

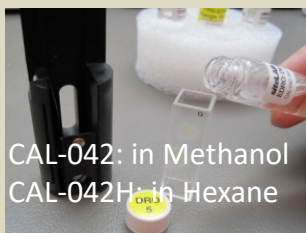
**Canada Crude Oil  
Soil & Water Sites**

The Canadian Council of Ministers of the Environment requires laboratories to use the CCME's Petroleum Hydrocarbon (PHC) Method, where GC-FID instrumentation is used to report VPH and EPH hydrocarbon fractions.

Sitelab's popular Extended Diesel Range Organics (EDRO) test typically detects hydrocarbons in the C10 to C36 carbon range, but the UVF will pick up heavier compounds up to C50. Results correlate well to the Canadian lab method when adding the EPH fractions together.



EXTR010-20:  
Sample Extraction Kits



CAL-042: in Methanol  
CAL-042H: in Hexane

Soil and water samples are prepared in solvent using disposable test kits. Methanol is used for soil applications. Hexane is used for crude oil in water applications. Sitelab's EDRO calibration kits are available in either solvent.

### Heavy Crude Oil in Soil at Landfill Disposal Site, Alberta Concentrations in ppm units (mg/Kg)

Lab GC Hydrocarbon Fractions	F2 EPH			UVF-3100 EDRO Results	C10-C34 F2+F3 Fractions	C10-C50 F2+F3+F4 Fractions
	C10-C16	C16-C34	C34-C50			
Soil 1	153	2,280	1,320	2,500	2,433	3,753
Soil 2	236	2,640	1,270	2,900	2,876	4,146
Soil 3	303	3,560	1,400	3,750	3,863	5,263



UVF Results Closer

EDRO CAL-042 was used for UVF analysis. Methanol works well for testing soils, but can be weak at extracting the F4 fraction.

### Bitumen in Produced Water at Groundwater Treatment Site, Kearl Oil Sands, Alberta Concentrations in ppb units (ug/L)

Lab GC Hydrocarbon Fractions	F2 EPH			UVF-3100 EDRO Results	C10-C34 F2+F3 Fractions	C10-C50 F2+F3+F4 Fractions
	C10-C16	C16-C34	C34-C50			
Water 1	102	1,370	492	1,733	1,472	1,964
Water 2	137	2,150	904	3,250	2,287	3,191
Water 3	532	5,540	1,610	10,000	6,072	7,682



UVF Results Closer

### SAGD Plants, Ft McMurray

Produced water samples prepared using bitumen collected from four active sites. EDRO concentrations ranged from 12 to 15 ppm. The oils have similar response.

EDRO CAL-042H was used for UVF analysis. Hexane is a powerful solvent and works well extracting water with oil as heavy as bitumen.