2017 International Conference for Environmental Data Management

The Eighth Annual International Conference for Environmental Data Management (ICEDM) provides environmental data management professionals with a two-day opportunity to share: ideas, tools and custom applications, brainstorm and collaborate on data workflow, and present data management success stories. The conference is limited to 50 registrants. There is a non-refundable registration fee of $300 per person for both days, which includes snacks and lunch each day and a participation certificate.

Dates: May 10-11, 2017

Location: The Rathskeller
                        401 E. Michigan St.
                        Indianapolis, IN 46204

Registration Info: You can register via PayPal on the conference website at (www.icedm.net). ICEDM registration does NOT include hotel accommodations (see below).

Hotel rooms have not been reserved for the conference; the venue recommended the following hotels:

Hilton Garden Inn
10 East Market Street, Indianapolis, IN 46204
1-855-239-9477

Homewood Suites by Hilton
211 S Meridian St, Indianapolis, IN 46225
1-866-539-9262

Hilton Indianapolis Hotel
120 W Market St, Indianapolis, IN 46204
1- 855-239-9397

The 2017 Conference Schedule and Agenda presented below may change as the conference approaches. The most current version of the agenda will be available on the conference website.

2017 International Conference for Environmental Data Management Agenda

Please call **Dan Higgins at (503) 789-4758** or **Sarah Wright at 206-794-5888** with questions, or suggestions for additional activities or presentations.

Conference Schedule:

Meeting Space: Ballroom

Day 1 – May 10, 2017		
8:00 AM	**Continental Breakfast and Conference Welcome**	
8:30 AM	**Welcome**	**Dan Higgins (Haley and Aldrich), Lacy Smith (Wilcox), and Sarah Wright (Locus Technologies)**
9:30 AM	**System Design of US EPA's Interoperable Watersheds Network**	The maturation and expansion of water and air sensing technology has led to copious amounts of 'real-time' data being generated that are incredibly useful but owned by a multitude of agencies, stored in different formats, and not easy to discover and acquire. The Interoperable Watersheds Network (IWN), created by US EPA's Water Quality Framework team, is a national data sharing platform that seamlessly links all continuously monitored sensor data into one searchable location. Among the many use cases, it will allow water quality managers to better evaluate the health of local water resources by providing them with near real-time access to watershed-level monitoring data from multiple sources. During the pilot phase of this project, we tested the performance and utility of international data standards to demonstrate the delivery of continuous data in a common format across multiple platforms. The IWN discovery tool, Currents, now provides access to 15,678 sensors nationwide from 8 data providers, including state, local, and federal agencies. The IWN is not designed as a data repository, but rather as a discoverable index and portal to acquire the data of interest. We created a central catalog that contains an index of all sensors registered in the IWN, which allows users to quickly discover what data are available. Only once the user has chosen a sensor data set to view does the IWN reach out to the provider's data repository through a custom Data Appliance to acquire the data. The Data Appliances were set up using open source platforms and web service based design to enable other applications to easily connect. Cloud options for the Data Appliances were crucial to success of the IWN. The entire IWN system utilizes international data sharing standards from the Open Geospatial Consortium. The WaterML2 standard describes the format of the continuous data while the Sensor Observation Service is a communication standard for querying sensor data and associated metadata. We utilized the EPA Substance Registry Services to standardize the parameter terms across all data providers.

		Britt Dean (US EPA- Office of Wetlands, Oceans, and Watersheds)
10:15 AM		BREAK
10:30 AM	**Metadata Matters – How a big problem came to light, but led to a collaborative solution.**	The Nutrient Best Practices workgroup was created in response to feedback received from both USGS and EPA's Office of Enforcement and Compliance Assurance about challenges using nutrient data from multiple organizations available through the Water Quality Portal. State, tribal, and territory environmental agencies were invited to join. The group addressed ambiguous and synonymous parameter naming conventions, analytical methods, physical sample fraction, and chemical form information. Other issues included missing censored data and duplicate monitoring sites and data. In April 2017, the workgroup completed the document, Best Practices for Submitting Nutrient Data to the Water Quality eXchange (WQX) for data submitters to follow for future submissions and to update their previous submissions if they are willing to fix the historical data. While this document focuses on WQX, the principles pertain to any EDMS. **Christine Neumiller (Washington Department of Ecology)**
11:15 AM	**Historical Data Migration and EQuIS™ Alive**	Fifteen years' worth of historical data in Excel spreadsheets is finally going to be migrated to a database where the data can be better managed, with the value in managing these data as an asset in a modern database well understood. Less obvious, is the importance of investing in the quality assurance oversight of the historical data migration itself. This talk will tell the story of Seattle Public Utilities' historical migration of its Cedar River Hatchery fish counts, taxonomy, life stage, physical attributes, and hatchery identification data to EarthSoft EQuIS as an early adopter of the EQuIS Alive data module, and share our lessons learned from this process. Having chosen EQuIS Alive for its flexible features, including custom fields, we created data formats, populated the EDDs, and loaded the data to EQuIS. Simple? Not so much. Some of the ideas explored in this presentation regarding how the steps in the process failed—and succeeded—along the way will be: How are data formats created, and how many formats do you really need? What is in a mapping document, and how can these documents be best used to document historical (source) data fields? What is the process for data quality assurance, for example, how do you check source to EDD/database attribute values, and at what frequency? Ultimately, this story and the lessons learned will show what can be gained from historical data migration quality assurance oversight and how this quality is best achieved. Also,

