E-Enterprise for the Environment
EE2020
Powered by the Exchange Network

Envisioning the Future of Environmental Protection

Working Draft Agenda
****All Topics, Speakers, Times Subject to Change****

2020 E-Enterprise for the Environment National Meeting
May 12-14, 2020
Chicago, Illinois

Monday, May 11, 2020

5:00 PM - 6:00 PM	**Pre-Registration**	**Drake**

Tuesday, May 12, 2020

7:00 AM	**Registration**	**Drake**
7:00 AM	**Continental Breakfast (provided)**	**Room TBA**
General Session		**Room TBA**

8:15 AM **Kickoff of EE2020**

8:45 AM **Welcome to Region 5 and the Great Lakes Ecosystem**
Chris Korleski, Director, U.S. EPA Great Lakes National Program Office

9:15 AM **The Chicago Array of Things**
Charlie Catlett, Argonne National Laboratory

The Chicago Array of Things (AoT) is like a fitness tracker for the City of Chicago. It's a network of internet-connected sensors, computers, cameras and other tools that measure the environment, health, and vitality of the city. The AoT is a collaborative effort among leading scientists, universities, local government, and communities to collect real-time data on urban environment, infrastructure, and activity for research and public use. The AoT will provide real-time, location-based data about the urban environment, infrastructure and activity to researchers and the public. The initiative has the potential to

allow researchers, policymakers, developers and residents to work together and take specific actions that will make cities healthier, more efficient and more livable. The AoT project is a great example of how new technology—and the Internet of Things (IoT) in particular—can transform urban living and city planning. These same technologies have important implications for the future of environmental protection. What can we learn from their application in The Chicago Array of Things?

9:50 AM **Panel Discussion: Challenges of Communicating and Using Environmental Data**
Panelists TBA

With advances in technologies for data collection, aggregation, and visualization, the public has access to unprecedented amounts of information. Big data and sensor companies have emerged aiming to develop global solutions for characterizing environmental quality and the information is being disseminated to more consumers. These providers often use machine learning and artificial intelligence (AI) to combine large data sets including regulatory and non-regulatory measurements, satellite data, model outputs, and other relevant big data sets (e.g. meteorology, traffic, health). However, these new approaches have created challenges for various local, state, and federal agencies when models, sensor measurements, or data fusion products developed by the private sector seemingly conflict with regulatory monitoring data. Since data is being generated for different purposes, needs, and users on various temporal and spatial scales, it's important to discuss critical data quality, interpretation, and management needs for non-regulatory datasets. How can regulators help the public make sense of all of the information?

10:15 AM **Networking Break** **Room TBA**

10:45 AM **Machine Learning for Environmental Protection**
Panelists TBA

- What exactly is machine learning and how can environmental agencies make best use of it?
- Are there potential legal and policy considerations for this technology?
- What key capacities do agencies need to develop?
- Case studies in machine learning for environmental protection
- Panel Discussion

12:00 PM – 1:30 PM **Lunch Break**
Attendees are free to visit nearby restaurants. See the EE2020 Meeting App for lunch ideas.

1:30 – 2:30 PM **Concurrent Breakout Sessions**

Select 1 of 5 concurrent options during this time block. Breakouts are 60 minute talks, panels, and discussions that align with one of the following themes:

Program Innovation & Modernization | Digital Services | Operations & Management | Stakeholder Engagement

Option 1 - Embrace Agile: Retrospective Best Practices

Room TBA

Ryan Humrighouse, *U.S. EPA Office of Mission Support*; Jerry Zeitler, *MetroStar Systems*; Vince Allen, *U.S. EPA Office of Mission Support*

This session will explore three projects that have varying levels of experience embracing an Agile mindset and practicing Agile principles. Participants from each project will engage in a simplified version of a retrospective, embracing one of the Agile principles, which states, "At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its

behavior accordingly." Participants will take away insights for continuous improvement, a better understanding for Agile best practices, and information about three current software development projects.

Option 2 - APIs for Environmental Protection

Room TBA

Speakers TBA

Application Programming Interfaces (APIs) are a foundational technology for enabling data sharing, promoting interoperability, and connecting users to shared services. This session will introduce APIs, explore use cases in environmental protection, and introduce a newly proposed E-Enterprise and Exchange Network Management Framework.

Option 3 - Innovative Partnerships to Organize and Analyze PFAS Data

Room TBA

Mike Barrette, *U.S. EPA Office of Enforcement & Compliance Assurance*; Andy Gillespie, *U.S. EPA Office of Research and Development (Invited);* Speaker TBA, *Michigan EGLE (Invited)*; Speaker TBA, *California EPA (Invited)*

This session will explore what states and EPA are doing to collect and share data on PFAS chemistry and contamination and how agencies can work together to create analytic capabilities to allow a complete picture of detections, chemical properties, toxicity and exposure, areas of concern, and potential action areas. EPA and states will show current best practices for collecting and sharing data, EPA will demonstrate what the data look like at a national level and across multiple PFAS, and the group will discuss how web services and other technology can help decision makers better understand key problems relating to PFAS release.

