

Petroleum Hydrocarbons Analysis from the Gulf Coast Oil Spill

Concentrations in ppm (mg/Kg or mg/L) All samples extracted in hexane solvent	UVF-3100D Analyzer				TD-500D Analyzer		*Ratios exhibited for hydrocarbon identification		
	Test 1 GRO (BTEX)	Test 2 Diesel Range	Test 3 Total PAHs	Test 4 Target PAHs	Test 5 Heavy PAHs	Test 6 TPH-Oil	Total PAHs ÷ GRO (BTEX)	Total PAHs ÷ Target PAHs	Total PAHs ÷ Heavy PAHs
Tar balls mixed with sand collected from shore									
Dauphin Island, Alabama: June 6, 2010	1,800	34,000	8,600	740	2,600	360,000	4.8	12	3.3
Ocean Beach, Alabama: July 19, 2010	2,500	23,000	5,800	550	1,600	300,000	2.3	11	3.6
Perdido Key, Florida: April 15, 2011	14,800	125,000	32,000	2,200	6,000	900,000	2.2	15	5.3
Perdido Key, Florida: April 15, 2011	1,000	22,500	6,000	500	1,650	250,000	6.0	12	3.6
Clean beach sands from Perdido Key, FL: April 15, 2011									
Dry Beach Sand: 0"-6"	ND <1	ND <1	0.24	ND <0.1	0.15	23			1.6
Dry Beach Sand: 6"-12"	ND <1	ND <1	0.13	ND <0.1	0.56	88			0.2
Dry Beach Sand: 12"-18"	ND <1	ND <1	0.21	ND <0.1	0.24	37			0.9
Dry Beach Sand: 18"-24"	ND <1	ND <1	0.20	ND <0.1	0.20	31			1.0
Wet Beach Sand: 0"-6" Low Tide	ND <1	ND <1	0.13	ND <0.1	0.26	40			0.5
Wet Beach Sand: 6"-12" Low Tide	ND <1	ND <1	0.16	ND <0.1	0.50	77			0.3
Wet Beach Sand: 12"-18" Low Tide	ND <1	ND <1	0.20	ND <0.1	0.43	68			0.5
Wet Beach Sand: 18"-24" Low Tide	ND <1	ND <1	0.11	ND <0.1	0.32	50			0.3
False Tar Ball: Organic matter or drift wood	ND <1	21	5.9	1.3	11	1,540			0.5
Contaminated beach sand from Grand Isle, MS: Sept 7, 2011									
Beach Sand Sample 1	ND <1	790	197	15	77	13,000		13	2.6
Beach Sand Sample 2	ND <1	370	91	7	39	7,000		13	2.3
Beach Sand Sample 3	ND <1	540	135	10	50	9,000		14	2.7
Clean water from Weeks Bay, AL: July 6, 2011									
Mouth of River to Mobile Bay	ND <1	ND <1	0.15	ND <0.1	0.04	5.5			3.8
Middle of Weeks Bay	ND <1	ND <1	0.11	ND <0.1	0.14	19			0.8
Weeks Bay at Fish River	ND <1	ND <1	0.10	ND <0.1	0.06	9			1.7
Clean marsh north of Dauphin Island, AL: June 6, 2011									
Sediment from tidal marsh	ND <1	26	6	ND <0.1	9	1,300			0.7
Surface water from tidal marsh	ND <1	ND <1	ND <0.1	ND <0.1	ND <0.1	ND <0.1			0.1
Cord Grass from tidal marsh	ND <1	1.3	0.33	ND <0.1	5.8	800			1.8
Mussels growing on floating debris	ND <1	9	2.2	ND <0.1	1.2	170			0.7
Foamy dispersant in mud/water	ND <1	59	15	ND <0.1	22	3,000			0.7

Sitelab Calibration Kit used for analysis: CAL-025 CAL-042 CAL-060 CAL-060 CAL-061 CAL-056

*Tests 1, 3, 4 and 5 are used for Sitelab's fingerprinting method, by comparing proportions of BTEX and PAH concentrations in TPH. Test 2 and Test 6 were performed for reporting TPH using the UVF-3100D and TD-500D models to match confirmatory lab methods.

Sitelab TD-500D is sensitive to natural organic interferences; when Heavy PAHs are close to or exceed Total PAH results.

PAH ratios are similar; GRO ratios vary due to weathering

Elevated Heavy PAHs indicate natural organics only (no oil)

Samples have PAH ratios similar to tar balls washed ashore.

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