		we will explore being an early adapter of software and its potential hidden cost. **Jennifer Arthur, Ph.D. (Seattle Public Utilities)**
12:00 PM	**LUNCH**	
12:45 PM	**Round Table Discussion** **Making Data Management a Core Business Value**	Round table discussions have been ICEDM's most popular activity in past years and attendees have frequently requested additional time for these sessions. This year's conference will allow attendees to spend additional time discussing data management as it pertains to an organization, and strategies for integrating data management into an organization's core values. Discussions may focus on: shifting organizations' cultural views on data, demonstrating the value of data management solutions, and strategies that work. **Lacy Smith (Wilcox)**
2:00 PM	**BREAK**	
2:15 PM	**Best Management Practices – Data Management Planning**	The Data Management Plan subcommittee is working on delivering a content template for environmental data management plans. The content template will be a stand-alone part of our white paper, and our intent is for this template to be reused and adapted for any appropriate project. The white paper will address some of the central concerns raised in previous ICEDM meetings including: what are the key benefits in having a data management plan; what key content is recommended in an effective plan for an environmental project; how do we address unconventional and new data sources/types; what is the difference between a data management plan and a QAPP, QMP, sampling plan etc; and, what key content is required now or may be required in the future by national and local regulatory bodies. **Theresa Kennedy (ERM) and Subcommittee**
3:00 PM	**Best Management Practices – EDD Standardization**	The Analytical/Lab EDD sub-committee is looking into best practice management of EDDs within the lifecycle of an Environmental Data Management system/workflow. The committee has identified a number of interesting topics to cover, including the management of 'data qualifiers' within EDDs as they are passed between project stakeholders, how data calculations should be reported in EDDs, and how an EDD should be audited and archived. The initial goal of the sub-committee will be to create a white paper looking into the 'Minimum Requirements for a Global Standardised EDD Structure for Laboratory Data', which is planned to be presented in April/May 2017. **Karl Daines (SGS) and Subcommittee**

3:45 PM	**Onboarding Toolkit for an Environmental Data Management System Implementation**	Managing implementation of an Environmental Data Management System (EDMS) for a global energy company presents many challenges. The company's goal in implementing the EDMS is to centralize data and enable adherence to the organization's Security of Information Policy. The EDMS houses data for hundreds of sites ranging in complexity from small retail gas stations to large refineries and mining sites. Additional challenges include disparate legacy systems and procedures, and the need to accommodate users from both inside and outside the organization. All these sites and their associated project teams need to be successfully onboarded to ensure buy-in of a central EDMS. Our team has developed an Onboarding Toolkit with the aim of making the implementation process for each site as efficient and consistent as possible, while adapting to the specific needs of each site team and adhering to the company's business standards. The Onboarding Toolkit includes very specific tools such as a library of Standard Operating Procedure documents, checklists for system testing, standard user permissions models, and repositories of reporting tools and data collection forms. The Onboarding Toolkit also includes conceptual items such as models for various onboarding scenarios, processes for engaging with stakeholders, and continual improvement via lessons learned. The structured implementation of the EDMS using the Onboarding Toolkit built on the lessons learned and best practices have contributed to expedited onboarding with minimum costs and no disruption to business. **Pramod Neelappa (BP), Kathryn Klatt, and Rikka Bothun (ddms, inc.)**
4:30-5:00 PM	**OPEN DISCUSSION**	ICEDM strives to provide attendees a forum for open discussion of data management topics. During this session attendees will engage in discussion of the topics covered throughout the day and propose topics for further discussion throughout the conference.
5:00-7:00 PM Happy Hour – Provided by ICEDM Sponsors: **Silver: Haley & Aldrich, Wilcox & Bronze: Locus Technologies, ddms, inc.**		