Option 4 - Shared CROMERR Services

Room TBA

Greg Mitchell, *U.S. EPA Office of Mission Support*

A demonstration will explore a range of Shared CROMERR Services (SCS) options and lifecycles that Partners may choose for e-Reporting needs to help rapidly comply with 40 CFR Part 3. We will compare services and lifecycles for both Advanced SCS and Developer APIs along with new RESTful services, so users may make informed choices and network with other partners on successful SCS implementations.

Option 5 - Better Data for Better Decisions

Room TBA

- **AquaQAPP to the Rescue! Accessing Citizen Science Data for Future Environmental Decision-Making**

  Pam DiBona, *Massachusetts Bays National Estuary Partnership*; Brad Cooper, *Eastern Research Group*

  Community groups and citizen scientists are valuable partners in the protection of water resources through water quality monitoring. AquaQAPP is an open source, web-based application to help community groups generate Quality Assessment Project Plans for water quality monitoring and benthic assessments.

- **Improving the Development, Review and Approval of State and Tribal Quality Assurance Project Plans (QAPPs)**

  Katherine Chalfant, *U.S. EPA Office of Mission Support;* Other Speakers TBA

  This panel session will bring together workgroup leads who are committed to improving the development of state and tribal grantee Quality Assurance Project Plan (QAPP) communications, training and resource needs, measuring improvements, and determining and standardizing consistency in grant terms and conditions. This discussion will highlight the commitment made by EPA senior leadership to identify areas needing improvements, report on the results made over the past year and share plans for future continued success.

2:30 PM – 2:45 PM Networking Break Room TBA

2:45 – 3:45 PM Concurrent Breakout Sessions

Select 1 of 5 concurrent options during this time block. Breakouts are 60 minute talks, panels, and discussions that align with one of the following themes:

Program Innovation & Modernization | Digital Services | Operations & Management | Stakeholder Engagement

Option 1 - Combined Air Emissions Reporting (CAER) Project

Room TBA

- **The CAER Common Emissions Form**

  Julia Gamas, *U.S. EPA Office of Air Quality Planning and Standards*

  The CAER project has worked to streamline the way industry reports air emissions to meet EPA and state/local/tribal (SLT) program requirements. The "Common Emissions Form" (CEF) is an electronic reporting tool that will allow facilities to reduce reporting burden by reporting emissions data for several programs in one application.

- **CAER Reporting for the State of Georgia**

  Tamara Smith Hayes & Jing Wang, *Georgia DNR*

  Georgia has been working as a pilot state for the development of the CAER Common Emissions Form. This presentation will discuss Georgia's emissions reporting system, the factors that influenced Georgia's decision to switch to the CEF, and how the CEF has been customized based on Georgia's requirements.

- **Using Web Services to Improve Emissions Inventory Data Collection for Stationary Sources**

  Marc Houyoux, *U.S. EPA Office of Air Quality Planning and Standards*

  As part of the CAER program, U.S. EPA has been improving how the agency supports the exchange of data such as facility attributes and emissions factors. This session will describe the updates to the Central Data Exchange Facility Widget and associated web services that have been developed and implemented in the Compliance and Emissions Data Reporting Interface (CEDRI).

Option 2 - E-Enterprise Federated Identity Management Service (EE-FIM) - Obtaining Efficiencies by Sharing Identities Among Partners

Room TBA

Mary Montoya, *New Mexico Environment Department*; Greg Mitchell, *U.S. EPA Office of Mission Support;* Charles Freeman, *U.S. EPA Office of Mission Support*

The EE-FIM service has successfully tested the reuse of user identities across an expanded set of web resources. This presentation will demonstrate the value EE-FIM brings to users and environmental agencies by reducing the burden of registering and provisioning users for access to information and services. We will show how services that require higher levels of stringency in user identity proofing, such as reporting information in compliance with the Cross-Media Electronic Reporting Regulation, can be accessible using shared identities that meet CROMERR requirements. The EE-FIM team also has been working to improve customer experience by offering more information in user profiles to dynamically generate web content that applies to their needs. Additionally, through an Exchange Network partnership grant, NM, AZ and CO have been working to include a Shared API management platform as a web resource for EE-FIM users.

Option 3 - Innovations in Water Quality Data

Room TBA

- **From ATTAINS and WQX to How's My Waterway – How Electronic Reporting and APIs Enable Better Public Communication**

  Dwane Young, *U.S. EPA Office of Water*

  EPA OW has worked with the states and tribes for the past 15 years to build electronic data flows and support electronic reporting. The Water Quality Exchange (WQX) enabled a simple and seamless capability for states and tribes to publish

water quality monitoring information. The Assessment TMDL Tracking and Implementation System (ATTAINS) has enabled states and tribes to report their Assessed and Impaired Waters reports electronically to EPA. In this presentation we will demonstrate how electronic reporting, the liberation of data through APIs, and collaboration with state and tribal partners has enabled water information to be not only more timely, but also more transparent than ever before.

