

各位台灣土壤及地下水環境保護協會的會員及會友，大家好：

行政院環境保護署將於 **2014 年 8 月 19-20 日(星期二~三)**假 **臺中市國立公共資訊圖書館**，與美國環保署合作舉辦『**污染場址累加式代表性樣品採樣規劃講習會(Workshop on Incremental Sampling and Field XRF for Metal Contamination in Soils)**』，由兩位來自美國的專家 Ms. Deana Crumbling 及 Mr. Stephen Dymant，與我們分享美國在土壤採樣技術方面的發展與經驗，會中並邀請「亞太土壤及地下水污染整治工作小組」(ReSAGPAPR WG <http://www.resagpac.org/>) 各會員國成員來臺，共同參與學習及討論。

本講習會課程提供環境工程科、大地工程科與應用地質科等**專業技師訓練積分**，還可申請**環境教育學習時數**、**公務人員終身學習時數**與**土壤污染評估調查人員訓練時數**，現場並有**同步中英文口譯**，**免報名費**，機會難得，誠摯歡迎各界人士踴躍參與！

講習會議程請參見附檔，您也可以隨時上網查看最新講習會資訊，網址為：本協會網頁 <http://www.tasgep.org.tw/> 或 <http://Orz.tw/0Bj1Z> (議程安排可能依活動實際辦理情形彈性調整，不再另行通知。)

本講習會報名時間自**即日起至 2014 年 8 月 13 日止(額滿則提前截止)**，意者請至下列網頁進行線上報名 <http://Orz.tw/qBcWi>，**名額有限**，有興趣者敬請及早報名。

會場交通資訊請參考國立公共資訊圖書館官方網站
<http://www.nlpi.edu.tw/About/branch/newlibrary.htm>

若有任何問題，歡迎洽詢亞太土水工作小組計畫專任助理 李依庭小姐

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台灣土壤及地下水環境保護協會 敬邀

Zueng-Sang Chen, Ph.D. (臺大 農化系 陳尊賢 特聘教授)

Chairman of Working Group on the Remediation of

Soil and Groundwater Pollution of Asian and Pacific Region (WG ReSAGPAPR) (2011-2014)

c/o

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社團法人台灣土壤及地下水環境保護協會

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報名完成後，請於 2 個工作日後前往 <http://ppt.cc/SsL5> 確認報名是否成功。

報名及報到注意事項:

1. 講習會報到時間為 08 月 19 日(二)上午 09:00-09:30 及 08 月 20 日(三)上午 08:30-09:00
2. 需要任一訓練學習時數者，請務必親自全程參與並配合簽到，事後不予以補辦。
3. 報到時發給當日午餐便當餐券，敬請 2 天都確實辦理報到。
4. 活動相關資料請至 <http://Orz.tw/0Bj1Z> 下載，本講習會訊息及資料亦公告於土水協會網站 <http://www.tasgep.org.tw/>。
5. 講習會講義限量 180 本，現場依報到優先順序發放，會後恕不補發。
6. 現場聽譯耳機數量有限，需要者當日請及早報到，以免向隅。
7. 為響應環保，請自備環保杯。
8. 會議地點位置圖及交通指引請參考國立公共資訊圖書館官方網頁 <http://www.nlpi.edu.tw/About/branch/newlibrary.htm>
9. 報名聯絡人：李依庭 小姐 Tel：(02)3366-4807
E-mail：r01623015@ntu.edu.tw

Thank you for registering to participate in the “Workshop on Incremental Sampling and Field XRF for Metal Contamination in Soils”. Please confirm your registration at the website <http://ppt.cc/SsL5> after 2 workdays.

