

# ETMA

## E-Newsletter



### Environmental Technology & Management Association

Saudi Arabian Section of Air & Waste Management

#### Special points of interest:

- Editorial
- Short Article by Mr. Jumaan "Synoptic Meteorology"
- EnviroArabia 2007
- Dinner Meeting "SERVOMEX, UK and Royal Commission of Jubail"
- Professional Tech. Training courses
- Call for short articles
- ETMA Environmental Directory
- Welcoming new members
- Upcoming conferences

#### Editorial:

ETMA had a very active and successful year in 2007. The association held three well-received technical dinner meetings, but its most ambitious undertaking was **EnviroArabia 2007**. This international technical conference and exhibition was held April 22-25 in Kingdom of Bahrain. Six technical workshops were conducted in conjunction with the conference. These activities helped ETMA in its endeavors to create environmental awareness among the public and professionals in the region.

In keeping with the association's goals, these events provided outstanding opportunities to environmental professionals to gather under one roof and share knowledge and expertise. ETMA will build on these accomplishments by holding two professional technical training course in January and two in March 2008 in Eastern Province of Saudi Arabia for the first time. Details can viewed on page 2 and page 3 respectively. The registration for the March professional technical training courses is open now. The registration is based on first come first serve.

#### Short Article: By Mr. Jumaan Saad Al-Qahtani

#### The Importance of Synoptic Meteorology and Synoptic Climatology in the Transport and Deposition of Air Pollution

It is a well-known fact that meteorological conditions play a major role in the daily transport and dispersion of air pollutants once they have released to the atmosphere, and in predicting the ground level concentrations of these pollutants. The inability of the atmosphere to disperse contaminants is called 'pollution potential' and is highly

influenced by the metrological conditions. The pollution potential changes from day to day and location to location due to varying daily meteorological conditions. For example, in a clear sunny day the mixing and dispersion of air will improve after sunrise due to heating of surface and the air. **Continued on page 4.**

#### Editorial Team

Dr. Nadeem AhmedKhan  
 Dr. Abdulaziz Al Suwaillem  
 Mr. James Findley  
 Mr. Mohammad Ashraf Dar

#### EnviroArabia 2007

The **EnviroArabia 2007** conference and exhibition was held April 22-25 at the Gulf Conference Centre in Bahrain. This event was organized by ETMA, the Saudi Arabia Water Environment Association (SAWEA), and the Bahrain Society of Engineers. This was the Fifth

Specialty Conference on Environmental Progress in the Petroleum and Petrochemical Industries held since 1995. More than eighty (80) technical papers were presented to an audience of around four hundred and thirty (430) registered delegates. **Continued on page 5.**

## Professional Technical Training Courses

### Course #1

**“Air Pollution - A Detailed Overview”**

**Three-day course  
January 7-9, 2008**

Participants will be provided with information on ambient air quality activities, including discussions of:

- Sources and controls of air pollution
- Effects of air pollutants
- Ambient and emissions monitoring procedures
- Air quality dispersion modeling procedures
- Air pollutant emissions estimating techniques, and
- Air quality management.

The course is designed for staff members who have a basic scientific background and who are beginning air pollution control related activities. The material covered during the course includes examples and discussions that are specifically related to the petroleum industry.

#### Course Instructor

#### Mr. Leo H. Stander



Leo H. Stander is an environmental engineering consultant specializing in air quality strategies, air pollution permitting, and training. He has over 35 years experience in the air pollution field, including over 22 years in the U.S. Environmental Protection Agency's Office of Air Quality Planning and Standards. While at EPA he held a variety of positions, involving staff training and policy and regulatory development activities. Mr. Stander is a registered Professional Engineer and a Diplomate in the American Academy of Environmental Engineering. He is a Fellow Member in the Air and Waste Management Association and is a member of the National Society of Professional Engineers. He has written several papers on such topics as regulatory aspects of air pollution control, employee training, and emission trading and has conducted training courses on a variety of air pollution control issues.

#### Fee Structure:

ETMA Member           SR 3,300  
Non ETMA Member   SR 4,000

Visit <http://www.etma-sa.org/> for more details and course registration. Places are still available.

