

ANNETTE GUISEPPI-ELIE, PH.D.
BIOGRAPHICAL SKETCH

EXPERTISE

Dr. Guiseppi-Elie is an Environmental Engineer/Scientist with expertise in the areas of site and risk assessment, specifically, *exposure assessments* and including environmental fate and transport processes. Dr. Guiseppi-Elie has conducted environmental site assessments, risk assessments, and has evaluated, recommended and implemented remediation options at facilities, both in the US and internationally.

Dr. Guiseppi-Elie has served on a number of scientific entities in her role as technical expert and advocate for the use of sound scientific principles and data in conducting environmental health risk assessments. These organizations include the USEPA Science Advisory Board, the Mickey Leland Center National Urban Air Toxics Research Center, American Industrial Health Council's Environmental Health Risk Assessment Committee.

PROFESSIONAL EMPLOYMENT EXPERIENCE

1999 - **Senior Consultant**, Dupont Engineering, Wilmington, DE
1995-1999 **Senior Staff Environmental Scientist**, Exxon Biomedical Sciences, Inc., E. Millstone, NJ
1994-1995 **Manager, Environmental Health Risk Assessment**, Mobil's Stonybrook Lab, Princeton, NJ
1992-1994 **Senior Research Environmental Chemist**, Mobil Oil Corporation, EHSL, Princeton, NJ
1991-1992 **Research Environmental Chemist**, Mobil Oil Corporation, EHSL, Princeton, NJ
1988-1991 **Senior Environmental Chemist II**, Mobil Oil Corporation, EHSL, Princeton, NJ
1987-1988: **Drexel Fellow**, Civil Engineering and Environmental Studies Institute, Drexel University, PA
1983-1987: **Graduate Research Assistant**, Civil Engineering, University of Maryland, College Park, MD
1981-1983: **Technical Assistant**, Materials Science and Engineering, MIT, Cambridge, MA
1977-1979: **Graduate Research Assistant**, Faculty of Agriculture, University of the West Indies, Trinidad.

EDUCATION:

Ph.D. Civil Engineering, (Environmental), University of Maryland, 1987.
M.Sc. Pollution and Environmental Control, University of Manchester (UMIST), 1980.
M.Sc. Agriculture (Entomology), University of the West Indies, 1979.
B.Sc. Natural Sciences, University of the West Indies (UWI), 1977.

PROFESSIONAL AFFILIATIONS:

- Member, Planning Committee On Harmonization of Exposure Assessments, International Program on Chemical Safety
- Member, Chemical Manufacturers Association, Human Health Exposure Assessment Technical Implementation Panel
- Member, Integrated Human Exposure Committee, USEPA Science Advisory Board
- Member & past-chair (1993-1997), American Industrial Health Council, Env Health Risk Assessment Committee
- Member, American Industrial Health Council, Ecological Risk Assessment Committee
- Member, Mickey Leland National Urban Air Toxics Research Center, Science Advisory Panel
- Member, Texas Natural Resource Conservation Commission Risk-based Guidance Development Workgroups
- Member, Steering Committee New Jersey Comparative Risk project
- Member, Pennsylvania Cleanup Standard Science Advisory Board
- Member, ASTM E 50.01 and E50.04 Task Groups
- Member, Chemical Manufacturers Association, Hazardous Waste Identification Rule (HWIR) Science Group
- Member, Science Advisory Board, University of Massachusetts: Contaminated Soils Conference 1993-2000
- Member, Science Advisory Board, First Latin American Conference, Science Advisory Board (1998)

ANNETTE GUISEPPI-ELIE, Ph.D.
Dupont Engineering, Corporate Remediation
(Wilmington, Delaware)
Phone: 804.383.4584; Facsimile: 804.383.3785

EXPERTISE:

Dr. Guiseppi-Elie is an Environmental Engineer/Scientist with expertise in the areas of site and risk assessment, specifically, *exposure assessments* and including environmental fate and transport processes. Dr. Guiseppi-Elie has conducted environmental site assessments, risk assessments, and has evaluated, recommended and implemented remediation options at facilities, both in the US and internationally.