Attention:

1. Registration time: August 19 (Tue) am 09:00-09:30 and August 20 (Wed) am 08:30-09:00
2. Venue: National Library of Public Information (No.100, Wuquan S. Rd., South Dist., Taichung City 40246, Taiwan)
3. Please visit <http://Orz.tw/0Bj1Z> or “Taiwan Association of Soil and Groundwater Environmental Protection Website <http://www.tasgep.org.tw/>” to download workshop agenda.
4. For map and transportation please visit National Library of Public Information website: <http://www.nlpi.edu.tw/english/About/loan05.htm>
5. Contact information: Yi-Ting Lee, TEL：(02) 3366-4807, E-mail：
r01623015@ntu.edu.tw

【2014 臺美講習會】

污染場址累加式代表性樣品採樣規劃講習會

Workshop on Incremental Sampling and Field XRF for Metal Contamination in Soils

時間(Date):8月19-20日(August 19-20, 2014)

地點(Venue):臺中市國立公共資訊圖書館國際會議廳 (National Library of Public Information)

主辦單位:行政院環境保護署、美國環保署

協辦單位:台灣土壤及地下水環境保護協會、亞洲土壤及地下水污染整治工作小組、
環境分析學會、國立臺灣大學農業化學系

講習會議程

Date/Time	Topic	Speaker
19 August (Tuesday)		
09:00 – 09:30	Registration	
09:30 – 09:45	Opening Remarks	Taiwan EPA
09:45 – 10:45	Introduction: Elements of a Successful Soil Sampling and Analysis Project	Steve Dymont
10:45 – 11:00	BREAK	
11:00 – 12:00	The Nature of Soil Can Cause Data to be Misleading	Deana Crumbling
12:00 – 01:00	LUNCH	
01:00 – 01:45	What is Incremental Sampling?	Steve Dymont
01:45 – 02:45	Incremental Sampling: Collecting a Representative Field Sample	Deana Crumbling
02:45 – 03:00	BREAK	
03:00 – 04:00	Incremental Sampling: Taking a Representative Subsample from the Field Sample	Steve Dymont
04:00 – 05:00	Calculations Used with Incremental Sampling	Deana Crumbling
05:00 – 05:30	Resources and Tools for Incremental Sampling	Steve Dymont
05:30 –	Day One Concludes	

Date/Time	Topic	Speaker
20 August (Wednesday)		
09:00 – 09:15	Quick Review of Yesterday's Material	Deana Crumbling
09:15 – 10:00	Introduction to X-Ray Fluorescence (XRF) Technology and XRF Quality Control	Steve Dymont
10:00 – 10:30	Comparing Laboratory Metals Results to XRF Metals Results: Example Data Sets When Sampling Error Is and Is Not Controlled	Deana Crumbling
10:30 – 10:45	BREAK	
10:45 – 11:05	Composite Sampling to Detect Spatial Concentration Trends	Steve Dymont
11:05 – 12:00	Combining Incremental Sampling with Field XRF Analysis to Determine the Concentration of a Decision Unit	Deana Crumbling
12:00 – 01:00	LUNCH	
01:00 – 01:30	Using XRF to Refine an Incremental Sampling Design	Steve Dymont
01:30 – 02:00	Talk Through a Hypothetical Project: Planning & Design	Deana Crumbling
02:00 – 02:30	Talk Through a Hypothetical Project: Field Implementation	Steve Dymont
02:30 – 03:00	Talk Through a Hypothetical Project: Decision Documentation	Deana Crumbling
03:00 – 03:15	BREAK	
03:15 – 03:30	Resources and Tools for XRF	Steve Dymont
03:30 – 04:30	Introduction to High Resolution Site Characterization (HRSC)	Steve Dymont
04:30 – 05:00	Questions and Discussion	Taiwan EPA
05:00 –	Workshop Ends	

Deana M. Crumbling
Alexandria, Virginia, U.S.A.
Work phone: (703) 603-0643
E-mail: crumbling.deana@epa.gov

Deana Crumbling has been an environmental scientist in the U.S. Environmental Protection Agency's Superfund program since 1997. Her work at U.S. EPA involves using emerging technologies to speed up characterization of contaminated land while simultaneously documenting the scientific and statistical defensibility of cleanup decisions and lowering overall cleanup costs.