- **An Easy to Use and Portable Interface to the WQX**

  Chris Ott, *Dry Creek Rancheria Band of Pomo Indians*; Anthony Falzone, *FlowWest*

  The Dry Creek Rancheria Band of Pomo Indians created a processing pipeline to structure and upload data to the WQX. This presentation will provide an overview of the WQX API and the interface developed for the R programming language. We will discuss the workflow we developed to facilitate data transfers to and from the WQX API. We will also highlight the training resources developed for tribal staff. Lastly, we will showcase data management and analytical tools implemented in the Shiny web framework. These tools will be used to manage water releases from storage facilities to maximize habitat for steelhead in the creek that flows through Dry Creek Rancheria's property.

- **Sensor Data Publishing Using Open Standards and Open APIs**

  Dwane Young, *U.S. EPA Office of Water*

  EPA OW has continued efforts to develop capability to allow the seamless sharing of sensor data. This presentation will provide an update on the status of those efforts, including a discussion and demonstration of a new 'Data Appliance' which allows any entity to ingest data from either a sensor, data logger, or other end point, and make that data available via a standard API. This allows the data to be consumed by third parties and is an important first step to having a sensor data sharing network. During this presentation, EPA will also discuss efforts related to the Internet of Water and how that relates to sensor data sharing efforts. During the demonstration, EPA will show how the Data Appliance can be created and deployed to an Amazon Web Service cloud instance in less than 5 minutes, and how data from a DIY air temperature and humidity sensor collecting real-time data can be ingested into the Data Appliance and then available via APIs to be consumed in various applications. The 'Data Appliance' developed by EPA is available as open source code on EPA's Github, and is available at: https://github.com/USEPA/Interoperable-Watersheds-Network-Data-Appliance.

Option 4 - Shared Platforms for Data Management

Room TBA

- **The Interstate Chemicals Clearinghouse (IC2) High Priority Chemicals Data System (HPCDS): A Model for Multi-State Collaboration**

  Topher Buck, *Northeast Waste Management Officials Association*

  The HPCDS is a common reporting platform designed to meet the needs of separate but similar state programs requiring disclosure of chemicals contained in children's products. The HPCDS was launched in December 2019, serving Oregon and Washington. Scalability and flexibility are built into the system so that it can accommodate a range of reporting requirements that might be needed by additional programs. Using HPCDS, the regulated community can delegate reporting to suppliers and utilize records submitted to one state's program for other state programs; the public will have improved access to product-specific data; and state administrators have additional functions needed to manage and review submissions.

- **Open Dump Data Management**

  Frank Harjo, *Muscogee (Creek) Nation*; Doug Timms, *Open Environment Software*

  The Muscogee (Creek) Nation is working collaboratively with partner tribes in Oklahoma to develop an Open Dump data management system. The goal is for the system to address the requirements for the Indian Health Service (IHS) and the EPA solid waste program as well as other federal agencies that assist in the cleanup of tribal dump sites to maintain and share information as needed. The Open Dump data flow which is supported by the Exchange Network was used as a foundation, but additional work was incorporated to update the data exchange including the use of the Illegal Dumping Economic Assessment (IDEA) Cost Estimating Model developed by EPA Region 5 to approximate the cost of an illegal dump site. Together, the database capabilities and tools developed within this platform will enable tribes to better manage their open dump inventories in a way that allows for better decision making for tribal citizens and the environment.

Option 5 - Meeting Expectations for Transparency: Challenges and Successes

Room TBA

- **Policy and Data Transparency**

  Sarah Ehinger, *Michigan EGLE*

  Greater transparency in government continues to be a call to action and a significant requirement in most IT modernization efforts. Policy modernization does not always occur at the speed of technology modernization. This creates uncertainty for employees and the public. This presentation explores experiences and lessons learned related to policy around data transparency through the implementation of MIWaters, a web based application that stores over 1.5 million records of which a significant percentage are available to the public through MiWaters Site Explorer.

- **Session TBA**

  Speaker TBA

3:45 PM – 4:00 PM Networking Break **Room TBA**

4:00 – 5:00 PM Concurrent Breakout Sessions

Select 1 of 5 concurrent options during this time block. Breakouts are 60 minute talks, panels, and discussions that align with one of the following themes:

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Option 1 - Using GIS and Data Analytics to Drive Better Environmental Protection

Room TBA

- **Montana DEQ Enterprise GIS Data & Analytic Solutions**

  Christopher Stump, *Montana DEQ*

  The bulk of Montana DEQ's geospatial workflows involve the collection and verification of field data, environmental monitoring practices, and analysis of spatial and related attribute information to ensure mandated measures of air, land, and water quality metrics are met via systematized means. Recently, DEQ deployed an enterprise GIS architecture designed for minimal maintenance, ease of use, and extensibility as part of an agency-wide GIS system upgrade. This system includes an agency approved governance plan defining user levels, associated functionality, system accessibility, use, creation, and management of authoritative data, and data sharing workflows. These measures fostered an open data culture, enabling sharing of various data types, applications, and analytics, allowing collaborations amongst internal DEQ workgroups, affiliated state and federal partners, the Montana University System, agency stakeholders, and the public. Combined, these efforts resulted in transparency to affected DEQ parties and interests. This presentation will provide a high-level overview of our new GIS architecture, including examples of spatial analysis incorporating artificial intelligence (AI) and other analytical methods.