2017 International Conference for Environmental Data Management Agenda

Day 2 – May 11, 2017

8:00 AM	**Continental Breakfast**
8:15 AM	**Coffee Talk!** **Communicating The Power of Data Management**	2017's Coffee Talk will focus on how to communicate the power of data management and how it can be leveraged to unlock any project's secrets. The Coffee Talk will start with a casual introduction to the three related efforts and forums ICEDM is using to present the Best Management Practices efforts, ACWI (https://acwi.gov/aboutus.html) , EDDM (http://crrc.unh.edu/EDDM), and NEMC (http://www.nemc.us/). After these introductions, attendees are welcome to offer other venues and strategies for communication. **Chris Mickle (Cardno), Brooke Roecker (ddms, inc.), and Sarah Wright (Locus Technologies)**
9:30 AM	**BREAK**
9:45 AM	**EQuIS Alive for Clean Water Act 316(b) Compliance**	The U.S. Environmental Protection Agency released Final Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities under Section 316(b) of the Clean Water Act on May 19, 2014. This rule establishes requirements for existing power generating facilities and existing manufacturing and industrial facilities designed to withdraw more that 2 million gallons per day of water from waters of the United States and use at least 25 percent of the water they withdraw exclusively for cooling purposes. The rule includes a national performance standard as the Best Technology Available (BTA) to address impingement mortality and existing units based on modified traveling screens with fish returns. This presentation will describe how Cardno configured EQuIS Alive for the capture of impingement and entrainment data using EQuIS Alive and EDGE for the collection and reporting of information to meet the reporting requirements. **Chris Mickle (Cardno)**
10:30 AM	**Best Management Practices – Historical Data Migration**	From field measurements to laboratory results, lithology to well construction data, having a unified data management system is a key component for efficient environmental site analysis and reporting. To build a centralized system often involves incorporating historical data from legacy systems or documents. The historical/legacy data sub-committee is reviewing and documenting best management practices for handling and documenting historical data. The sub-committee's initial white paper topic addresses the process of and quality considerations in

		evaluating/auditing historical data. We look forward to presenting the white paper at the 2017 ICEDM. **Brooke Roecker (ddms, inc.) and Subcommittee**
10:45 AM	**BREAK**	
11:00 AM	**Best Management Practices – Valid Values**	The Valid Values subcommittee is developing a best practice white paper that will address the process for managing valid values in an environmental database for the long-term success of an environmental project. This process includes the responsibilities of the data management team members for identifying, approving, updating, and communication valid value changes to members of a project team, throughout an organization, and externally to data providers and regulatory stakeholders. Additional information will identify popular valid value tables that are frequently included in an environmental data management system with authoritative resources that can be referenced for confirming appropriate valid values. The goal is to provide this information in a format that can be adopted by an organization based on their size and data management system in place. **Chris Mickle (Cardno) and Subcommittee**
11:45 PM	**LUNCH**	
12:45 PM	**Round Table** **Best Practices – Path Forward**	Over the last six months, the ICEDM Best Management Practices teams have been hard at work developing White Papers focused on: Analytical EDD Standardization, Data Management Plans, Historical Data, and Valid Values. The Group's mission has been to provide vendor and platform neutral guidance documents defining the best management practices for the environmental data management industry. The group collaborating on this effort consists of top data managers across all sectors of the environmental industry, including government agencies, consulting firms, industry, and software vendors. The group has further committed to communicate these four best management practice documents to the environmental community by presenting at conferences (NEMC), collaborating with other groups (ACWI, EDDM, and others) and through the ICEDM's considerable network. During this round table we will discuss the path forward for the BMP, how to further communication of our efforts, and ensure that the BMP provides the highest value possible to the environmental data management community. **Kristen Ward (Langan)** **Panel: Brooke Roecker (ddms, inc.), Chris Mickle (Cardno), Karl Daines (SGS), Theresa Kennedy (ERM)**

2:15 PM	BREAK	
2:30 PM	**Driving Utilization of an Enterprise Environmental Information Management System**	When implementing an enterprise Environmental Information Management System (EIMS), companies will typically have a business case, and set of objectives that drive the selection and initial implementation of the solution. The challenge for many companies is to translate those business objectives into a sustainable process in which all stakeholders are invested, and for which measurable performance can be assessed over time. Two case studies, both involving large Oil & Gas companies, are evaluated to determine the factors that influenced the success of those EIMS implementations, and to provide prescriptive guidance for other companies engaged in similar efforts. **David McConaughy (Locus Technologies)**
3:15 PM	**Retaining Data Quality in a Mobile World**	With continued advancements in technology, mobile data collection (e-data) is quickly becoming a standard practice to provide quick access to data, resulting in a faster decision making process. While it may be tempting to head out into the field to start collecting data with your nearest smart phone or tablet, how do you ensure the information being collected is of good quality? Leveraging current technology properly not only increases overall project efficiencies, but also helps to maintain quality control, ultimately reducing risk. This presentation will focus on considerations when implementing e-data collection practices. **Andrea Brazell and Kristen Ward (Langan)**
4:00 PM	**Closing Discussion and Remarks**	