Ms. Crumbling's current activities focus on

- Control of data error stemming from soil heterogeneity,
- Real-time sample analysis and quality control,
- Statistical analysis of contaminant data, and
- Work plans that allow practitioners to refine sampling and analysis designs in real-time to adapt to the actual field conditions they encounter.

Her job with U.S. EPA involves

- Interacting with researchers and cutting-edge practitioners,
- Preparing technical guidance to assist U.S. EPA staff and other cleanup practitioners,
- Developing electronic tools to aid practitioners' interpretation of data,
- Creating training courses, and as needed
- Providing hands-on technical support to specific projects.

She has been responsible for the development of 13 U.S. EPA government publications, and has authored/co-authored 15 journal articles. Ms. Crumbling has delivered hundreds of national and international conference presentations, classroom training courses and webinars. She participates in a range of cross-government collaborations to

- Evaluate research products,
- Disseminate information about the difficulties of obtaining reliable information from soil samples, and
- Urge practitioners to adopt more efficient and effective procedures.

In addition to her work on site remediation Ms. Crumbling's environmental interests range from climate change to ecological watershed issues and pollinator preservation.

EDUCATION:

M.S. in Environmental Science, 1997, Drexel University, Philadelphia, PA, USA

B.S. in Biochemistry, 1989, Lebanon Valley College, Lebanon, PA, USA

B.A. in Psychology, 1989, Lebanon Valley College, Lebanon, PA, USA



Stephen Dymont

U.S. EPA, Office of Superfund Remediation and Technology Innovation
Technology Integration and Information Branch
1200 Pennsylvania Ave., NW (5203P)
Washington, DC 20460
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Executive Profile

Senior Program Manager/ Analytical Chemist

Accomplished and dynamic career with more than 18 years experience in planning, developing, and implementing state of the art solutions for industry and environmental sites with complex remediation and compliance issues. Innovative professional with proven ability to develop and implement field and laboratory analytical chemistry techniques, manage decision uncertainty, design sampling networks, provide statistical data analysis, and utilize project management strategies to facilitate significant cost savings and expedite site closure or redevelopment.

Professional Experience

12/9/2005-Present Technical Support Program Manager
United States Environmental Protection Agency- Washington D.C.
Office of Superfund Remediation and Technology Innovation (OSRTI)
Technology Innovation Field Services Division (TIFSD)
Technology Integration and Information Branch (TIIB)

Program Management

- Program manager for technical assistance to EPA Regions, States, Tribes, and local governments in Superfund, Brownfields, RCRA, UST, and voluntary cleanup programs.
- National lead for the Superfund dioxin interim preliminary remediation goal (iPRG) sampling team.
- Manage significant contracts with technical support contractors and interagency agreements with the U.S. Army Corps of Engineers, and Argonne National Laboratory.

Accomplishments: Instrumental in shaping national policy regarding acceptance and implementation of innovative analytical techniques, remediation technologies, and sampling strategies in a variety of regulatory frameworks.

Direct Technical Support

- Provide direct technical support for optimization, Triad implementation, and other OSRTI initiatives at more than 60 sites. Directly involved with facilitation of systematic planning and applying the latest best management and technical practices regarding cutting edge analytical tools, sampling strategies, decision support and visualization tools.
- Responsible for conducting and coordinating review, comments, and responses from technical team members on site specific planning documents, QAPPs, CSMs, reports, design reviews, and technical memorandums.

Accomplishments: Instrumental in shaping regional and programmatic implementation of innovative technologies in a variety of regulatory frameworks.

Outreach

- Author of more than 20 publicly available technical bulletins, case studies, and site profiles highlighting appropriate use of Triad best management and technical practices.
- Develop and deliver a series of 1-3 day training courses on high resolution site characterization, Triad and specific components, field portable x-ray fluorescence tools, sampling design, and demonstration of method applicability studies.
- Develop and deliver technical training for small business capacity building in Superfund and Brownfields
- Develop and deliver numerous presentations and participate in panel sessions at national and international conferences including European CONSOIL, National Brownfields conferences, National Association of Remedial Project Managers, Nielson Environmental, Joint Services Environmental Management, DoD conferences, Association of State and Territorial Solid Waste Management Officials, Battelle, and others.

