

THE PAHs DISTRIBUTION AND IT SOURCE OF CONTIMINATION IN  
SEDIMENT AT KERTEH RIVER, TERENGGANU

MOHD FAIZ BIN JAYA

FACULTY OF MARITIME STUDIES AND MARINE SCIENCE  
UNIVERSITI MALAYSIA TERENGGANU

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**THE PAHs DISTRIBUTION AND IT SOURCE OF CONTIMINATION IN  
SEDIMENT AT KERTEH RIVER, TERENGGANU**

**By**

**Mohd Faiz bin Jaya**

**Research Report submitted in partial fullfillment of  
The requirement for the degree of  
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**DEPARTMENT OF MARINE SCIENCE  
FACULTY OF MARITIME STUDIES AND MARINE SCIENCE  
UNIVERSITI MALAYSIA TERENGGANU**

**DECLARATION AND VERIFICATION REPORT  
FINAL YEAR RESEARCH PROJECT**

It is hereby declared and verified that this research report entitled:  
The PAHs Distribution And It Source Of Contimination In Sediment At Kerteh River,  
Terengganu By, Mohd Faiz bin Jaya Matric No UK16728 have been examined and all  
errors identified have been corrected. This report is submitted to the Department of  
Marine Science as partial fulfillment towards obtaining the Degree of Bachelor of  
Science (Marine Science), Faculty of Maritime Studies and Marine Science, Universiti  
Malaysia Terengganu.

Verified by:

Principal Supervisor

Name: Mr Yong Jaw Chuen

Official stamp:

**YONG JAW CHUEN**

Pensyarah

Jabatan Sains Marin

Fakulti Pengajian Maritim dan Sains Marin

Universiti Malaysia Terengganu (UMT)

21030 Kuala Terengganu.

Date: 28 April 2011

Second Supervisor

Name: Dr Hing Lee Siang

Official stamp:

**DR. HING LEE SIANG**

Penyelaras Program

Siswajana Muda Sains (Sains Samudera)

Jabatan Sains Marin

Fakulti Pengajian Maritim dan Sains Marin

Universiti Malaysia Terengganu  
(UMT)

Date: 28/4/11

Head of Department of Marine Science

Name: Dr. Razak bin Zakariya

Official stamp:

**DR. RAZAK ZAKARIYA**

Ketua Jabatan Sains Marin

Fakulti Pengajian Maritim dan Sains Marin

Universiti Malaysia Terengganu  
(UMT)

Date: 29/4/11

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## LIST OF ABBREVIATIONS/SYMBOLS

$\mu\text{L}$	microliter
%	percentage
cm	centimeter
g	gram
GC-FID	Gas Chromatography – Flame Ionization Detector
GPS	Global Position System portable
DCM	Dichloromethane
HLC	Hydrochloric Acid
L	liter
S	second
Min	minute
H	Hour
ml	Milliliter
mm	millimeter
Na <sub>2</sub> SO <sub>4</sub>	Anhydrous Sodium sulphate.
oC	celcius
AH	Aliphatic Hydrocarbon
TAH	Total Aliphatic Hydrocarbon
PAH	Polycyclic Aromatic Hydrocarbon
ppm	Par Permilion

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## ABSTRACT

Soil samples were taken from 10 stations in Sungai Kerteh and 3 stations at Port of Kerteh. Soil samples were taken to determine the level of Polycyclic Aromatic Hydrocarbon (PAH) content. Sampling was conducted at two times: first on 26-28 April 2010 and second on 21-23 October 2010. Samples were extracted by Soxhlet method and used to separate. Columns packed were used to separate Total Aromatic Hydrocarbon (TAH) and PAH, before analyzed using gas-flame ionization detector chromatograph. GC-FID was used to obtain readings. A total of 16 species of Polycyclic Aromatic Hydrocarbon (PAH) and 35 species of Total aliphatic hydrocarbon (TAH) has been used as a benchmark to look for a compound found in soil samples taken in the area of sampling. Total Aromatic Hydrocarbon (TAH) found in this area is in the range of ND - 14839.601  $\mu\text{g/g}$  to the river in the port area mean while amount that is due to the content found within the ND-2315.420  $\mu\text{g/g}$  for the first sampling. For the second sampling of content is found in the River Kerteh from ND - 24268.442  $\mu\text{g/g}$  and ND-215583  $\mu\text{g/g}$ . Through this study, the type of distribution and the fraction of PAH molecules by the presence of the indicator member, or from natural occurring sources of pollution. From these studies also find that the area is still safe and accepted level of pollution does not exceed the highest level.



# **TABURAN DAN SUMBER PENCEMARAN PAH DI SUNGAI KERTEH DAN PELABUHAN KERTEH, TERENGGANU**

## **ABSTRAK**

Sebanyak 10 stesen di Sungai Kerteh dan 3 station di Pelabuhan Kertah telah diambil sample tanah untuk diuji tahap kandungan Polycyclic Aromatic Hydrocarbon, PAH. Sampling telah dijalankan sebanyak 2 kali iaitu pada 26-27 April 2010 untuk sampling pertama kali. Untuk sampling kedua dijalankan pada 21-23 Oktober 2010. Sample-sample tersebut telah dianalisis menggunakan kaedah Soxhlet dan Packed Coloum digunakan untuk memisahkan TAH dan PAH. Untuk mendapatkan bacaan, Gas chromatografi- flame ionization detector, GC-FID telah digunakan untuk mendapatkan bacaan. Sebanyak 16 spesis Polycyclic Aromatic Hydrocarbon, PAH dan 35 spesis Total Aliphatic hydrocarbon, TAH telah digunakan sebagai penanda aras untuk mencari compound yang terdapat pada sample tanah yang diambil dikawasan sampling. Jumlah Aromatik Hydrocarbon yang dijumpai di kawasan ini adalah berada dalam lingkungan ND - 14839.601  $\mu\text{gL}^{-1}$  untuk kawasan sungai Kerteh manakala di kawasan pelabuhan Kerteh jumlah kandungan ynag dijumpai dalam lingkungan ND-2315.420  $\mu\text{gL}^{-1}$  untuk sampling yang pertama. Untuk sampling yang kedua kandungan yang dijumpai di Sungai Kerteh adalah daripada ND - 24268.442  $\mu\text{gL}^{-1}$  dan ND-215.583  $\mu\text{gL}^{-1}$ . Melalui kajian ini, jenis taburan PAH dan pecahan antara molekul-molekul member penunjuk kehadiran melalui semulajadi atau daripada sumber pencemaran yang berlaku. Daripada kajian ini juga mendapat tahu bahawa kawasan ini masih dalam keadaan selamat dan tahap pencemaran yang berlaku tidak menjangkau tahap yang tinggi.