Dr. Guiseppi-Elie has served on a number of scientific entities in her role as technical expert and advocate for the use of sound scientific principles and data in conducting environmental health risk assessments. These organizations include the USEPA Science Advisory Board, the Mickey Leland Center National Urban Air Toxics Research Center, American Industrial Health Council's Environmental Health Risk Assessment Committee (Chair 1993-1997).

Examples of Dr. Guiseppi-Elie's experience in the areas of environmental health exposure and risk assessments include:

- Member, Planning Committee On Harmonization of Exposure Assessments, International Program on Chemical Safety (1999)
- Member, Chemical Manufacturers Association Human Health Exposure Assessment Technical Implementation Panel (1999). Identify and fund research to remove uncertainty in exposure assessments
- Member, Integrated Human Exposure Committee, USEPA Science Advisory Board (1998).
- Member, USEPA Peer Review Panel, Drake Chemical Site Incinerator Risk Assessment (1998). Panel charged with review and provide recommendations to USEPA on the adequacy of the risk assessment methods used in the evaluation..
- Member, New Jersey Legislative Comparative Risk Project. The Project Team is charged with evaluating competing environmental issues for the New Jersey Department of Environmental Protection (1999).
- Member, Mickey Leland National Urban Air Toxic Research Center Science Advisory Panel (1997). This SAP, established by Congress in the Clean Air Act Amendments of 1990, is charged with identifying appropriate research for funding to address urban air toxics at the national level.
- Member, New Jersey Partnership In RBCA Implementation (PIRI) Technical Taskgroup (1997). Taskgroup, made up of industry and NJ Department of Environmental Protection (NJDEP) scientists, developed a methodology for alternate cleanup criteria for the soil-to groundwater pathway.
- Member of the Pennsylvania (PA) Science Advisory Board charged by the PA legislature to advise the PA Department of Environmental Protection on developing environmental criteria (1996).
- Member of the editorial Board of the Residential Exposure Assessment Project (REAP), (1996). This is a joint project between the Society of Risk Analysis (SRA) and the International Society of Exposure Assessors (ISEA) to develop a text for use at the graduate level as well as a resource for practitioners of exposure assessments. Expected publication: 2000.
- Invited participant at an Expert Workshop on Monte Carlo Analysis (1996). This workshop was organized by The US Environmental Protection Agency's (EPA's) Risk Assessment Forum.
- Member (exposure assessor) of an Exxon multi-disciplinary team (including toxicologists and industrial hygienists) assembled to evaluate ambient air exposure to manganese in fuel additives in the US and Canada.
- Project Leader (AIHC) and co-author of the Exposure Chapter of the Joint EPA/AIHC Superfund Demonstration Project (1995); Phase II of this project demonstrated the utility of different state-of-the-science risk assessment techniques (including for exposure: from point estimates to full distributions) at a modified Superfund site; Workshops held in April and June 1997
- Project Lead (AIHC) and co-author of the American Industrial Health Council's Exposure Factors Sourcebook (1994).

EDUCATION:

August 1983 to May 1987

Doctor of Philosophy (Ph. D.); Civil Engineering

Department of Civil Engineering, University of Maryland

College Park, Maryland 20742, USA

Extensive and detailed coursework on the handling, treatment and disposal of solid waste and wastewater as well as the management of hazardous materials. Original dissertation research on the sorptive transport of toxic organics (dioxins) in the presence of organic cosolvents in soil/water systems. Minor: Water Resources.

Thesis: "Sorption of Polychlorodibenzo-p-dioxins to Soils from Water and Water/methanol Mixtures"

Thesis Advisor: Professor R.W. Walters. Conferred: May 1987.

October 1979 to September 1980

Master of Science (M. Sc.); Pollution and Environmental Control

Pollution Control Unit

University of Manchester Institute of Science and Technology

Manchester M60 1QD, England

Multidisciplinary combined coursework and research program in technical, biological and public control systems. Independent, original research on wastewater treatment.

Thesis: "The Oxygen Demand of Organic Waste Related to Treatment Plant Design"

Thesis Advisor: Dr. R. J. Kiff; Conferred: December 1980.

October 1977 to September 1979

Master of Science (M. Sc.); Agriculture: Biological Sciences (Entomology)

Faculty of Agriculture

University of the West Indies

St. Augustine, Trinidad, West Indies.

Completed coursework in applied entomology and biological statistics. Designed and completed original research on the life cycle biology, population dynamics, and ecology of an insect pest species in a crop production environment.