Accomplishments: Outreach efforts have resulted in the formation and management of several professional work groups such as the Superfund dioxin iPRG sampling team, the national optimization strategy team, and the US and European Triad communities of practice. Specialty course and presentation materials provide a template for environmental professionals and regulators to implement innovative technologies and strategies successfully at sites across the US and Europe.

9/9/1997-12/5/2005

Analytical Chemist and Project Manager
Tetra Tech EM Inc.-Denver/Boulder, CO.

Program Design

- Design materials and training classes to assist industry and consultants in characterizing and developing remedial strategies for sites in a timely and cost efficient manner using the Triad approach. The approach relies heavily on systematic planning, dynamic work plans, and a combination of field based measurement technologies and analytical laboratory analyses to achieve site objectives faster, more efficiently, and at significantly reduced costs.
- Provide web based and classroom training support for EPA OSRTI. Coordinate activities and provide direct technical oversight for development of teaching materials, case studies, and guidance documents.
- Supply on-site training and direct site support to lead project managers through the various stages of the Superfund pipeline, Brownfields assessment and remediation grants/projects, UST, RCRA, and State led voluntary cleanup programs using the latest strategies and technologies.

Accomplishments: Resource and time savings have resulted in promotion of economically viable options for re-development of properties with environmental concerns throughout the United States to the benefit of government, the public, and private industry.

Project Management

- Project manager for investigation and remediation projects at several US Naval, DOE, and Army facilities in the Western United States. Private clients also include major telecommunication firms, utilities, and energy sector companies.
- Develop scope of work and cost estimates, review historical data, develop site-specific characterization and remediation approaches, coordinate collection of analytical data, review data, draw conclusions, and author site documentation. Monitor invoicing, contracting and financial aspects of the project.
- Extensive experience in site characterization and remedial investigations, phase I and II environmental assessments, property transaction screens, SPCC plans, HMMPs, HMISs, and NEPA compliance for government entities and private clients in the telecommunications and energy industries.

Accomplishments: Successful management of large (costs exceeding \$1 Million) projects including site investigation, characterization, remediation, and closures. Assist clients with regulatory compliance issues resulting in significant reductions in overall project costs. Cost savings averaging 30% over conventional "static" investigations.

Statistical Analysis and Risk Assessment Support

- Extensive knowledge of the statistical software package, STATISTICA, providing clients with risk assessment quality data interpretation to evaluate human health and ecological risks. Statistical evaluations of complex data sets have also been used to develop correlations for components of complex petroleum mixtures necessary for fingerprinting materials, and differentiating contaminants for responsible parties.
- Authored several background groundwater and soil studies at Navy facilities enabling clients to differentiate site contaminants from naturally occurring background concentrations.
- Provide statistical support for the evaluation of innovative remedial technologies to aid project managers in assessing the feasibility of these technologies on a full scale.
- Development of field based action levels for field analytical technologies. Results are evaluated in comparison with collaborative off site laboratory analyses using conventional analytical methods to facilitate dynamic work strategies and allow project decisions to be made in real time while field activities are being conducted.

Accomplishments: Management of analytical and sampling uncertainty in relation to decisions being made at client sites has resulted in increased statistical power and confidence, enhanced stakeholder support, and reduction in overall project costs.

Quality Assurance Chemistry

- Assist Arcadia Consulting and Kaiser Hill with independent third party review of an automated data verification and validation program and development of data quality assessments for all analytical data at the Rocky Flats Environmental Technology Site.
- Provide comprehensive commercial laboratory audits to assist client programs in laboratory protocol development. Assess the technical capabilities and reporting deliverables for laboratories prior to use for agency programs.