### Course #2

**“General Environmental Methods of Best Available Techniques”**

**Three-day course  
January 12-14, 2008**

Participants will be provided with basic information on environmental controls and requirements. This course will provide a broad overview of air and water quality related activities and information about hazardous materials and hazardous wastes. The material covered during the course includes examples and discussions that are specifically related to the petroleum industry. Topics to be discussed include:

- Health and Environmental Effects of Pollution
- Transport and Dispersion of Pollutants in the Environment
- Environmental Monitoring
- Emissions and Effluent Monitoring
- Control of Emissions of Air Pollutants
- Control of Water Pollutants
- Hazardous Wastes
- Pollution Prevention
- Laws, Regulations, Compliance, and Enforcement

This course is designed for managers and supervisors in charge of facility operations and acquisition of pollution control equipment. A basic scientific background will aid participants in understanding course material and in participating in the discussions but is not required for successful completion of the course.

#### Venue

The technical training course will be held in **Le Gulf Meridien, Al-Khobar**. All attendees are responsible for their boarding and lodging, however, free lunch and two coffee breaks will be provided to attendees.



[www.limeridien-alkhobar.com](http://www.limeridien-alkhobar.com)

## Professional Technical Training Courses in March 2008

### Course #1

3 - 5 March 2008

#### Environmental Site Assessments

This course will provide the basic information on how to determine if a particular site has been used to store, process, or treat hazardous substances that have a potential to impact the surrounding area.

#### Topics of the course:

- Pre-Assessment Planning
- Site Ownership and Location Site History Evaluation (including historical data research, aerial photos, topographic maps, and construction records)
- Site Reconnaissance (including visual and photo documentation, personal interviews, and written documentation)
- Report Format.

#### Course Objective

- Provide owners and operators of property the methods of assessing the current conditions of this property
- Enhance the ability to identify the potentiality of a site to release hazardous substances into the air, soil, or ground water.

#### Course Instructor

A professional Geologist and consultant with more than 25 years of experience in international HSE experience



Mr. Armstrong

will serve as the main instructor for the courses. Mr. Macklin M. Armstrong, P.G., a citizen of United States of America. He is the President / Senior Geologist of the ARMSTRONG Environmental, P.C. Company. His area of Activity is Health and Safety Instructor. More on Mr. Armstrong can be viewed on our website: [www.etma-sa.org](http://www.etma-sa.org)

#### Fee Structure:

ETMA Member	SR 3,300
Non ETMA Member	SR 4,000

### Registration and more details

For registration and more details, please call  
**Mohammad Ashraf Dar on Tel: 03 860 1391**  
**Fax: 03 860 1205, Mob: 0502798469 or**  
**Email: [etma@kfupm.edu.sa](mailto:etma@kfupm.edu.sa)**  
**or visit our website: [www.etma-sa.org](http://www.etma-sa.org)**

*Expected location for these technical training courses is*  
**Le Gulf Meridien, Al-Khobar Saudi Arabia**



[www.lemeridien-alkhobar.com](http://www.lemeridien-alkhobar.com)

### Course #2

8 - 10 March 2008

#### Soil and Ground Water Investigations

This course is a follow up to the Environmental Site Assessment course. The course will provide a detailed training on how to perform an investigation of the surface and subsurface soil and water at a facility.

#### Topics of the course:

- Pre-Investigation Planning
- Sampling Plan Preparation
- Investigative Methods
- Sample Selection Criteria
- Sample Collection Techniques
- Analytical Methods
- Data Interpretation
- Presentation and Reporting

#### Course Objective

- Provide Trainees with the state of the art in how to conduct investigation of the surface and subsurface soil and water at a facility.
- Enhance the ability to analyze, interpret and present the data obtained from the investigations.

## Short Article: by Mr. Jumaan Saad Al-Qahtani (continued from page 1)

This reduces the pollution potential. At night, when the surface cools, an inversion may develop with light wind speeds that trap pollutants near the surface. This raises the pollution potential for the ground-level concentrations of the pollutants.

The mixing height of the atmosphere also varies from day-to-day and between night and day according to the amount of surface heating and the surface temperature. It has a maximum height on a sunny day and a minimum height in a cold, clear night. On days when the mixing height is low, the pollution from the ground level sources is trapped within an inversion layer resulting in higher concentrations of the pollutant. During these stable surface conditions and low inversion heights, pollution

from tall stacks will be kept aloft and will be transported to areas outside the immediate vicinity. Tall stacks may improve the air quality of the local environment but not for the regional environment. On the other hand, when the daily convection begins due to solar heating, the mixing height will increase to the level of the

plume at which time the pollution will be diluted and well-dispersed within the mixing zone. Many studies have shown the important of analyzing the mixing height as well as other factors such as temperature, pressure, surface and upper-air wind speeds, and surface and upper-air wind directions in order to understand regional transport of pollutants.