Thesis: "Biological and Ecological Studies of Frankliniella insularis (Franklin) on Pigeon Pea (Cajanus cajan (L.) Millsp.) with investigations of its Pest Status"

Thesis Advisor: Dr. Gene V. Pollard; Conferred: 1979.

October 1973 to June 1977

Bachelor of Science (B. Sc.); Natural Sciences

Faculty of Natural Science

University of the West Indies

St. Augustine, Trinidad, West Indies.

Major undergraduate concentration in Chemistry, Zoology, and Applied Zoology.

Thesis: "The Hazards of Pesticide Application".

Thesis Advisor: Dr. Roger Bacon; Conferred: June 1977.

CONTINUING EDUCATION:

June 1999: Targeted Development, Dupont
May 1997: Effective Presentations, Exxon
August 1994: Groundwater Pollution and Hydrology, Princeton Groundwater, Orlando, Florida.
November 1991: Environmental Regulation Course, Executive Enterprises, Inc., Princeton, New Jersey.
September 1991: Soil Vapor Extraction Workshop (HyperVentilate Software), Petroleum Contaminated Soils Meeting, Amherst, Massachusetts.
May 1991: Risk Assessment and its uses in Environmental Regulations, Center for Energy and Environmental Management, Arlington, Virginia
September 1990: Environmental Fate Modeling, Petroleum Contaminated Soils Meeting, Amherst, Massachusetts.
September 1990: Groundwater and Vadose Zone Monitoring and Sampling Technology, ASTM short course, Cambridge, Massachusetts.
September 1989: Risk Assessment Software Workshop, Petroleum Contaminated Soils Meeting, Amherst, Massachusetts.
September 1989: Environmental Fate of Hydrocarbons in Soils and Groundwater, Petroleum Contaminated Soils Meeting, Amherst, Massachusetts.
September 1982 to December 1982:
Special Graduate Student (Non-degree), 1.811J Environmental Law: Pollution Control, Department of Civil Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139, USA.

PROFESSIONAL AFFILIATIONS:

- Member, Planning Committee On Harmonization of Exposure Assessments, International Program on Chemical Safety
- Member, Chemical Manufacturers Association, Human Health Exposure Assessment Technical Implementation Panel
- Member, Integrated Human Exposure Committee, USEPA Science Advisory Board
- Member & past-chair (1993-1997), American Industrial Health Council, Env Health Risk Assessment Committee
- Member, American Industrial Health Council, Ecological Risk Assessment Committee
- Member, Mickey Leland National Urban Air Toxics Research Center, Science Advisory Panel
- Member, Texas Natural Resource Conservation Commission Risk-based Guidance Development Workgroups
- Member, Steering Committee New Jersey Comparative Risk project
- Member, Pennsylvania Cleanup Standard Science Advisory Board
- Member, ASTM E 50.01 and E50.04 Task Groups
- Member, Chemical Manufacturers Association, Hazardous Waste Identification Rule (HWIR) Science Group
- Member, Science Advisory Board, University of Massachusetts: Contaminated Soils Conference 1993-2000
- Member, Science Advisory Board, First Latin American Conference, Science Advisory Board (1998)
- Past-Exxon Representative on the PA, NJ and National Partnership in RBCA Implementation (PIRI) and the RBCA Leadership Council

PROFESSIONAL EMPLOYMENT EXPERIENCE:

February 1999 –

Senior Consultant

DuPont Engineering, Corporate Remediation
Wilmington, Delaware 19805

Provide corporate expertise in health-based and ecological exposure and risk assessment to DuPont strategic business units (SBUs). Represent the Company, both nationally and internationally, on key technical groups related to exposure and risk assessment. Provide site assessment (RI) expertise to facilitate cost effective closure of sites as part of the corrective action (or FS) process

December 1995 – February 99

Senior Staff Environmental Scientist

Exxon Biomedical Sciences, Inc.
East Millstone, New Jersey 08875-2350

Provide corporate expertise in health-based exposure and risk assessment and related areas to Exxon affiliates. Represent the Company, both nationally and internationally, on key technical groups related to exposure and risk assessment. Conduct research in this technical area. Provide site assessment (RI) expertise to facilitate cost effective closure of sites as part of the corrective action (or FS) process.

