

Association for Environmental Health and Sciences

**23rd Annual International
Conference on Soils, Sediments
and Water
2007**

Contaminated Soils, Sediments and Water Volume 13

October 15-18, 2007
Amherst, Massachusetts, USA

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571
www.proceedings.com

ISBN: 978-1-60560-625-5

Some format issues inherent in the e-media version may also appear in this print version.

© 2007 Annual International Conference on Soil, Sediments and Water
All rights reserved. Volume 13 Contaminated Soils, Sediments and Water

Annual International Conference on Soil, Sediments and Water
Environmental Health Sciences Department
School of Public Health and Health Sciences
N 344 Morrill Science Center
University of Massachusetts
Amherst, MA 01003 USA

The material contained in this document was obtained from independent and highly respected sources. Every attempt has been made to insure accurate, reliable information, however, the publisher cannot be held responsible for the information or how the information is applied. Opinions expressed in this book are those of the authors and/or contributors and do not reflect those of the publisher.

Contents

FOREWORD

CONTRIBUTING AUTHORS

ACKNOWLEDGEMENTS

ABOUT THE EDITORS

PART I: ANALYSIS

1. ANALYSIS OF SULFUR IN THE COPPER BASIN AND MUDDY RIVER SITES USING PORTABLE XRF INSTRUMENTATION 1
MICHAEL BERGER, LING ZOU, AND ROBERT SCHLEICHER
2. LEAD IN SOIL BY FIELD PORTABLE X-RAY FLUORESCENCE SPECTROMETRY – AN EXAMINATION OF PAIRED IN-SITU AND LABORATORY ICP-AES RESULTS 17
DAVID A. BINSTOCK, W.F. GUTKNECHT, A.C. MCWILLIAMS

PART II: BIOREMEDIATION

3. BIOREMEDIATION OF TOCs PRESENT IN FUEL-CONTAMINATED DESERT MINING SOIL AND SAWDUST IN THE ATACAMA DESERT (CHILE) 24
LORENZO REYES-BOZO, ALEX GODOY-FAÚNDEZ, BLANCA ANTIZAR-LALISLAO AND CÉSAR SÁEZ-NAVARRETE
4. USE OF DEGRADABLE, NON-OXIDIZING BIOCIDES AND BIODISPERSANTS FOR THE MAINTENANCE OF CAPACITY IN NUTRIENT INJECTION WELLS 29
BRAD HORN, PE, GARY RICHARDS
5. SPILL CLEANUP OF FUEL CONTAMINATED SOILS AFTER ROADWAY ACCIDENTS USING IN SITU BIOREMEDIATION 42
SATYA GANTI AND BOB FRYE

6. FEATHER WASTE AS PETROLEUM SORBENT: A STUDY OF ITS STRUCTURAL BIODEGRADATION 50
ROJAS-AVELIZAPA, L.I., CERVANTES-GONZÁLEZ, E, CRUZ-CAMARILLO, R, ROJAS-AVELIZAPA, N.G., GARCÍA-MENA, J.

7. ENHANCED BIOREMEDIATION PILOT STUDY OF A Cr(VI)-IMPACTED OVERBURDEN GROUNDWATER SYSTEM IN KANPUR, UTTAR PRADESH, INDIA 59
I. RICHARD SCHAFFNER, JR., P.G., C.G.W.P., RAJIV KUMAR SINGH, PH.D., STEVEN R. LAMB, P.G., C.G.W.P3, DONALD N. KIRKLAND, P.E.

PART III: BROWNFIELDS

8. DATABASE ANALYSIS OF STATE SURFACE SOIL REGULATORY GUIDANCE VALUES 71
AARON A. JENNINGS, PH.D., P.E. AND AMY HANNA
9. FISHERVILLE MILL – A CASE STUDY – COST EFFECTIVE REMEDIATION THROUGH COLLABORATION 108
PAUL OLLILA, JIM SOUKUP, DEAN BRAMMER, BETTE NOWACK, EUGENE BERNAT, ERIC HULTSTROM, JANIS TSANG

PART IV: CHEMICAL OXIDATION

10. EVALUATION OF IN SITU CHEMICAL OXIDATION OF SOILS AT A MIXED WASTE SITE AND ASSESSMENT OF EFFECTS ON GROUND WATER QUALITY 152
RICHARD C. BOST AND ROBERT G. PERRY
11. MUNICIPAL SOLID WASTE USED AS BIOETHANOL SOURCES AND ITS RELATED ENVIRONMENTAL IMPACTS 167
A. LI, M. KHRAISHEH

PART V: ENVIRONMENTAL FATE

12. EFFECTS OF REDUCING CONDITIONS ON THE FATE AND TRANSPORT OF RDX IN GROUNDWATER; A MULTIVARIATE APPROACH 172
MICHAEL W. MORRIS AND LONNIE FALLIN

PART VI: ENVIRONMENTAL FORENSICS

13. THE CASE ON ASSESSMENT OF SPILLED OIL WITH MIXED FREE PRODUCT IN SEOUL 190
SEOG-WON EOM, IL-SANG BAE, JAE-SEUNG LEE
14. FACT OR FICTION: THE SOURCE OF PERCHLOROETHYLENE CONTAMINATION IN GROUNDWATER IS A MANUFACTURING IMPURITY IN CHLORINATED SOLVENTS 200
VALERIE LANE AND JAMES S. SMITH, PH.D.