It is also important to use trajectory analysis techniques to estimate the movement of the air pollutants over greater distances. Jones et al. (2000) showed that the UK and central and eastern Europe were sources of pollutants in a Norwegian site. The same study also showed that variations in the Mediterranean pressure system had a direct effect on the long term

pollution levels at monitoring stations in Scandinavia. This shows that in order to study the source of an air pollution episode, it is important to look to the large scale climatological situation. *Davies et al. (1992)* showed by using back-trajectory analysis on synoptic climatology and upper air data found that sources of the observed black snowfalls in the Cairngorm Mountains (Scotland) were from Eastern Europe, the former USSR and the Baltic regions. The study also showed how a very well-mixed, aged plume could reach this area. In this case, when the air mass reached the mountain areas, the lifting mechanisms and the presence of sufficient water vapour and other meteorological conditions lead to wet-deposition and hence the blackened snows.

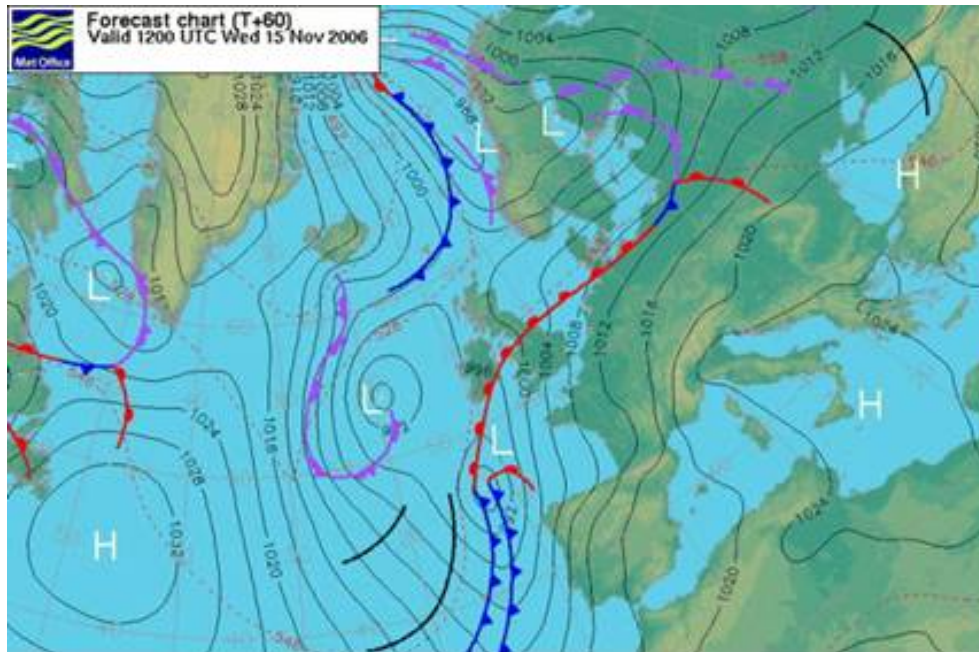
The influence of the local atmospheric circulations is also very important when studying the source of air pollution or developing a control strategy. *Rodriguez et al., (2002)* showed the correlation between the local sea and mountain breezes and the high summer concentrations of 10-micron particulates (PM10), ozone and total suspended particulates (TSP) in a rural area in Spain. Under these meteorological

conditions, the transport of pollutants from urban to rural areas is induced by the thermal circulations (sea and mountain breezes) that can persist for periods up to two weeks, resulting in an accumulation of airborne particulates in the regional atmosphere.

In short, any pollutant emission to the atmosphere in one location can lead to a pollution impact another location, perhaps at great distances from the original source. To detect the source of air pollution, it is essential to look to meteorological and climatological conditions to identify the real source of the pollution.