July 1988 - December 1995

Mobil Oil Corporation; Environmental & Health Science Laboratory
P. O. Box 1029, Princeton, New Jersey 08543-1029

1994-1995 **Manager, Environmental Health Risk Assessment (Associate)**

1992-1994 **Senior Research Environmental Chemist**

1991-1992 **Research Environmental Chemist**

1988-1991 **Senior Environmental Chemist II**

Preparation and review of site assessment plans and use of innovative technologies:

- Provided assistance to facilities and divisions (e.g., refineries, terminals, and plants in the US, Canada, Europe and Australia) in the preparation & review of site assessment (RI) plans and development of remedial strategies (FS);
- Performed a detailed environmental assessment (RI) of waste pits in the Arun field, Indonesia and designed a strategy for closure; Assisted in the preparation of the Pit Closure Manual for Mobil Oil Indonesia;
- Co-authored the *Bioremediation Technologies* technical bulletin and *Site Closure Manual* for Mobil's US Marketing Division.

PROFESSIONAL EMPLOYMENT EXPERIENCE (CONT.):

Management of environmental health risk assessment issues:

- Performed or reviewed risk assessments for facilities and divisions (e.g., refineries, terminals, and plants in the US, Canada, Europe and Australia) in the corrective action (RI/FS) process;
- Procured and applied a number of fate and transport, and risk assessment computer-based models (e.g., RISKPRO, AERIS, API DSS, Risk Assistant, @RISK, Crystal Ball) in setting site-specific risk-based goals at sites in the corrective action process;
- Provided comments and testimony to regulatory agencies on their development of Risk-Based Corrective Action (RBCA) programs on behalf of facilities and divisions (e.g., refineries, terminals, service stations);
- Worked with industry and regulatory agencies to advance the practical application of risk assessment in site remediation (e.g., AIHC, ASTM, TPH Steering Committee, NJ Site Remediation Group, Illinois Petroleum Council, PA SB-1 Implementation Team; PA Science Advisory Board);
- Member, Mobil Oil Corporation Reproductive and Developmental Taskforce (developed internal company workplace limits using distributional analysis).

Instruction on risk assessment and site assessment principles and application:

- Provided training to Mobil field-personnel and consultants on site assessments (RI/FS) and RBCA on behalf of Mobil's US Marketing Division (e.g., TX, MI, NY, CT; FL);
- Prepared and taught a detailed course on risk and site assessment (RI/FS) to Pertamina (Indonesian Gov't);
- Supervised the development of the Environmental Toxicity Assessment Module (ETAM) & Criteria 95 software databases for Mobil field personnel.

Determination of environmental fate parameters employing laboratory and field testing:

- Supervised (up to four technical individuals) and/or performed laboratory experiments (including the use of computer-based property estimation models) to determine environmental fate parameters (solubility, log P, K_{OC}, hydrolysis, photolysis) in support of product registration in the US and Europe;
- Performed field testing of biodegradation of petroleum hydrocarbons (e.g., PERF 93-02);
- Performed laboratory determinations of hazardous waste classification for new products and waste.

Technical Specialist on Mobil's emergency regional response teams (MRRT - Americas, Europe, Pacific Rim)

PROFESSIONAL EMPLOYMENT EXPERIENCE (CONT.):

September 1988 - 1994

Adjunct Professor of Civil Engineering

Department of Civil Engineering and Environmental Studies Institute
Drexel University, Philadelphia, PA 19104.

Taught graduate courses in Environmental Engineering. Served on the Examination Committee of Doctoral Candidates.

September 1987 to 1988:

Drexel Fellow in Civil Engineering

Department of Civil Engineering and Environmental Studies Institute
Drexel University, Philadelphia, PA 19104.

Taught graduate and undergraduate courses in Environmental Engineering. Conducted research in the field of toxic contaminant transport in the subsurface environment. Supervised graduate student dissertation research.

August 1983 to January 1987:

Graduate Assistant (III)

Department of Civil Engineering, University of Maryland
College Park, Maryland 20742

EPA funded independent and original research on the sorptive behavior of toxic organics (dioxins) in soil/water systems in the presence of organic cosolvents. Experienced in radio-labeled analysis using Liquid Scintillation Counting (LSC) and HPLC techniques. Work submitted for the degree of Doctor of Philosophy.