- **Collaboration! Using GIS and Data Analytics to Explore the Relationships between Environment and Health**

  Bryan Chastain, *GDIT*

  One key field in the "Future of Environmental" protection will no doubt be that of managing vast quantities of data and trying to make sense of them. Environmental data sources have never been more available, but often we lack the perspective to truly understand how things fit together. Sometimes, what is needed is another point of view - collaboration is key! In 2016, Dr. Sala Senkayi had the idea to use US EPA's new Qlik Sense data visualization platform to connect with data provided by colleagues at CDC after having conversed with them and many worldwide for years about various ways to note data relationships. Since 2017, we have worked to develop a tool that not only allows environmental professionals to visualize tabular data and relationships, but also to use GIS to provide insights into spatial interactions between disparate variables. In this presentation, we will demonstrate our application's spatial and analytical abilities and review app development. We will share examples of how it has been used for collaborative data exploration and how it may continue to

be in the future. We envision this tool as a template that can be used not just by EPA, but for environmental professionals across the nation.

- **Utah Geological Survey GIS-Based Wetland Data Portal**

  Paul Inkenbrandt, *Utah Geological Survey;* Jay Hill*, Utah Geological Association*

  The Utah Geological Survey (UGS) collects wetland condition data to support aquatic resource decision-making, but resources for monitoring are limited. The UGS recently developed a data portal to increase capacity to share wetland monitoring data with statewide stakeholders and to create an opportunity to leverage data from additional partners to provide more comprehensive environmental information. The data portal was built specifically to share plant community data because these data are often used to evaluate wetland health, though the portal also serves as a template for sharing additional data in the future. The data exposed through the portal can help users develop a wetland classification system for Utah's wetlands, identify high quality sites that can serve as reference sites for mitigation projects, create species lists for wetland restoration projects, and evaluate threats posed by noxious weed species.

Option 2 - Secure API Management Platforms, Portals & Publishing, 101

Room TBA

Speakers TBA

This session will explore a shared Application Programming Interface (API) portal that the states of New Mexico, Colorado, and Arizona are developing as a proof of concept with an Exchange Network grant. The session will demonstrate the process of accessing the portal, choosing a set of APIs, and then using those APIs in a Google Map to show how a casual user could benefit from the availability of APIs discovered on a shared platform. This session will run for 90 minutes until 5:30 PM.

Option 3 - Transforming Programs with Mobile Technology

Room TBA

- **West Virginia DEP Tanks Mobile Inspection System and Database**

  Ruth Porter & Melissa McCune, *West Virginia DEP*

  The West Virginia Department of Environmental Protection (WVDEP) is in the middle of a project to create a Tanks database and implement mobile inspections and site assessments that will transform the Underground Storage Tank (UST), Leaking UST, Aboveground Storage Tank (AST), and Leaking AST programs. WVDEP proposes to present information on the UST/LUST system which includes items such as mobile inspections, worker certification, invoicing, registration, reporting, and event/task tracking which has been in use since November 2018. The UST/LUST modules have contributed greatly to efficiency, increased quality assurance, provided better tracking, and have fundamentally changed the way the UST/LUST programs are operated and managed. This project is partially funded by an Exchange Network Grant.

- **Mobile Solutions for Field Data Entry**

  Brian Fischer, *Houston Engineering*

  This session will present a project that developed a mobile application for the Turtle Mountain Band of Chippewa Indians in North Dakota. The project was funded thru an Exchange Network grant and had a unique collaboration with the AWQMS water quality database management platform. The presentation will discuss integration with the AWQMS API along with purpose and goals for a field data entry mobile application. The presentation will conclude with lessons learned and thoughts about future direction in mobile development and options.

Option 4 – Tribal Collaboration & Outreach Session

Room TBA

Session Leads TBA

This interactive session will be an opportunity for Tribal attendees and members from the Tribal Governance Group, EE Regional Coordinators, Regional EN Coordinators, Tribal EELC members, and EPA's Exchange Network Grant Program to learn about each other's activities such as the EN Tribal Mentors Network and the Tribal Environmental Data and Technology Academy. The discussion will focus on how to increase collaboration and leverage each other's activities.

Option 5 - Safe Drinking Water Program & System Modernization

Room TBA

Speakers TBA

This session will review the latest developments in an effort to apply the principles of the E-Enterprise Digital Strategy to the effort to modernize the Safe Drinking Water Information System (SDWIS). Session leads will discuss the work of the SDWIS Modernization's Team effort to identify and select options for modernizing SDWIS. The session will include a facilitated discussion session.