**Reference continued on next**

**"It is also important to use trajectory analysis techniques to estimate the movement of the air pollutants over greater distances."**



**References:**

Davies, T. D., Tranter, M., Jickells, T. D., Abrahims, P. W., Landsberger, S., Jarvis, K and Pierce, C. E. (1992). Heavily-Contaminated Snowfalls in the remote Scottish Highlands: A consequence of regional-scale mixing and transport, *Atmospheric Environment*, Vol. 26, pages 95-112

Dorling, S. R. and Davies, T. D. (1995). Extending cluster Analysis-Synoptic Meteorology Links to Characterise Chemical Climates at Six Northwest European Monitoring Stations, *Atmospheric Environment*, Vol. 29, pages 145-167.

Jones, M. J., and Davies T. D. (2000). The influence of climate on air and precipitation chemistry over Europe and down-scaling applications to future acidic deposition, *Climate research*, vol. 14, pages 7-14.

Rondal Guez, S., Querol, X., Alastney, A., and Mantilla, E. (2002). Origin of high summer PM10 and TSP concentrations at rural sites in Eastern Spain, *Atmospheric Environment*, Vol. 36, pages 3101-3112.

Rondal Guez, S., Querol, X., Alastney, A., and Mantilla, E. (2002). Origin of high summer PM10 and TSP concentrations at rural sites in Eastern Spain, *Atmospheric Environment*, Vol. 36, pages 3101-3112.



**Author: Mr. Jumaan Saad Al-Qahtani**

Jumaan holds a Master of Science in Atmospheric sciences from University of East Anglia, UK, 2003. He works as environmental scientist in the Air Quality and Meteorology Unit, EED, Environmental Protection Department of Saudi Aramco. He has more than 17 years of experience in the field of meteorology and air quality. He is a member of the American Meteorological Society, A&WMA, and ETMA.

**Author's E-Mail: [Jumaan.qahtani.1@aramco.com](mailto:Jumaan.qahtani.1@aramco.com)**

**EnviroArabia 2007 (Continued from page 1)**



Thirty five (35) environmental organizations participated in the exhibition. Approximately one hundred and fifty (150) environmental professionals attended the six technical

workshops held in conjunction with the conference. Workshop topics included: MARPOL Annex VI regulations on marine fuels/air emissions, Environmental Practices Review, Introduction to Air Pollution Control, Environmental Impacts of industrial Processes, Air Quality Impact Analysis Using AERMOD, and MBR Operations, Maintenance and Design.

Dr. Mohamed F. Dahab, President of the Water Environment Federation and Professor at the University of



Nebraska-Lincoln, delivered a keynote address entitled "The Water Environment Federation: Responding to the Challenges to the Global Water Environment".

Dr. Alan W. Gertler, Research Professor at De-

sert Research Institute, represented the Air & Waste Management Association (A&WMA; the parent organization of ETMA) and delivered a keynote address on



"Measurements and Sources of PM2.5, PM10, Volatile Organic Compounds, and Polycyclic Aromatic Hydrocarbons in Greater Cairo". Other keynote speakers included: Daniel J. Sullenbarger, of Marathon Oil Corporation and Chairman of IPIECA; Lisa Henthorne, of the International Desalination Association; Ian Sealy, of Schlumberger; Richard Schulze, of Trinity Consultants (and former President of the A&WMA); Basel Al-Yousfi, of UNEP-ROWA; and Professor Philip J.W. Roberts, of GeorgiaTech.



Regular dinner meetings are held throughout the year in Saudi Arabia as part of ETMA activities. Past ETMA dinner newsletters and presentations can be found on <http://www.etma-sa.org>

The dinner meeting was held on September 11, 2007 at the Jubail Inter-Continental Hotel. The event was sponsored by Abdul Karim H. Sinan & Partner for Trading Co. The distinctive guest speakers invited were:

**Mr. Ayman Al-Shareif**

Servomex

United Kingdom

**Mr. Mohesen Al-Alami**

Industrial Environment Section

Head

Environmental Control

Department – Jubail

Royal Commission for Jubail

and Yanbu



**Mr. Ayman Al Shareif**

## Introduction: By Mr. Mohesen Al-Alami

The Jubail Industrial City has been a model for sound environmental planning and management. Before inception, the Royal Commission (RC) conducted a comprehensive study to identify the types of natural environment and wildlife present in the region and to assess the impacts of future industries on such ecosystem. Based on the findings of this study, the Royal Commission had issued environmental guidelines to control pollutants and by-products generated from industrial activities.

