There is no charge to attend the 2020 Virtual Railroad Environmental Seminar. However, registration is required to access the seminar. Your unique access link will be sent upon completed registration.

Register now at: https://rrec.railtec.illinois.edu/registration/

Contact Information:

rrec-conf@illinois.edu

(217) 300-1340
GoToWebinar Connection Instructions

The Virtual Railroad Environmental Seminar (vRRES) will be hosted on GoToWebinar. GoToWebinar is a platform that allows participants to join virtual events via a web enabled device (computer, tablet, phone) or through a dial-in number for audio only. Whenever possible, we recommend connecting through a web enabled device for the best experience.

How to join vRRES?
Participants can join vRRES by using their unique link sent from GoToWebinar. Your personal link will be sent at the time of registration, 1 day before vRRES and 1 hour before vRRES begins. Do NOT share your link with others, as it is unique to you. If you are not able to locate your link, please email us at rrec-conf@illinois.edu

Can I check my system for compatibility before vRRES?
Yes, we highly encourage everyone to check system requirements in advance to avoid any connection problems. This can be done at https://support.logmeininc.com/gotowebinar/system-check-attendee

How will participants be able to engage?
While participants will be muted for the entire seminar, they will be able to submit questions for the presenter or support staff by typing them in the “Questions” tab on their Control Panel. Additionally, questions or concerns can be sent to rrec-conf@illinois.edu

Additional GoToWebinar Support and FAQs can be found at https://support.goto.com/webinar

If you have any questions or concerns, please get in touch with us at rrec-conf@illinois.edu
Members of the Railroad Environmental Community,

We are committed to continuing our mission of supporting the advancement of the railroad environmental community during this unprecedented pandemic. As such, the Rail Transportation and Engineering Center (RailTEC) at the University of Illinois Urbana-Champaign is pleased to announce the 2020 Virtual Railroad Environmental Seminar (vRRES). vRRES will feature two half-days of technical presentations containing the top-quality content that has been associated with RREC since the first small gathering of 150 railroad environmental professionals in 1999. We look forward to welcoming attendees from throughout North America and abroad, including railroaders, consulting engineers, environmental control equipment suppliers, regulators, legal professionals, academics and other rail transportation professionals.

The vitality of the seminar program benefits from the excellent input provided by representatives from the railroads, environmental engineering, and supply firms who participate in the RREC/vRRES Planning Committee. Each year this group considers topics of particular interest to the railroad industry, reviews the submitted abstracts, and selects presentations based on their quality, timeliness, and relevance. The goal is coverage of the broad array of current and emerging subjects of interest to railroads. An important criterion is innovative new ideas and results with potential to benefit and improve railroad environmental practice. The vRRES organizing team has strived to achieve the proper balance with this year’s selection of presentations in the following topic areas:

- Compliance & Permitting
- Ecological Protection & Conservation
- Energy, Emissions & Air Quality
- Environmental Data Collection & Applications
- Environmental Management
- Environmental Response
- Remediation
- Risk & Liability Management
- Stormwater & Wastewater
- Sustainability, Climate Resilience & Engagement
- Environmental Response

vRRES provides a forum for attendees to meet with colleagues, clients, regulators, researchers, and other members of the railroad environmental community to learn about new techniques and technologies, exchange views, catch up on regulatory and legislative developments, and generally stay in touch with the direction of the railroad industry’s environmental programs.

On behalf of RailTEC at the University of Illinois Urbana-Champaign, I would like to extend an invitation to everyone interested in railroad environmental performance, practices, and engineering to attend this year’s seminar. I hope you can attend.

Sincerely,

Chris Barkan
Professor
George Krambles Director - RailTEC
University of Illinois at Urbana-Champaign
Meeting Location:
Virtual hosted on GoToWebinar. Your unique access link will be sent to the email provided in the registration form.

Registration Fees:
- Non-PDH: No Charge*
- PDH: $50
*Registration is required to gain access to the seminar.