5:00 PM **First Day Adjourns**

Wednesday, May 13, 2020

7:30 AM **Registration** **Drake**

7:30 AM **Continental Breakfast (provided)** **Room TBA**

General Session **Room TBA**

8:30 AM **Welcome and Day 2 Kickoff**

9:00 AM **What Does It Mean to Be a Data-Driven Organization?**
Steve Gorg, *Minnesota Pollution Control Agency*

9:30 AM **Panel Discussion: Do We Even Need Programmers?**
No-Code/Low-Code and the Future of Environmental Protection Systems
Stephen Forrest, *Montana DEQ*; Vince Allen, *U.S. EPA Office of Mission Support*; Joe Clancy, *Microsoft*

The next phase of digital transformation - from systems of record to GIS and data analytics – relies on no-code and low code platforms. These systems allow people with very little programing knowledge to create robust cloud applications in order to meet a wide variety of needs. Agencies are beginning to use these systems outside of traditional IT to meet emerging needs. However, these systems are not without their challenges. They require a new set of skills and a different governance model to achieve their full potential. Agencies will need to adjust their work to support this emerging cloud technology or face a wave of organizational chaos. This panel will outline the promises and pitfalls of the no-code/low-code platforms along with suggestions on how to fully leverage this new approach to tool and service development. Panelists will discuss:

- The basics of no-code/low-code systems development
- Examples of use cases already deployed
- How these systems interact with existing technology
- The skill set needed to fully make use of the no-code/low-code platforms
- Governance changes needed in order to create a stable organizational environment

10:10 AM **Networking Break** **Room TBA**

10:40 AM **Panel Discussion: Deploying Drones for Environmental Protection**
Panelists TBA

Unmanned aircraft systems (UASs or drones) can access isolated and unsafe locations, have finer spatial resolution that other methods, lead to less staff time to perform inspections, and provide an ideal combination of scale and detail over ground-based or aerial survey inspections. This session will focus on how states, tribes, and EPA are leveraging drones to increase their program efficiencies and improve environmental protection. Panelists will share case studies touching on topics related to inspection, monitoring, data collection, compliance and enforcement, and much more. They will also share insights on their agency's experiences, successes, challenges, and lessons learned in deploying UAS technology.

11:20 AM **Lightning Talks – Round 1**

Lightning talks are very brief presentations lasting 5-7 minutes and are designed to quickly share information and ideas with a large group.

1 - Using Exchange Network Funding to Form a Tribal Consortium to Collaborate on Wild Rice and Water Quality Data Sharing and Analysis

Kari Jacobson Hedin, *Fond du Lac Reservation*

2 - The Effectiveness and Evaluation Tool Exchange (EETX) in Washington State's Hood Canal

Keith Dublanica, *Washington Governor's Salmon Recovery Office*

3 - Citizen Science for a National Hydrological Survey

David Nicholas & Jason Mills, *U.S. EPA Office of Land & Emergency Management*

4 - EPA's Office of Pesticide Programs Digital Transformation

Hamaad Syed & Ed Messina, *U.S. EPA Office of Pesticide Programs*

5 - EPA Lean Management and Tribal Engagement in Region 5

Allen Melcer, *U.S. EPA Region 5*; Kari Jacobson Hedin, *Fond du Lac Reservation*

12:00 PM – 1:30 PM **Lunch Break**

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1:30 – 2:30 PM **Concurrent Breakout Sessions**

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<u>Option 1</u> – Innovative Permitting and e-Reporting Solutions

Room TBA

- **Cloud Based SaaS E-Permitting System Implementation by Montana DEQ**

  Eric Dahlgren, *Montana DEQ*

  The Montana Department of Environmental Quality (MTDEQ) has adopted a low code, cloud based system development strategy that utilizes Software-as-a-Service (SaaS) and commercial over-the counter (OTC) software. MTDEQ has adopted this approach to mitigate resource constraints and to gain efficiencies using standard technology. MTDEQ has piloted an E-

Permitting system using Microsoft Dynamics. MTDEQ is presenting its system and sharing its experience utilizing a low code SaaS to offer electronic services to regulated entities. This session will benefit attendees as it offers a unique look at using a low code, cloud based system development strategy to implement an E-Permitting system. The session will address the benefits and challenges faced by MTDEQ and provide a template that attendees can follow to develop their own systems using a low code SaaS product. Additionally, the session will identify solutions to integration with other pertinent systems, e.g. geographical information systems (GIS), payment and billing systems, and electronic document management systems.

- **Implementing an ePermitting Solution in South Carolina**

  Sean Briggs, *South Carolina DHEC;* John Kostakos, *Windsor Solutions;* Bill Rensmith, *Windsor Solutions*

  The South Carolina Department of Health and Environmental Control (DHEC) is in the process of implementing an integrated electronic permitting and compliance system across 40 environmental and health programs. During this initiative, DHEC has refined implementation processes and developed best practices in implementing online services for the public and the regulated community. Drawing from this experience, DHEC will share best practices, lessons learned, and practical advice for agencies that are embarking on similar initiatives. Presentation attendees will take away valuable information on how to better plan and execute their own customer-focused online service initiatives.