RC has always ensured that best environmental control methods and practices are utilized and adopted. Therefore, the environmental guidelines were updated a number of times throughout the years before they became regulations in 1999. The Royal Commission Environmental Regulations (RCER) govern permitting of industrial facilities, protecting the air and water environments, managing hazardous materials, managing waste as well as controlling noise and dredging operations. These regulations are usually updated once every five years to reflect the environ-

mental needs of the city and the latest in regulations. RCER was last updated in 2004.

For future expansion or what is known as Jubail 2, the Royal Commission has conducted an environmental impact assessment (EIA) to ensure the city's sustainability and continual attraction to investors, businesses, workers and the community.

To support the regulations as well as to be able to measure the long and short-term impacts of industrialization, a comprehensive environmental program was developed. This program consists of monitoring ambient air, water quality and noise; emission point sources and fugitive emissions, industrial wastewater and seawater cooling water, groundwater, hazardous and waste management, emergency response, and surveillance.

The presentation will discuss the Royal Commission environmental program as well as the findings of the EIA and future plans to ensure the protection of the city's environment.

## Dinner Meeting

### Presentation #1 Mr. Ayman Al-Shareif, "Servomex"

The first presentation by SERVOMEX representative out from United Kingdom highlighted the advance development and application of SERVOMEX 4900.

The talk focused on SERVOMEX system that can be integrated into a Continuous Emissions Monitoring (CEM) system and can measure multi gases, such as Carbon Monoxide, Oxides of Nitrogen, Sulphur Dioxide, Carbon Dioxide and Oxygen. Typical range for monitoring i.e.

NOx is 0-100 ppm (130 mg/m<sup>3</sup>).

Using an Extractive method, the pollutants are sampled and passed through a Gas Transport and Conditioning system into the multi analyzer for measurement has been development by SERVOMEX. The analysis is achieving by using gas filter correlation (IR) which has high sensitivity to selected gases. Further details can be found on [www.etma-sa.org](http://www.etma-sa.org).

### Presentation # 2 Mr. Mohesen Al-Alami, "Royal Commissions Environmental Program And Jubail II Impacts"

The evening dinner meeting generated great interest in the future development

of Jubail industrial complex, regulations needed to enforce standards on various facilities and

to open communications with other industries outside the boundaries of Royal Commission.



It was evident that Royal Commissions for Jubail are putting great efforts into ensuring that best approach is made in assessing various pollution impacts. Mr. Al-Alami presentation discussed issues related to Air, Water, Wildlife and work done on Environmental Impact Assessment for Jubail Complex #2.

## Call for Short Articles

Invitation to Publishing Short Articles. That will be posted on [www.etma-sa.org](http://www.etma-sa.org). This is an opportunity to publish or communicate your article in the Kingdom of Saudi Arabia through ETMA. All students and professionals are encouraged to participate. Annual prize will be awarded for the best professional and Student article(s). The article contents should be a Maximum of two (2) pages, which includes figures, tables and diagrams. If you are interested, please send the article(s) in word document format. Any figures and pictures must be of good quality resolution. Please include your information as shown below:

*Author name*

*Telephone*

*E-mail*

*Company/Institute*

*ETMA Member (Y/N)*

Our aim at ETMA is to preserve, protect and enhance natural ecosystem, promote sustainable development and educate people on the issues of environmental concerns from air, land to marine. If you want to share any such ideas or concerns, then ETMA is organization through which you can share your all your thoughts.

## Welcoming New ETMA Members

Welcoming the following new ETMA members:

Mr. Premlal Panickan	(KFUPM)
Mr. Maqbool H. Khan	(KFUPM)
Mr. Syed Imran Quadri	(KFUPM)
Mr. Saleh A. Busbait	(Saudi Aramco)
Mr. Abdulnasser H. Al_Qahtani	(SEC)
Mr. Sikder Selimuzzaman	(KFUPM)

## ETMA Environmental Directory

ETMA will start listing contacts names of Environmental Companies on their ETMA website [www.etma-sa.org](http://www.etma-sa.org), as of 1 June 2006. This is a great opportunity to advertise your company name and its business discipline.