Registration: [https://rrec.railtec.illinois.edu/registration/](https://rrec.railtec.illinois.edu/registration/)

**Tuesday, October 27th, 2020**
- Technical Presentation Sessions: 10:00am - 11:20am Central Time
- Break: 11:20am - 11:50am Central Time
- Technical Presentation Sessions: 11:50am - 1:30pm Central Time
- Adjourn: 1:30pm Central Time

**Wednesday, October 28th, 2020**
- Women's Outreach & Networking Session: 8:30am - 9:30am Central Time
- Technical Presentation Sessions: 10:00am - 11:10am Central Time
- Break: 11:10am - 11:40am Central Time
- Technical Presentation Sessions: 11:40am - 1:00pm Central Time
- Adjourn: 1:00pm Central Time

**2020 Virtual Railroad Environmental Seminar**
Rail Transportation and Engineering Center (RailTEC)
University of Illinois at Urbana-Champaign
217-300-1340 | rrec-conf@illinois.edu

Save the Date
**Tuesday 27 - Morning Presentations**

*PLEASE NOTE TIME ZONE: The program displays Central Time (CT) and Eastern Time (ET) for all presentations. Please adjust accordingly to your time zone.*

**Moderators: Michael Clift - BNSF Railway & Lara Thurn - AECOM**

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<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>10:00 AM CT</td>
<td><strong>Welcome</strong></td>
<td>vRRES Welcome &amp; Introduction</td>
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<tr>
<td></td>
<td></td>
<td>Christopher Barkan - University of Illinois</td>
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<tr>
<td>10:10 AM CT</td>
<td><strong>Risk &amp; Liability Management</strong></td>
<td>Planning Ahead for Responsible Soil Management During Redevelopment: The Union Pacific Railroad Soil Management Program</td>
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<td>Melissa Schop - Union Pacific Railroad</td>
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<td>Bryan Taylor - Antea Group</td>
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<td>Peter Masson - Golder</td>
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<tr>
<td>10:30 AM CT</td>
<td><strong>Stormwater &amp; Wastewater</strong></td>
<td>CN Thornton Locomotive Wash Upgrade, Sustainable and Innovative Solution</td>
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<td>Daryn Curilla - Lukay Research &amp; Development LTD</td>
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<td>Seble Afework - CN Railway</td>
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<tr>
<td>10:50 AM CT</td>
<td><strong>Keynote Address</strong></td>
<td>Earth Optimism: Learning from Successes in Conservation and Sustainability</td>
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<td>Nancy Knowlton, Ph.D., N.A.S.</td>
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<td>Sant Chair for Marine Science, Emeritus</td>
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<td>National Museum of Natural History</td>
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<td>Smithsonian Institution</td>
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<tr>
<td>11:20 AM CT</td>
<td><strong>Break</strong></td>
<td>Brief Intermission: Technical Presentations will resume at 11:50 AM CT.</td>
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*Click on the presentation title to jump to the abstract & speaker bio(s).*
Tuesday 27 - Afternoon Presentations

PLEASE NOTE TIME ZONE: The program displays Central Time (CT) and Eastern Time (ET) for all presentations. Please adjust accordingly to your time zone.

Moderators: Kevin Keller - HDR

Compliance & Permitting

11:50 AM CT / 12:50 PM ET
Environmental Issues Affecting the North American Railroads
Robert Fronczak - Association of American Railroads

Compliance & Permitting

12:10 PM CT / 1:10 PM ET
Optimizing an Inspection Plan
Jim Brannen - Union Pacific Railroad

Energy, Emission & Air Quality

12:30 PM CT / 1:30 PM ET
Establishing a Reasonable GHG Emission Reduction Target at CSX
Meaghan Atkinson - CSX Transportation, Inc.
Sarah Elsokkary & Mariana Saldana - Arcadis U.S., Inc.

Ecological Protection & Conservation

12:50 PM CT / 1:50 PM ET
Big Sandy Crayfish vs. Norfolk Southern: How Newly Listed Threatened Species Delayed Construction and Drove Up the Cost for Replacement Bridges Over Tug Fork River
Ruth Brown - Norfolk Southern Railway
Jennifer Sunley & Doug Dorsey - Hanson Professional Services, Inc.

Sustainability

1:10 PM CT / 2:10 PM ET
Operationalizing Sustainability for Large Railway Transit Construction Projects
Peter Nimmrichter, James Rockwood & Ben Hunter - Wood

Adjourn

1:30 PM CT / 2:30 PM ET
Conclusion of the Tuesday Technical Presentations. Technical Presentations will resume Wednesday at 10:00 AM CT.

*Click on the presentation title to jump to the abstract & speaker bio(s).*
Women’s Outreach & Networking Session

Navigating the WORKLife Balance in 2020

Wednesday, October 28, 2020, 8:30 a.m. CT
During the Virtual Railroad Environmental Conference
Women’s Networking & Outreach Session Sponsored by

Join host Ann Marie Gathright, Account Executive at Environmental Standards, Inc. and Presenter Jennifer Keyser Atkins on Wednesday, 28 October at 8:30 AM Central Daylight Time for Navigating the Work Life Balance in 2020.