- **e-Government Made Simple with Intuitive Online Forms**

  Siobhan Perricone, *Vermont ANR;* Scott Remick*, Windsor Solutions*

  The Vermont Agency for Natural Resources has streamlined the data entry process for applications and for periodic compliance reporting. Using data already collected and stored, the agency can quickly build data entry forms based on the individual interacting with the system. Vermont DEC uses this technology to support new or renewed permit applications, annual or periodic reporting obligations, and EPA eReporting rules. Through leveraging of form pre-population, existing data that is already known and stored for a specific regulated entity in question is used to structure the data entry form specifically for them and in such a way as to minimize data entry while providing sufficient contextual information. And by using modern, low-code technologies, we are able to change the way a form is rendered from month to month and from regulated entity to entity. Join us to see how we have modernized our form design and data entry process to improve efficiency for both our staff and regulated entities alike.

Option 2 - Experiences and Best Practices with Software Development

Room TBA

- **The Agile Experience: Practical Experiences of Project Owners and their Scrum Masters**

  Ron Evans, *U.S. EPA Office of Air Quality Planning and Standards;* Other Speakers TBA

  Many agencies have been adopting Agile as a developmental approach to modernizing their programs and systems. However, to many, Agile is an IT process with funny language (what is a scrum!?) with way too many meetings (daily standups!) and impossible schedules (who can accomplish anything in two weeks?). Over the past few years EPA's Office of Air Quality Planning and Standards (OAQPS) has used an Agile approach for the development of several signature E-Enterprise projects. This panel, consisting of several EPA project owners and a contractor scrum master, will discuss the practical aspects of developing new EPA systems including the Combined Air Emissions Reporting (CAER), State Planning Electronic Collaboration System (SPeCS), Electronic Permitting System (EPS) using an Agile approach. The focus will be on the joint responsibilities between the Project Owner and the Scrum Master and the practical lessons learned to develop systems which modernize how we do business. Note this is not the result of an academic review or training session, these are the hard-earned lessons of the project teams.

- **User-Centered Design - Collaborating with Your Users**

  Darryl Moses, *U.S. EPA Office of Air and Radiation*; Kristen Callahan, *GDIT*

  A user's experience with an application begins with their first interaction, and a system that is built without an understanding of the user's needs, habits, and goals runs the risk of confounding or even infuriating your target market. Unlike in the commercial space, stakeholders using Federal government systems don't always have the option to walk away. However, a poorly designed system can have other costs to both government and external users in the form of increased burden, poor data quality, or impaired productivity. An effective user experience is one that is so natural that it fades into the background allowing users to focus on their mission without even thinking about the basic functions of the system. Our presentation will explain the methods and techniques used to improve the user experience of the Engines and Vehicles Compliance Information System (EV-CIS), a web-based system used to support emissions, fuel economy, and greenhouse gas compliance activities for mobile sources. We will discuss how and where we effectively utilized tools such as user interviews, user

personas, discovery workshops, wireframing, prototyping, and user acceptance testing (UAT), and how these were integrated into different phases of our Agile software development methodology. Finally, we will share the business benefits of user-centered design and how metrics can be used to measure the success of a user-centered design transformation.

Option 3 – E-Enterprise Shared Services

Room TBA

- **Facility Data Services**
  Matthew Kelly, *U.S. EPA Office of Mission Support*; Joshua Kalfas, *Oklahoma DEQ;* Ron Evans*, U.S. EPA Office Air Quality Planning and Standards;* Ben Way, *Wyoming DEQ*

  This session will provide an update on the latest developments from the E-Enterprise Facility Project Team. The discussion will include an overview of progress to date, including status updates on: the deployment of the Facility API, testing with states, facility status micro-service scoping, and efforts to scope a Facility Data Integration working group. Presenters will walk the audience through two services that enable the real-time exchange of facility data between a partner and EPA. Attendees can use this opportunity to learn more about one of the newest Exchange Network grant opportunities.

- **Disaster Debris Recovery Tool: Now for All 50 States!**
  Lucy Stanfield & Camille Lukey*, U.S. EPA Region 5*

  Following three historic years of catastrophic weather events in 2017-2019, the need for sustainable disaster debris management is a priority for both emergency management and solid waste professionals nationwide. EPA Region 5, in coordination with Regions 1-10, States and Tribes, developed the Disaster Debris Recovery Tool (DDRT), an interactive mapping tool of 12 types of recyclers and landfills that manage disaster debris. This dataset provides contact information and geographic locations of over 20,000 facilities throughout the nation. As a tool for disaster debris management, the DDRT combines principles and priority goals from four EPA programs: emergency management, sustainable materials management, geospatial information, and E-Enterprise management.

Option 4 - Predictive Analytics and Machine Learning Discussion

Room TBA

Speakers TBA

Description TBA

Option 5 - Innovations in Water Quality Assessment

Room TBA

- **Use of R and Web Services for Streamlining Tribal Water Quality Assessment**

  Mark LeBaron

  This session presents a technical summary of a Master of Science in Data Analytics capstone project at Western Governors University. The project was based on guidance for tribal water quality assessment reporting from EPA Region 9 personnel. The project uses R programming and the AWQMS REST web services to rapidly provide outputs and data analyses needed for water quality assessments for multiple parameters. The project has provided a great starting point for something that is anticipated to become a very useful tool for potentially over a hundred tribes and possibly several states. Session attendees will see actual R code that accesses actual web services and will see what techniques were used in R to get and manipulate data, perform certain commonly performed data analyses, and generate useful output. The session will make it evident that use of such techniques will save a lot of effort and reduce the potential for human error over the long run.

