

Results of hydrocarbon analysis for intertidal composite shallow sand samples collected on 27 September 2010.

Sample location	Sample ID	Matrix	Limit of Detection PPM	Result PPM*
Escambia County				
River Road, Perdido Key	09272010-05	Sand	0.190	ND
Fort Pickens, Santa Rosa Island	09272010-01	Sand	0.190	ND
Pensacola Pier, Santa Rosa Island	09272010-02	Sand	0.190	ND
UWF Property, Santa Rosa Island	09272010-03	Sand	0.190	ND
Santa Rosa County				
Navarre Pier, Santa Rosa Island	09272010-04	Sand	0.190	ND

*ND = Not-Detected above the detection limit. See method summary below for details.

Methodology Summary for the Assessment of Crude Oil in Sand

This method is intended to detect low concentrations of crude oil in sand in the mid ppb to mid ppm using alkanes as indicator molecules. If contamination is found, the same extract can be further processed to quantify trace contaminants such as polynuclear aromatics (PNAs, PAHs). Due to weathering, the alkane profile will consist of longer hydrocarbon chains beginning with C-11, peaking around C-16 and continues to C-30. An internal standard is included in all samples (C-22). This is also included in the two reference spikes for every 10 samples that are part of the quantification of the samples.

The method spikes are used to calculate a response factor.

Formula one for the spikes for Response Factor is calculated by:

(Quantity of oil in spike) x (area of spike's internal standard)/ area of select alkane

Formula two for the sand sample for total amount of oil in sand sample is calculated by:

(Response factor) x (area of select alkane)/ (area of internal standard).

ppm of crude oil in sand

Total weight of oil/ weight of sand sample

Sand samples of 50 grams are extracted three times with methylene chloride. A water bath at 38 C is used to dry the sample down to 1 ml with n-octane being used as the keeper. The analysis is performed by Gas Chromatography with Flame Ionization Detection (GC-FID). Every ten samples will include a sediment blank, a replicate and two spiked samples. Spiked samples receive a 2-butanone solution of evaporated crude oil also containing the internal standards.