Registration option in vRRES registration.
Contact rrec-conf@illinois.edu for assistance.

Jennifer Keyser Atkins has specialized in the field of compensation and held total reward focused leadership roles for the past 15 years. With over 20 years in the human resources field, she has worked with nonprofit, private, local and federal government and higher education organizations. Her primary focus has been to develop and implement strategic compensation solutions through policy and procedure development as well as improvements to compensation processes in the areas of base pay maintenance, market evaluations, regulatory changes, rewards and recognition programs, and bonus/incentive plan design. Most recently, Jennifer has served as the Compensation Manager for the University of Virginia and CarMax, Inc, and is the Principal Consultant and owner of Strategic Compensation Solutions, LLC. Jennifer earned her Master’s in Human Resources Development from James Madison University and is currently a doctoral candidate in Strategic Leadership at Liberty University.
Welcome
10:00 AM CT / 11:00 AM ET
vRRES Welcome & Introduction
Christopher Barkan - University of Illinois

Environmental Management
10:10 AM CT / 11:10 AM ET
Transforming Portfolio Management through Digital Innovation
Maura Matthews & Stella Karnis - CN Railway

Environmental Data Collection & Applications
10:30 AM CT / 11:30 AM ET
Using a Mobile App to Gather Data and Streamline Clean Water Act Compliance Plan Generation
Terri Allen - Norfolk Southern Railroad
Kevin Sullivan, Nick Gier & Leo Thorbecke - TRC Companies, Inc.

AAR Environmental Excellence Awards
10:50 AM CT / 11:50 AM ET
Presentation of AAR Environmental Excellence Awards
Robert Fronczak - Association of American Railroads

Break
11:10 AM CT / 12:10 PM ET
Brief Intermission:
Technical Presentations will resume at 11:40 AM CT.

*Click on the presentation title to jump to the abstract & speaker bio(s).*
### Wednesday 28 - Afternoon Presentations

**PLEASE NOTE TIME ZONE:** The program displays Central Time (CT) and Eastern Time (ET) for all presentations. Please adjust accordingly to your time zone.

**Moderators: Bryan Naranjo - Norfolk Southern Railroad & Josh Sales Kennedy/Jenks**

#### Remediation

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<tr>
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<th>Title</th>
<th>Speakers</th>
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<tbody>
<tr>
<td>11:40 AM CT / 12:40 PM ET</td>
<td><strong>If We Knew Then What We Know Now: Evaluating the Strategy at a Former Tie Treating Facility After 35 Years</strong></td>
<td>Anne Walsh - Union Pacific Railroad, Rebecca Rewey, Jennifer Uhland &amp; Eileen Torok - Jacobs</td>
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#### Remediation

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<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>12:00 PM CT / 1:00 PM ET</td>
<td><strong>Successful Remediation of a Remote and Complex Site in a Provincial Park with Full Stakeholders’ Satisfaction</strong></td>
<td>Stella Karnis - CN Railway, Stefano Marconetto, Tony Lyon &amp; Tim Robertson - Golder</td>
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#### Environmental Response

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<tr>
<th>Time</th>
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<tr>
<td>12:20 PM CT / 1:20 PM ET</td>
<td><strong>Inland In-Situ Burning: Regulatory Review and Case Study</strong></td>
<td>Dominic Winslow - BNSF Railway, Andrew McManus - Arcadis U.S., Inc.</td>
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#### Environmental Law

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<th>Time</th>
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<th>Speakers</th>
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<tbody>
<tr>
<td>12:40 PM CT / 1:40 PM ET</td>
<td><strong>Railroad Environmental Legal Update</strong></td>
<td>Theresa Romanosky - Association of American Railroads</td>
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#### Adjourn

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<th>Time</th>
<th>Title</th>
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<tbody>
<tr>
<td>1:00 PM CT / 2:00 PM ET</td>
<td><strong>Conclusion of the vRRES Technical Presentations.</strong></td>
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</table>

Thank you for joining us. We look forward to seeing you on the University of Illinois Urbana campus next year.

*Click on the presentation title to jump to the abstract & speaker bio(s).*
Planning Ahead for Responsible Soil Management During Redevelopment: The Union Pacific Railroad Soil Management Program

Redevelopment of a rail facility can be a tricky project, whether it is repaving an intermodal yard, laying new track or even just upgrading electrical runs. Not only are there the normal engineering and environmental concerns to worry about, but there is the need to keep the railroad running. Especially in an urban area where space is a premium, stockpiling of soils while waiting for waste characterization can increase the cost of the project due to schedule balancing between construction and train movement.