- **Facilitating Water Quality Assessment in West Virginia Using Open Data**

  Rachel Yesenchak & Shikha Sharma, *West Virginia University*

  Understanding how energy development impacts local water quality is crucial, particularly in states such as West Virginia, where the expansion of shale gas drilling has the potential to exacerbate water quality impairment. However, water quality studies typically require extensive sampling and laboratory analysis, which is time-consuming and expensive. Additionally, it can be difficult to acquire historical water quality data that may provide insights into current water quality issues. To overcome these problems and assess the water quality impacts of shale gas drilling in West Virginia, water chemistry data has been aggregated from several local, state, and federal organizations for 14 counties where drilling is most prevalent. The disparate datasets were reformatted, converted, and combined using tools such as Microsoft Excel, Microsoft Access, ESRI's

ArcMap, and R. The resulting database includes over 1.3 million surface and groundwater sampling records. The data will be shared publicly through an online portal that will allow stakeholders to visualize and download water quality records. The portal will also feature story maps to help users interpret the results of analytical water quality studies.

2:30 PM – 2:45 PM Networking Break Room TBA

2:45 – 3:45 PM Concurrent Breakout Sessions

Select 1 of 5 concurrent options during this time block. Breakouts are 60 minute talks, panels, and discussions that align with one of the following themes:

Program Innovation & Modernization | Digital Services | Operations & Management | Stakeholder Engagement

Option 1 - Open Discussion Session on Low Code Development

Room TBA

Moderators TBA

This session will offer attendees a chance to share experiences using low-code/no-code software development tools. Where are the challenges and opportunities and potential pitfalls? How can agencies take advantage of the tools' flexibility and efficiency while also retaining control over the quality of software development work?

Option 2 - ICIS-NPDES Tools and System Modernization Plans

Room TBA

- **States and EPA Leveraging the NPDES Electronic Reporting Tool (NeT)**

  Cindy Hobus, *U.S. EPA Office of Enforcement and Compliance Assurance*; Roy Chaudet, *U.S. EPA Office of Mission Support*

  EPA provides the NeT platform for NPDES e-Reporting. NeT provides the foundation to support a number of electronic reports (MSGP, CGP, GEG, GMG). The Rhode Island Department of Environmental Managment, Illinois Environmental Protection Agency are leveraging NeT to meet their state Multisector General Permit (MSGP) reporting requirements, and the Utah Department of Environmental Quality are leveraging NeT to meet their state MSGP and Construction General Permit (CGP) reporting requirements. Subsystems in the NeT platform include but are not limited to streamlined user registration, CROMERR services (identity proofing, e-signature, copy of record, etc.), data commons for cross-permit reporting, permit coverage and submission status. State-specific capabilities that have been included are custom workflows, fee collection integration, and facility management using authoritative state facility information. This presentation will provide (1) an overview of the foundational subsystems, (2) briefly demonstrate some of the key NeT capabilities being leveraged by these state programs, (3) the process for getting engaged, and (4) feedback on implementation. Interested states with NPDES reporting requirements are encouraged to attend.

- **Discussion on Plans to Modernize the ICIS-NPDES Data System**

  Speakers TBA

  Description TBA

Option 3 - E-Enterprise Portal Customer Engagement Session

Room TBA

Charles Freeman, Nathan Wilkes & Vince Allen, *U.S. EPA Office of Mission Support*

Since the first release of the E-Enterprise Portal in 2015, EPA has been working with State and Tribal partners and EPA program offices to develop the E-Enterprise Portal Platform to improve industry and public customer experiences with environmental agencies. The Portal Project Team will present the latest enhancements to the platform, including the integration of industry electronic reporting services, ongoing partnership on the well water assessment tool (Be-Well Informed), and inclusion of EPA's

RegFinder and Laws and Regulations Registry. Participants will have an opportunity to provide feedback on the portal's functionality and further hone its value proposition as a tool for streamlining business with environmental agencies.

Option 4 - Exchange Network Grant Program 101 and Networking Opportunity

Room TBA

Wendy Blake Coleman, Erika Beasley & Erin McGown, *U.S. EPA Office of Mission Support*

This session will highlight the purpose of the Exchange Network Grant Program and how it supports technological innovation in support of environmental management programs. An interactive discussion on best practices for successfully writing and submitting an EN grant proposal will be the focus of the session. Grantees, particularly those funded in FY 19, can also have a dialogue with each other and with EN staff at the onset of their grant implementation to discuss how they might leverage existing or nearly completed products germane to their projects.