February 1981 to July 1983:

Technical Assistant

Department of Materials Science and Engineering
Massachusetts Institute of Technology, Cambridge, Massachusetts 02139

Supervised the use of a \$20,000.00 Central Facility: a Differential Scanning Calorimeter (DSC). Responsible for user training, Interpretation of data, equipment calibration, organizing schedules and maintaining supplies. Employed part-time - 20 hours per week.

October 1977 to September 1979: **Graduate Assistant**

International Development Research Centre (IDRC) - Canada
Grain Legume Programme
University of the West Indies, St. Augustine, Trinidad, West Indies.

Responsible for the development and implementation of a crop entomology research project directed at the study of thrips (*Frankliniella insularis*) on pigeon peas (*Cajanus cajan*). This research was simultaneously submitted for the award of Master of Science at the University of the West Indies. Also performed duties as Tutor and Demonstrator for undergraduate classes in entomology in the Faculty of Agriculture.

PROFESSIONAL ACTIVITIES:

AMERICAN INDUSTRIAL HEALTH COUNCIL (AIHC) ACTIVITIES

Dr. Guiseppi-Elie is past Chair of the Environmental Health Risk Assessment Committee and a member of the Ecological Risk Assessment Committee.

AIHC is a broad-based industry association that advocates the incorporation of sound science into the decision-making process for assessing risks of chronic human health and the environment. Dr. Guiseppi-Elie's Committee has made some significant advances in the area of human health risk assessment since its inception seven years ago.

As Chair, Dr. Guiseppi-Elie has actively lead a number of AIHC projects including:

- *The Joint EPA/AIHC Risk Assessment Demonstration Project*: This joint risk assessment project between EPA and AIHC is an attempt to address fundamental barriers that appear to impede the optimum, practical use of risk assessments. Hands-on workshops with regulatory and industry participants were held in April and June 1997. Summary workshops were also held at the Tri-Services Conference at Wright Patterson Airforce Base in April 1997 and at the Society for Risk Analysis (SRA) in Washington, DC in December 1997.
- *The Development of the AIHC Exposure Factors Sourcebook (1994)*. The *Sourcebook* moves forward the science of risk assessment and allows risk assessors to replace theoretical and generic policy decisions with scientific data that will yield realistic estimates of risks. The *Sourcebook* is designed to be evergreen and an update is expected in 1995. Workshops, with the experts in the respective fields, are planned for 1995 to examine certain controversial parameters, e.g., dermal exposure, for inclusion in the 1995 update.
- *Risk Assessment For Contaminated Site Remediation: What It is, What It Can Do (1993)*: This short brochure was developed to describe, to a lay audience, how current scientific techniques, primarily in the area of exposure assessment, can better define risk. The brochure demonstrates the value of risk assessment in developing "cleanup" standards.
- *Formal Comments to USEPA on a number of issues including*: Hazardous Waste Identification Rules (1996); Soil Screening Levels (1995), Indirect Exposure Methodology (1994), Dioxin Reassessment (1994), Sediment Criteria (1994), Hazardous Waste Identification Rule (1993), Mixture/derived-from Rule (1993), Great Lakes Water Quality Initiative (1993).
- *Dialogue with EPA on IRIS database*
- *Formal Comments To States (NJ, TX, GA) On Developing Cleanup Standards.*
- *Specific Comments To NJ Risk Commission On The Use Of 10^{-6} Target Risk Level For Contaminated Sites*
- *Drafting Of Position Papers On Exposure Assessment*
- *Drafting Of Position Paper On The Use Of Ecological Risk Assessment (ERA) In Hazardous Site Remediation*

PROFESSIONAL ACTIVITIES (CONT.):

RESIDENTIAL EXPOSURE ASSESSMENT PROJECT (REAP)

Member of the editorial board (1996). This is a joint project between the Society of Risk Analysis (SRA) and the International Society of Exposure Assessors (ISEA) to develop a text for use at the graduate level as well as a resource for practitioners of exposure assessments. Expected publication: 2000.

