>SUPPLIES - AVAILABILITY</b>			
	<b>4.6.2</b> <b>5.5.1</b>	<p>Verify that all supplies required for the test procedure are available and meet requisite requirements and/or specifications.*</p> <p>*includes reagents, reference materials, silica gel</p> <p>NB: for records of reference standard/material certificates, cite B.05.03 in A02.</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>10.02</b>		<b>SUPPLIES - STORAGE</b>			
	<b>5.3</b>	<p>Verify that all supplies are stored under appropriate conditions (e.g., 1-4°C) and in a manner that satisfies requirements for safety, security, separation of incompatible materials and ease of retrieval.</p> <p>NOTE: for records of storage temperatures, cite B.02.03 in A02.</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Item	Clause	Requirement	1 2 3 Comments	1 2 3 Comments	1 2 3 Comments NA = not applicable
<b>10.03</b>		<b>SUPPLIES - LABELING</b>			
	4.13.2	Verify that all reagents and media are labeled with material, concentration or purity, date prepared and/or expiry date.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>10.04</b>		<b>SUPPLIES - TEST ORGANISM I.D.</b>	NA	NA	NA
<b>10.05</b>		<b>SUPPLIES - LABWARE</b>			
	5.5.1	Verify that all labware is adequately cleaned and, where required, labware quality control includes analytical testing, e.g., <ul style="list-style-type: none"> <li>• glassware rinsed with hexane and air-dried</li> <li>• glassware blank run with every set of samples.</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>11.01</b>		<b>RECORD KEEPING</b>			
	4.13.2 4.9 4.13.2 5.5.5 5.6	Maintain records related to the performance of the test method; e.g., <ul style="list-style-type: none"> <li>• analyst worksheet or notebook (1)</li> <li>• record of non-conformances and action taken (2)</li> <li>• reagent preparation log (3)</li> <li>• equipment maintenance log (4)</li> <li>• record of gravimetric traceability (5)</li> <li>• record of volumetric traceability (6)</li> <li>• record of temperature traceability (7)</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Item	Clause	Requirement	1 2 3 Comments	1 2 3 Comments	1 2 3 Comments NA = not applicable
12.01		REPORTING			
	5.10	See checklist on page 12	See checklist on page 12	See checklist on page 12	See checklist on page 12

- (1) includes, as appropriate, calibration data, test date (including QC data), experimental variables (e.g. temperature, etc.); analyst ID; sample ID; equipment ID; test organism lot no, test method ID; date and time of test.
- (2) includes, as appropriate, nonconformances related to: test method variances; sample history; method performance; interferences; and data validation.
- (3) includes, as appropriate, supplier, grade, batch no; dates of preparation or verification; measurement of weights, volumes, time intervals, temperatures and related calculations; relevant processes (e.g., pH adjustment, sterilization); verification results; discard date.
- (4) includes, as appropriate, identity of the equipment and it's software; manufacturer, model, serial no, checks that equipment complies with laboratory specifications; date commissioned; repair and maintenance history; calibration history; location; any damage, malfunction or modification to the equipment.
- (5) includes, as appropriate, traceability of balance and/or weights to a national standard; daily or as-used checks (See A61-Traceability Policy).
- (6) includes, as appropriate, traceability of auto pipettes, dilutors, etc. that play a defining role in analytical accuracy, and daily or as-used checks (see A-61-Traceability Policy).
- (7) includes, as appropriate, calibration of working thermometers against a calibrated thermometer for those working thermometers that measure temperatures that play a defining role in analytical accuracy (see A61- Traceability Policy).

## CCME PETROLEUM HYDROCARBON REPORTING CHECKLIST

1 2 3

### Header information to identify the laboratory and the sample

Name and address of laboratory

Name and address of client

Report number

Identification of test sample

Description of test sample

Identification of test method

Dates of sampling and reporting

### Hydrocarbon results expressed on a dry weight basis

F1 C6 to C10 hydrocarbons in mg/kg, F1-BTEX after BTEX is subtracted

F2 C10 to C16 hydrocarbons in mg/kg, F2-naphth after naphthalene is subtracted

F3 C16 to C34 hydrocarbons in mg/kg, F3-PAH after PAHS are subtracted

F4 C34 to C50 hydrocarbons in mg/kg

F4G by gravimetric heavy hydrocarbons in mg/kg, if analyzed: (Note that both of the two results for F4 and F4G are reported for F4 and a statement added to the report to effect that the greater of the two numbers are to be used in application to the CWS PHC

F4G<sub>-sg</sub>, if analyzed, is the result of gravimetric heavy hydrocarbons after silica gel treatment in mg/kg

% moisture

Total Organic Carbon, if requested

Method detection limits

Validator signature

A note stating that gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons

A note stating that BTEX and selected PAHs have been subtracted from the appropriate fractions

### Comments that are clearly separated from the results of analysis:

A statement that the method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory

All deviations from the method required are to be noted and reported for any particular sample

Qualifications on results

Subcontractors used

Did the chromatogram descend to baseline by the retention time of nC50?

Were the quality criteria met?

1 2 3

nC6 and nC10 response factors within 30% of response factor for toluene:

nC10, nC16 and nC34 response factors within 10% of their average

C50 response factors within 70% of nC10 + nC16 + nC34 average

Linearity is within 15%

Statement that the data for QC samples is available on request or the data for QC samples:

Blank

Duplicate

Reference Sample

Spiked sample

Extraction and analysis limits for holding time were met (Y/N)

Professional judgement, if requested, of what the material is, based on information that is stated (product profiles, retention times, professional experience, etc.)