PART VII: ETHICS IN ENVIRONMENTAL PRACTICE: RESPONSIBILITIES, BENEFITS, AND CASE EXAMPLES

15. THE PUBLIC TRUST AND AIR QUALITY 210
NORMAN ANDERSON, M.S.P.H.
16. DECEPTION AND FRAUD IN THE PUBLICATION OF SCIENTIFIC RESEARCH: ARE THERE SOLUTIONS? 218
CHRISTOPHER M. TEAF AND BARRY L. JOHNSON

PART VIII: HEAVY METALS

17. EXPERIMENTAL AND BIOGEOCHEMICAL MODELING STUDIES ON ARSENIC RELEASE IN SOIL UNDER ANAEROBIC CONDITION 224
MD. ABDUL HALIM, KENJI JINNO, ABDUR RAZZAK, KEITA ODA AND YOSHINARI HIROSHIRO
18. IN SITU STABILIZATION OF ZINC IN SOIL AND GROUNDWATER 240
BERND W. REHM, ROBERT KONDELIN, AND STEVE MARKESIC
19. EFFECT OF PHOSPHOROUS, ORGANIC AND SAPROPEL AMENDMENTS ON LEAD, ZINC AND CADMIUM UPTAKE BY TRITICALE FROM INDUSTRIALLY POLLUTED SOILS 253
KRASIMIR I. IVANOV, VIOLINA R. ANGELOVA, AND STEFAN V. KRUSTEV

PART IX: MODELING

20. EVALUATING THE IMPACTS OF UNCERTAINTY IN GEOMORPHIC CHANNEL CHANGES ON PREDICTING MERCURY TRANSPORT AND FATE IN THE CARSON RIVER SYSTEM, NEVADA 266
R.W.H. CARROLL AND JOHN J. WARWICK
21. BIOSCREEN, AT123D, AND MODFLOW/MT3D: A COMPREHENSIVE REVIEW OF MODEL RESULTS 281
ROBERT A. SCHNEIKER, P.G. AND LILIANA CECAN, P.E., PH.D.

PART X: REGULATORY

22. URBAN POLYCYCLIC AROMATIC HYDROCARBONS (PAHS): A FLORIDA PERSPECTIVE 304
CHRISTOPHER M. TEAF, DOUGLAS J. COVERT, SRIKANT R. KOTHUR

PART XI: REMEDIATION

23. ORGANOCLOYS TRAP RECALCITRANT METALS AND ORGANIC COMPOUNDS IN SEDIMENTS SIMULTANEOUSLY 316
GEORGE R. ALTHER

24.	ELECTRICAL RESISTANCE HEATING OF SOILS AT C-REACTOR AT THE SAVANNAH RIVER SITE <i>MARK E. FARRAR, MICHAEL R. MORGENSTERN, JOSEPH A. AMARI, ANNAMARIE MACMURRAY, TERRY P. KILLEEN, AND ROBERT F. BLUNDY</i>	328
25.	APPLICATION OF ELECTROCHEMICAL TECHNIQUES FOR THE REMEDIATION OF SOILS CONTAMINATED WITH ORGANIC POLLUTANTS <i>ELISA FERRARESE AND GIANNI ANDREOTTOLA</i>	343
26.	PILOT EXPERIMENT OF IMMOBILIZATION OF CONTAMINANTS IN-SITU <i>JIRÍ MUŽÁK, LUDVÍK KAŠPAR AND VLADIMÍR BENEŠ</i>	373
27.	ATRAZINE BIODEGRADATION AS RELATED TO THE PHYSIOCHEMICAL PROPERTIES OF A CISNE SOIL FROM A MAJOR ATRAZINE SPILL SITE: ATRAZINE BIODEGRADATION IN A CISNE SOIL EXPOSED TO A MAJOR SPILL <i>ELIZABETH SHAFFER, MALCOLM PIRNIE, GERALD SIMS, ALISON M. CUPPLES, CHARLES SMYTH, JOANNE CHEE-SANFORD</i>	380
PART XII: RISK ASSESSMENT		
28.	HEALTH EFFECTS OF EXPOSURE TO SOILS CONTAMINATED BY HYDROCARBON OR HEAVY METAL COMPOUNDS <i>MOHAMED S. ABDEL-RAHMAN, RITA M. TURKALL, AND GLORIA A. SKOWRONSKI</i>	403
29.	ASSESSING THE PUBLIC HEALTH SIGNIFICANCE OF SUBSURFACE-CONTAMINANT VAPORS INTRUDING INTO INDOOR AIR <i>HENRY J. SCHUVER</i>	416
PART XIII: SEDIMENTS		
30.	CONSTRUCTION OF BIOLOGICALLY PRODUCTIVE ARTIFICIAL TIDAL FLATS WITH SOLIDIFIED SEA BOTTOM SEDIMENTS <i>DAIZO IMAI, SATOSHI KANECO, AHMED H. A. DABWAN, HIDEYUKI KATSUMATA, TOHRU SUZUKI, TADAYA KATO, AND KIYOHISA OHTA</i>	451
31.	ENCLOSING DIOXINS CONTAMINATED SEDIMENTS BY GEOTEXTILE TUBES <i>YUGO MASUYA, HITOSHI TANINAKA, ISAMU TAKAHASHI, AND HIDETOSHI KOHASHI</i>	466
	INDEX	480