AMERICAN SOCIETY FOR TESTING AND MATERIALS ACTIVITIES

E50 Committee on Environmental Assessment, E50.01 on Storage Tanks; E50.04 on Voluntary Cleanups

Dr. Guiseppi-Elie has been actively involved in the preparation of the ASTM document, "Risk-based Corrective Action (RBCA) Applied at Petroleum Release Sites" (ES 38-94, Final 1739-95). Her group prepared two sections of the document, one section on the toxicity of petroleum constituents (identifying and providing information on potential compounds of concern based on toxicity and environmental fate characteristics) and a section on risk assessment models. She was also a peer reviewer for the ASTM document and have been actively involved in the preparation of training materials (including the drafting the Risk Policy Worksheet for Module 3 training) which will be used to instruct regulatory agencies interested in implementing a risk-based corrective action approach in their respective states. She has been involved in the preparation of "worksheets/spreadsheets" that will be used by ASTM for training in preparation of risk-based corrective action reports, directed to state agencies for site closure.

Dr. Guiseppi-Elie has acted as an advocate for the RBCA approach by preparing documents on the advantages of RBCA, which have been submitted to states (California, Florida, Michigan, Pennsylvania, Illinois, Ohio) considering changes in their corrective action approach. She has provided oral testimony before the Illinois Pollution Control Board and IEPA on RBCA issues. She also participated in a 25 minute video presentation on the subject which is being distributed by the USEPA.

She is currently working on various taskgroups to develop the final standard for chemical releases (PS104-98); the training program for PS 104-98 and the natural attenuation standard which was recently passed (Oct 1997).

AMERICAN PETROLEUM INSTITUTE

Dr. Guiseppi-Elie is a member of the GW-34 Project Team, Risk/Closure Workgroup. This group addresses risk assessment issues as they relate to site closure at petroleum sites. The group, for example, commissioned the development of the API DSS environmental fate and risk assessment software. Dr. Guiseppi-Elie teaches a risk assessment course on behalf of API and the "4-M" Center.

CONTAMINATED SOILS CONFERENCE 1993-1997

Dr. Guiseppi-Elie has been a member of the Science Advisory Board of the Contaminated Soils Conference, Amherst, MA since 1993. The Board makes recommendations on the direction and format of the Conference. Dr. Guiseppi-Elie moderated sessions on RBCA at the 1995, 1996 and 1997 Conferences.

RISK ASSESSMENT TRAINING EXPERTISE:

CONCAWE sponsored Workshop on Key Issues on Implementation of a Risk-Based Decision-Making Regulatory Program, Athens, Greece (Sept 1998)

Annette Guiseppi-Elie, Exxon Biomedical Sciences and Steven McNeely, US Environmental protection Agency

Workshop presented to European Regulators and intended to provide insight into practical aspects of implementing a risk-based program using the experience of US regulators and industry.

Workshop on Risk-based Decision-Making in Environmental Site Management, Quito, Ecuador (May 1998)

Annette Guiseppi-Elie, Exxon Biomedical Sciences and Li Yang, ARCO Environmental Remediation

This introductory workshop focused on the fundamentals of health risk based approaches and how they are applied to set remediation goals. It explored some of the key policy decisions that must be made when developing a regulatory program using risk-based approaches and provided examples of some of the ongoing efforts in advancing risk-based decision-making in environmental site management.

Risk-based Decision-Making Training, Buenos Aires, Argentina (Nov. 1997) and Sutton, England (Dec 1998)

Two-day workshops designed to introduce concepts of risk based decision making in site remediation to Exxon field personnel as well as site managers. The workshop presented in Argentina customized the ASTM RBCA approach to the local regulatory climate with a local regulator attending the session. A half-day seminar was also held for regulators, academics and other petroleum representatives. The European workshop was based on the CONCAWE RBCA framework. The workshop emphasized the flexibility within the RBCA approach to meet the regulatory needs to the many European countries. A presentation on the state of the science risk assessment techniques was also made to the French regulatory community.

ASTM RBCA Technical Training Workshop, New York and Connecticut, June 1995

A workshop intended to introduce the ASTM Risk-Based Corrective Action (RBCA) process, specifically as it relates to the Underground Storage Tank (UST) programs in New York and Connecticut, to Mobil field engineers and consultants managing Mobil's environmental projects in these states. The training also provided instructions on the use of RBCA worksheets and spreadsheets that have been developed by Mobil as tools to aid in the implementation of RBCA in these states. Topics covered by Dr. Guiseppi-Elie included: an introduction to RBCA, RBCA policies and strategies, and a demonstration of the use of the worksheets and computer spreadsheets.