Option 5 - Data Management Solutions for Air Programs

Room TBA

- **Open-Source Cloud-Based Air Monitoring, Review, and AQS Reporting for Tribes**

  Doug Timms, *Open Environment Software*

  The Institute of Tribal Environmental Professionals (ITEP) is developing QREST: Quality Review and Exchange System for Tribes, a free open-source cloud-based software that provides tribal governments throughout the U.S. with the tools necessary to better manage, review and share air quality monitoring data. QREST features the ability to stream data from continuous data loggers, automatic data calculation and flagging, email and text message alerts, multi-phase AQS data review, AirNow and AQS data submission, and a public data reporting presence. This project makes inroads in what can sometimes be an opaque world of data logger integration, and provides a complete end-to-end solution for air quality data management. Tribes can benefit from a low or no cost total data management solution and more consistent AQS review process. States may also benefit by adapting portions of the publicly available source code for their specific needs. Both may benefit by the existence of a free alternative to existing costly proprietary solutions.

- **Leveraging Cloud Data Technology across Agencies to Build Bigger, Better Radon Data**

  Lauren Freelander, *Washington DOH*; Eric Brown, *Colorado DPHE*

  The Washington State Department of Health (WSDOH) and Colorado Department of Public Health and Environment (CDPHE) developed a community of interest (COI) of state and tribal partners interested in sharing radon data. Partners formed the COI to help develop, document, and test a standardized process that states and tribes could use to share radon data using a secure cloud platform, the Exchange Network Virtual Exchange Services (VES). The process allows partners to access and download the data via a secure login and it will support continued development of a national radon test results database and nationally consistent radon measures. All of which will ultimately support more radon testing, outreach, and public health action.

- **Shared Service Applications of Mosaic - Featuring SPeCS, EPS and Exceptional Events**

  Mia South, *U.S. EPA Office of Air Quality Planning and Standards*

  Built on an open source platform with broad community support and wide Federal agency adoption, the Modular Submission Application Creator (Mosaic) delivers a low-code, rapid deployment solution to EPA for its plan submissions, tracking and reporting needs. This presentation will feature three program applications using Mosaic: 1) the State Planning Electronic Collaboration System (SPeCS) for SIPs module, 2) the Electronic Permitting System (EPS) module; and 3) the Exceptional Events module. This presentation will showcase: 1) general features of MOSAIC as a shared service; 2) how each program application used the modular features of MOSIAC; and 3) status of the program applications.

3:45 PM – 4:00 PM Networking Break **Room TBA**

General Session **Room TBA**

4:00 PM **Improving the Management and Use of Citizen Science Data: What Can We Learn From Current State and Tribal Programs?**

Jay Benforado & Demi Gary, *U.S. EPA Office of Research and Development*
Other Panelists TBA

Citizen science, or the involvement of the public in expanding scientific knowledge and understanding, is becoming more and more widespread in environmental and public health programs at the local, state, and national levels. The use of citizen-collected data to help address environmental issues presents both opportunities and challenges for government agencies. This session will showcase results from an EPA-funded project at the Environmental Law Institute that is assessing how different state and tribal environmental programs use citizen science. Panelists will review and discuss a diverse set of state and tribal case studies. The session goal is to 1) learn about different types of state and tribal citizen science programs that can serve as models; 2) analyze how different programs operate and discuss best practices and 3) engage the audience in their ideas for how EPA, states and tribes can better partner on citizen science programs. Panelists will include state and tribal leaders responsible for managing programs with expertise in the data collection process and subsequent data management needs.

4:45 PM **Lightning Talks – Round 2**

Lightning talks are very brief presentations lasting 5-7 minutes and are designed to quickly share information and ideas with a large group.

1 - Auto-Curating Textual Content from ESA Permitting Documents Using Natural Language Processing Kasey Allen, *ICF*
2 - Federal Regulation Finder Angelina Feldman, *U.S. EPA Office of Mission Support*
3 - Advancing Access to Salmonid Information for Regional Decision-Making Through Expansion of the Coordinated Assessments Exchange Fish Populations and Information Types in the Pacific Northwest Keith Dublanica, *Washington Governor's Salmon Recovery Office*
4 - Energy-Water-Emissions Dashboard Julian Fulton, California State University Sacramento
5 - A digital design strategy for code tables and other reference set material Joshua Kalfas, *Oklahoma DEQ*

5:10 PM **General Session Wrap-Up**

5:30 PM **Second Day Adjourns**

Thursday, May 14, 2020

8:00 AM – 12:00 PM EE2020 Workshops

Workshops are 4 hour professional development and training opportunities for EE2020 attendees. This list of workshop offerings is tentative and is subject to revision. Due to limited space, workshop registrations will be offered first to public-sector employees. Watch the EE2020 meeting website for more information on how and when to register for workshops.

Introduction to Design Thinking ***Room TBA*** Instructor TBA Workshop Details Coming Soon
Agile Project Management Fundamentals ***Room TBA*** Instructor TBA Workshop Details Coming Soon
Digital Storytelling with GIS and StoryMaps ***Room TBA*** Instructor TBA Workshop Details Coming Soon
Data Analytics and Tableau ***Room TBA*** Instructor TBA Workshop Details Coming Soon
Intro to Data Science ***Room TBA*** Instructor TBA Workshop Details Coming Soon
Intro to Product Management ***Room TBA*** Instructor TBA Workshop Details Coming Soon
Mastering the Art of Negotiation ***Room TBA*** Instructor TBA Workshop Details Coming Soon

12:00 PM EE2020 Adjourns