Accomplishments: Provided clients at Rocky Flats with comprehensive and timely evaluations of data usability for accelerated actions, human health and ecological risk assessment, and site closure. Activities have increased productivity and regulatory agency acceptance of site documents resulting in the potential for \$250 Million in performance based incentives for clients.

Remediation/Bioremediation

- Significant experience under Navy CLEAN and EPA SITE and FEATS programs including: conventional pump and treat systems, passive/active barriers, thermal desorbition/destruction technologies, treatment ponds, and enhanced bioremediation using constructed wetlands, venting, and sparging techniques.
- Remediation activities have been used on a variety of matrices including soil, groundwater, surface water, mine drainage, and soil gas. Expertise has been utilized in designing sampling networks, methods, and frequencies to monitor the progress of these remedial systems.

Accomplishments: Projects have seen significant contaminant reduction in petroleum products, volatile and semi-volatile organic compounds, pesticides, and metals at various sites. Successful treatment of site contaminants to below regulatory thresholds resulting in quick efficient clean-ups, no-further action status, and re-development or re-use of crucial client properties.

Water/Wastewater

- Vast experience in groundwater and surface water sampling and analysis techniques through work with the U.S. Navy, U.S. Army and EPA. Sampling activities include conventional purge and micro-purging techniques using a variety of pumping and analytical equipment, direct push platform sampling, and in-situ sensors such as laser induced fluorescence and membrane interface probes.
- Evaluate remedial technologies for acid mine drainage, metals contaminated surface waters, and groundwater contaminated with chlorinated solvents and nerve agent production by-products.
- Groundwater chemistry, water level contouring and modeling used to enhance client understanding of the natural and technology enhanced processes taking place at their facilities.

Accomplishments: Use of new and innovative sampling, analysis, and remediation strategies at client sites have resulted in greater sampling density, higher data confidence and expedited site closure, saving clients significant time and money.

8/20/1993-1/15/1996

Analytical Chemist

Energy and Environmental Engineering, Commercial Analytical Laboratory- Somerville, MA

Analytical Chemistry/ Health and Safety

- Instrument analyst with significant experience in GC/MS analysis of pesticide, PCB, and VOC compounds, TPH purgeable/extractable analysis, TOC analysis by chemical oxidation, various organic and inorganic preparation and sample clean-up procedures using EPA CLP, EPA 600 series, EPA 300 series, and SW-846 methodologies.
- Waste manager for a small quantity generating facility. Responsibilities included monitoring and tracking of all waste streams for organic, inorganic, and instrument laboratories and the design and supervision of on-site storage facilities. Supervised waste removal and generated quantitative and qualitative reports for the Massachusetts Department of Environmental Protection concerning waste management activities at the facility.
- As health and safety chairman for the entire facility, duties included responsibility for employee training, safety equipment inventory and purchasing, and implementation of a facility air quality-monitoring program. Developed and authored laboratory procedures, hazardous communication manuals, and instrument standard operating procedures.

Accomplishments: Supervised construction of appropriate material containment facilities, identified solvent recycling opportunities and optimized waste generation/reduction procedures to achieve 5% cost savings in operating expenses.

Awards

- 2006- Bronze Medal for Commendable Service- Improving Site Assessment and Cleanup
- 2008- National Notable Achievement Award – Cross Program Land Revitalization/ Poudre River, Colorado
- 2010- OSWER Excellence award- Advancing Innovative Technologies and Approaches
- 2010- OSRTI Innovation Award for Engineering and Science-Dioxin Sampling Strategy Team
- 2011- OSWER Science/Technical Achievement Award- Dioxin Sampling Strategy Team
- 2012- OSRTI Regional Support Award- 3D Visualization and Triad Technical Support

Education

B.A., Environmental Science/Toxicology, Focusing on Analytical Chemistry

University of Massachusetts-Amherst, 1989-1993.

Executive Potential Program- USDA Graduate School Washington, DC 2009-2010.

Registrations/Certifications

40 Hour OSHA 1993-Present

8 Hour DOT 1993-Present

CPR/First Aid 1987-Present

References and project descriptions available upon request