ASTM RBCA Module 1 Pennsylvania Department of Environmental Resources, UST Program, June 1995

The ASTM/RBCA Module 1 training is intended to provide an overview and understanding of the risk-based decision making process and the ASTM RBCA approach as well as to solicit regulatory management support and commitment for participation in the complete RBCA training program. Through passage of recent legislation (SB-1), the PA DER is committed to implementation of a RBCA program. Dr. Guiseppi-Elie, along with a Regional EPA representative, provided Module 1 training to a members of the PA DER concerned with developing and implementing RBCA under a number of programs including: Underground Storage Tank (UST) Program and the state Superfund and Resource Conservation Recovery Act (RCRA) programs. Dr. Guiseppi-Elie covered technical issues such as risk assessment principles, relating these principles to risk management and public policy, as well as provided an introduction to the ASTM RBCA approach.

RISK ASSESSMENT TRAINING EXPERTISE (CONT.):

ASTM RBCA Technical Training Workshop, Michigan, May 1995

A workshop presented to Mobil field engineers and consultants managing Mobil's environmental projects in Michigan. The workshop introduced the ASTM RBCA process specifically as it applies to the UST program in Michigan. Representatives of the Michigan Department of Natural Resources also attended this workshop. Issues covered by Dr. Guiseppi-Elie included: an introduction to RBCA, RBCA policies and strategies, and a demonstration of the use of the worksheets and computer spreadsheets.

ASTM RBCA Technical Training Workshop, Texas, March 1995

A workshop presented to Mobil field engineers and consultants managing Mobil's environmental projects in Texas. The workshop introduced the ASTM RBCA process specifically as it applies to the UST program in Texas. Issues covered by Dr. Guiseppi-Elie included: an introduction to RBCA, RBCA policies and strategies, and a demonstration of the use of the worksheets and computer spreadsheets.

ASTM RBCA Video, February 1995

Along with members of the ASTM taskgroup (including federal and state regulators), Dr. Guiseppi-Elie participated in the making of a 25 minute video presentation on the ASTM RBCA process. The video is being used as a training tool and is distributed by the USEPA.

API/"4-M" Center Seminar and Workshop "Current Topics in Soil and Groundwater Hydrocarbon Remediation" Chattanooga, Tennessee, Sept 1994, August 1995

Dr. Guiseppi-Elie taught a segment of the API/"4-M" Center Seminar and Workshop dealing with "Current Topics in Soil and Groundwater Hydrocarbon Remediation". The course was attended by regulators from USEPA Region IV, representatives from industry and consulting firms. Topics covered by Dr. Guiseppi-Elie included: Risk assessment principles, ASTM RCBA approach and a demonstration of the API DSS environmental fate and risk assessment software.

Soil and Water Quality Course presented to the Pertamina (Indonesian Government) Trainees, Princeton, New Jersey October 1994, February 1994, September 1993, January 1993

Dr. Guiseppi-Elie was part of a three-member team which provided instructions to Indonesian Government Trainees on environmental and safety issues. One hundred individuals took part in four sessions over a two-year period. In the ***Soil and Water Quality Course***, Dr. Guiseppi-Elie covered all aspects of site assessment, risk assessment and bioremediation in a comprehensive one week session. The course included hands-on laboratory, field and computer modeling exercises. This course has been customized and presented to Mobil engineers, both at Princeton and at Mobil facilities located in the US and Indonesia.

PUBLICATION LIST:

TECHNICAL MANUALS

BIOREMEDIATION TECHNOLOGIES BULLETIN (N. J. Novick; M. Chen; A. Guiseppi-Elie, OCT, 1993)

Dr. Guiseppi-Elie is a co-author of the Mobil Bioremediation Technologies Bulletin. This bulletin was developed to provide information on the capabilities of different bioremediation technologies based on site conditions and the nature of the petroleum contamination. It is intended to help field engineers select appropriate technologies and includes design specifications to assist in this task. The manual also presents a background in petroleum microbiology to help field personnel better understand concepts and when this technology can be expected to work and why. Information on permitting and negotiating appropriate cleanup criteria are also included.