The online directory provides an unrivalled opportunity for a variety of national and international clients to gain access to Saudi Arabia thorough ETMA Environmental Directory. Your company name and details will be listed and will have a link directly to your company's home webpage. Joining the ETMA Environmental Directory will also allow you to gain new business referrals and raise your company profile. The annual cost of listing on ETMA is 100 SAR only. Other inclusive benefits by joining ETMA Environmental Directory includes, listing your company name on regular ETMA e-mail updates, monthly Newsletters and regular Dinner meetings held in Saudi Arabia to all registered members and non-members.

If you are interested and keen to take part in establishing the first kind of Environmental Directory with ETMA, kindly provide the following information's:

Example of Format:

**KSA Environmental Company**, Dhahran, Saudi Arabia Specialist independent organization, established to provide factual information on the quality of the indoor air environment. To suit indoor air quality issues we provide various levels of audit

### Email | Company details

Contact Staff:  
Address:  
Telephone:  
Fax:  
E-mail/Website:

## Upcoming Important Events & International Conference for 2008

April 22, 2008	Earth Day	<a href="http://www.earthday.org">www.earthday.org</a>
5 June 2008	World Environment Day	<a href="http://www.unep.org">www.unep.org</a>
June 24-27	A&WMA 101st Annual Conference and Exhibition	<a href="http://www.awma.org">www.awma.org</a>
Nov 3 -6, 2008	Symposium on Air Quality Measurement Methods and Technology	<a href="http://www.awma.org">www.awma.org</a>

Reference below : Website : <http://www.conferencealerts.com/environment.htm>

## January 2008

- 08 [International Conference on Business and Management](#) Bandar Seri Begawan Brunei Darussalam
- 09 [Embracing the Triple Bottom Line](#) Lincoln United Kingdom
- 09 [FIRST INTERNATIONAL CONFERENCE ON ENGINEERING MANAGEMENT 2008](#) Jamshoro Pakistan
- 10 [National HR Summit](#) New Delhi, India India
- 10 [OpenEco Energy Camp](#) San Francisco CA
- 11 [Workshop](#)
- 11 [THE ENVIRONMENT AND INDIAN HISTORY](#) Chennai India
- 14 [SEZs in India : A Critical Perspective](#) Pune India
- 14 [2008 North American Environmental Field Conference & Exposition](#) Tampa Florida
- 14 [Advancing the New Energy Economy in California](#) San Francisco, CA California
- 25 [Integrate sustainability issues into financial decision-making](#) Toronto Canada
- 28 [The 2nd Technology and Innovation for Sustainable Development Conference \(TISD2008\)](#) Thailand

## February 2008

- 01 [sustainable development and environmental responsibilities: strengthening interface between households, industries, government and n.g.o.'s](#) vadodara India
- 05 [GLOBAL WARMING CONVENTION OSLO 2008](#) Oslo Norway
- 06 [The Art Center Summit: Designing Sustainable Mobility](#) Pasadena California
- 07 [Delhi Sustainable Development Summit](#) New Delhi, India India
- 07 [Delhi Sustainable Development Summit](#) New Delhi India
- 07 [Sustainable Business Development Under Scenarios of Possible Economic Slowdown](#) Riga Latvia
- 07 [International Workshop on Biohydrogen Production Technology](#) Kharagpur India
- 11 [Second International Workshop in Egg Parasitoids](#) Piracicaba Brazil
- 12 [Achieving Compliance with the EuP Directive](#) Leatherhead United Kingdom
- 12 [Cherishing Freedom](#) Pune India
- 17 [Middle East Waste & Environmental Management Congress](#) Ishtar Kempinski Dead Sea Jordan
- 17 [3rd International Solar Cities Congress](#) Adelaide Australia
- 26 [The Future of the Carbon Market](#) London United Kingdom
- 26 [Environmental Monitoring & OSPAR Compliance 2008](#) Aberdeen United Kingdom
- 27 [Feb / March CLE Series](#) Melbourne Australia

## Environmental Technology & Management Association

Saudi Arabian Section of Air & Waste Management

### To Contact us

#### ETMA

Saudi Aramco,  
Dhahran 31311  
P.O. Box. 839  
Saudi Arabia  
Tel: 03-873-6026  
Fax: 03-873-9331

### Membership Registration

Tel: 03-860-1391  
Fax: 03-860-1205

[www.etma-sa.org](http://www.etma-sa.org)



**Environmental  
Technology &  
Management  
Association**

Saudi Arabian Section of  
Air & Waste Management Association

Designed by: Mohammad Ashraf Dar