

Oil Sample Analysis Report

U. S. EPA Region V (Chicago Office)

Case Number E11513

Marine Safety Laboratory

Case Number 11-181



U.S. Department of
Homeland Security

**United States
Coast Guard**



Manager
U.S. Coast Guard
Marine Safety Laboratory

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16450
21 Apr 2011

U. S. Environmental Protection Agency
Attn: On-Scene Coordinator
Region V
77West Jackson Blvd.
Chicago, IL 60604-

Dear On-Scene Coordinator:

The laboratory analysis of this case has been completed and our report is forwarded. The technical data supporting the report (spectrograms and chromatograms) have been archived at our facility and are available upon request. We will maintain the oil samples in refrigerated storage pending final case disposition.

Questions concerning this report or the analytical methods used should be directed to the Supervisor of Analysis, Kristy Juaire.


K. JUAIRE
By direction

Encl: (1) MSL Report 11-181

**United States Coast Guard
Marine Safety Laboratory
Oil Spill Identification Report
11-181**

Requestor: U. S. EPA Region V (Chicago Office)

Unit Case/Activity Number: E11513

Received: 04-Apr-11

Via: Federal Express 8736 4122 0457

Number Of Samples: 10

Lab NO. of Spills: 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10

Lab NO. of Suspects: n/a

Lab NO. of Background: n/a

Analysis Methods:

- ☒ GAS CHROMATOGRAPHY (GC)
- ☒ GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS)
- ☐ INFRARED SPECTROSCOPY (IR)

Laboratory's Conclusion (as explained below): INCONCLUSIVE

RESULTS:

1. Samples 11-181-1, 2, 5, 6, 8, 9 and 10 were specified to be representative of spilled oil. Analysis indicates these samples all contain an intermediate to heavy mixture of petroleum hydrocarbons. There is not a "typical" n-alkane profile, but volatile compounds are still present (i.e. naphthalenes), which indicates the samples are only slightly to moderately evaporatively weathered. The similarities observed between the biomarker compounds indicate samples 11-181-1, 2, 5, 6, 8, 9 and 10 are related to each other through a common source of petroleum oil. However, the significant non-weathering differences observed between the polycyclic aromatic hydrocarbons (PAHs) indicate it is not a single petroleum hydrocarbon mixture present in the environment.
2. Samples 11-181-3, 4 and 7 do not contain a quantity of petroleum oil sufficient for comparison purposes.

CONCLUSIONS:

1. Comparison of samples 11-181-1, 2, 5, 6, 8, 9 and 10 to each other is inconclusive. These samples are all related to each other through a common source of petroleum oil, as evidence by the biomarkers. However, each sample has a unique PAH fingerprint, which indicates they are not all from the same exclusive chemical source.
2. Samples 11-181-3, 4 and 7 do not contain a quantity of petroleum oil sufficient for comparison purposes based on the analysis conducted.

SUPERVISOR OF ANALYSIS

K. JUAIRE



DATE

21-Apr-11

**United States Coast Guard
Marine Safety Laboratory**

**Oil Spill Identification Analysis
Cost Recovery Documentation**

Laboratory Case Number: 11-181

Requestor: U. S. EPA Region V (Chicago Office)

Unit Case Number: E11513

Number of Samples: 12

Cost Per Sample Prepared: \$20.00

Total Costs of Sample Preparation: \$240.00

Number of Analysis: 23

Cost Per Sample Prepared: \$86.00

Total Costs for Analysis: \$1,978.00

TOTAL COSTS: \$2,218.00

This documentation is provided for purposes of Phase IV - Documentation and
Cost Recovery under the National Oil and Hazardous Substances Pollution
Contingency Plan (40 CFR Part 300)

Signature:



Date: 21 Apr 2011

**United States Coast Guard
Marine Safety Laboratory Sample
Check-In Log**

MSL Case/Activity Number: 11-181

Requestor: U. S. EPA Region V (Chicago Office)

Unit Case Number E11513

Federal Project Number: E11513

Delivery Method: Federal Express

Received Date: 04 Apr 11

Delivery Number: 8736 4122 0457

| Priority: | No | Rush: | No | Comparison | No | Spill | Source |
|------------|----|-------|----|-------------------|---------------|-------|--------|
| Lab Number | | | | | | | |
| 11-181 | | | | | | | |
| 1 | | | | CAD-SHN01-040111 | | ✓ | |
| | | | | | 04/01/11 0940 | | |
| 2 | | | | CAD-SHN02-040111 | | ✓ | |
| | | | | | 04/01/11 0948 | | |
| 3 | | | | CAD-SHN03-040111 | | ✓ | |
| | | | | | 04/01/11 1010 | | |
| 4 | | | | CAD-SHN04-040111 | | ✓ | |
| | | | | | 04/01/11 1023 | | |
| 5 | | | | CAD-SHN05-040111 | | ✓ | |
| | | | | | 04/01/11 1033 | | |
| 6 | | | | CAD-SHN06-040111 | | ✓ | |
| | | | | | 04/01/11 1042 | | |
| 7 | | | | CAD-SHN07-040111 | | ✓ | |
| | | | | | 04/01/11 1100 | | |
| 8 | | | | CAD-SOIL02-040111 | | ✓ | |
| | | | | | 04/01/11 0948 | | |
| 9 | | | | CAD-SOIL05-040111 | | ✓ | |
| | | | | | 04/01/11 1033 | | |
| 10 | | | | CAD-SOIL06-040111 | | ✓ | |
| | | | | | 04/01/11 1042 | | |

Remarks: Spill/Source designations taken from CoC.

Samples checked in by:


MST3 MICHELLE KOSMO

Date: 04 Apr 11

Sample Custodian:

MST2 JOHN AGAPITO

Date: 05 APR 11

Supervisor of Analysis:

K. JUAIRE

Date: 01 Apr 11