MOBIL OIL INDONESIA PIT CLOSURE MANUAL (N. J. Novick; A. Guiseppi-Elie, MARCH, 1993)

Dr. Guiseppi-Elie is a co-author of the MOI Pit Closure Manual. This field manual has been prepared to provide guidance on closing E&P drilling mud pits based on Louisiana 29-B regulations.

The manual provides:

- Sampling and analysis strategies to determine waste characteristics and volume
- A thorough discussion of land treatment techniques
- A summary flowsheet outlining the various steps in pit closure
- Worksheets to determine the limiting GLC parameter, appropriateness of minimum management, land management or soil burial options and land requirements for the appropriate option.
- Numerical examples

ETAM (N. J. Novick; M. Chen; A. Guiseppi-Elie, MARCH, 1993)

ETAM, the Environmental Toxicity Assessment Module, is a user-friendly database of toxicological, chemical and physical characteristics of compounds of concern in petroleum products. It is available for both IBM® (in Toolbook format under WINDOWS) and Macintosh® (in Hypercard format) computers. Dr. Guiseppi-Elie supervised the production of this database from work described in the *Site Closure Manual*. This database has been used throughout Mobil.

CRITERIA '95 (N. J. Novick; M. Chen; A. Guiseppi-Elie, MARCH, 1994)

CRITERIA '95 is another user-friendly database developed by Dr. Guiseppi-Elie's group under her supervision. This database contains a summary of national and international cleanup criteria for petroleum components of concern, in an easily accessible format. The database will be kept current by providing updates on an annual basis.

PUBLICATION LIST(CONT.):

TECHNICAL PRESENTATIONS

Guisseppi-Elie, A. (1998) "Risk-based Decision Making in Environmental Site Management" presented at the First Annual Latin American Conference on Contaminated Soils and Water, Quito, Ecuador, May 1998.

Bennett, D. A. & Guiseppi-Elie (1998) "USEPA/AIHC Joint Superfund Demonstration Project" presented at the International Workshop on "Risk Assessment Models and Risk Management For Contaminated Sites by the Concerted Action on Risk Assessment for Contaminated Lands (CARACAS) in the European Union, Berlin, Germany April 1998.

Guisseppi-Elie, A. (1998) "Remediation By Natural Attenuation for Groundwater at Petroleum Release Sites" presented at the Society of Women Environmental Professionals Meeting, Philadelphia, Pennsylvania. Jan 1998.

"USEPA/AIHC Joint Superfund Demonstration Project" (1997) Society for Risk Analysis (SRA) Workshop, Washington DC, Dec, 1997

"USEPA/AIHC Joint Superfund Demonstration Project" (1997) Tri-services Toxicology Workshop, Wright-Patterson Air Force Base, Ohio, April 1997

Guisseppi-Elie, A., Triemer, L. R. (1994): "USEPA/AIHC Joint Superfund Demonstration Project". Poster presented at the Contaminated Soils Conference, Amherst, Massachusetts, Oct. 1994. *AIHC publication*.

Guisseppi-Elie, A., N. J. Novick (1993) "Environmental Fate Modeling as a Risk Assessment Tool" Presented at the MEPTEC Environmental Conference, Dallas, TX Sept., 1994.

Triemer, L. R., Guiseppi-Elie, A., Lynch, J., O'Toole, C. (1993): "AIHC Exposure Factors Sourcebook". Presented at the SRA Conference, Savannah, Georgia, December 1993. *AIHC publication*.

Guisseppi-Elie, A., O'Toole, C. (1993): "Risk Assessment For Contaminated Site Remediation: What It is, What It Can Do" Presented before the Southern States Environmental Conference, Biloxi, Mississippi, Oct. 1993 and SRA, Savannah, Georgia, December 1993. *AIHC publication*.

Guisseppi-Elie, A., Novick, N. J. (1993) "Field Manual for Pit Closure" Presented at the MEPTEC Environmental Conference, Houston, TX June 1993.

Guisseppi-Elie, A., Novick, N. J. (1993) "Mobil's Experience with Bioremediation" Presented at the MEPTEC Environmental Conference, Houston, TX June 1993.

Walters, R. W.; Guiseppi-Elie, A.; Yousefi, Z.; Means, J. C. " Sorption of Dioxins to Soils". Dioxin '87 Symposium, Las Vegas, Nevada, Oct. 1987.

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