To keep redevelopment projects moving forward while keeping the railroad running, Union Pacific Railroad has developed a Soil Management Program. This program coordinates engineers and environmental scientists at every step in the process to:

· Pre-characterize soils prior to excavation.
· Plan ahead for soil re-use on site where possible.
· Ensure that potentially contaminated soils are properly managed and disposed.

Knowing your soil before project implementation keeps the project in compliance and can save time and money during construction. This results in effective and timely construction while respecting regulations for dust, odor and emissions control.

This presentation will review the history of Union Pacific Railroad’s soil management program and lessons learned, including:

· Importance of establishing clear program guidance documents
· Educating internal staff on the benefits and application of the program
· Pitfalls to avoid regarding waste tracking and management.

Melissa Schop - Union Pacific Railroad

Melissa Schop is an attorney with 25 years of Regulatory Compliance experience. She has been with Union Pacific Railroad for 15 years and is currently Sr. Mgr Environmental Site Remediation. In that role, she manages close to 100 remediation sites in 4 states. Additionally, she manages the Soil Management Program for the entire system.

Bryan Taylor - Antea Group

Bryan Taylor is an Environmental Professional with 20 years of experience in the environmental, health and safety (EH&S) consulting industry. His expertise includes program management, environmental liability management, waste management (including soil), environmental site assessment, soil and groundwater remediation, environmental construction management, spill response, regulatory compliance and advocacy. Mr. Taylor’s experience includes rail, pipeline, terminal and retail petroleum projects.
CN Thornton Locomotive Wash Upgrade, Sustainable and Innovative Solution

The CN Thornton Locomotive Wash is being re-activated after approximately 12 years of disuse, during which it had fallen into severe disrepair. The activation process for the wash includes replacement, refurbishing, and/or testing of all process equipment to restore full functionality.

The locomotive wash uses recycled water from the adjacent Thornton Wastewater Treatment Plant for the primary high-pressure wash, which makes up approximately 90% or more of the water used at the wash. All water used at the wash is collected and pumped to the treatment plant for treatment. Through communication between the wash and treatment plant controllers, the wash gets priority for any treated water, which is transferred to the locomotive wash storage tank. This both ensures that the wash is always using recycled water, and that water is only discharged to the sanitary sewer network if excess treated water is available. Within the wash, domestic water is only used for hot water supply for mixed soap application to improve performance, and for process freeze prevention.

The recycling, and potential for re-using the same wash water multiple times, results in drastically reduced water use compared to traditional wash facilities.

The new wash system will also have improved functionality related to washing newer, high-power road locomotives. These locomotives are known to be more susceptible to flooding through vents and openings compared to older generations of locomotives. Using locomotive body drawings both publicly available, and through collaboration with CN, profiles for each locomotive model are created to identify areas where high pressure spray should not be applied to locomotive models likely to be washed at Thornton.

Using a combination of railroad specific Automatic Equipment Identification (AEI) tag readers, doppler radar(s), and photo eyes, the control system will detect the locomotive models and determine their speed and position. Based on this positioning, the spinning brush module only activates on the locomotive cabs which reduces brush wear and tangling of the bristles. Then, as the locomotive passes through the high-pressure spray, valves controlling the nozzles facing the locomotive body will throttle flow according to the profile developed for that locomotive model. This selectively and actively prevents the high-pressure flow from entering areas known to be susceptible to flooding or water ingress damage.

In the event a locomotive AEI tag is not detected, the wash defaults to a either a standard full pressure spray wash or a low-pressure spray wash, and the brushes are not activated. This allows a wide variety of equipment to be washed if necessary, including non-locomotive rolling stock.

To the best of LRDL’s knowledge, the use of locomotive AEI tag information as a way of identifying specific locomotive models for custom wash profiles has not been undertaken at any other railway facility in Canada.

Daryn Curilla - Lukay Research & Development LTD

Daryn Curilla has been working at Lukay Research and Development Ltd. since his graduation from Mechanical Engineering at the University of Alberta in 2014. Daryn has been involved in many railway projects for various Class 1 railways across North America including the Thornton Locomotive Wash, 2018 Fulton Drop Table, 2017 Walker WWTP Upgrades, 2017 Kipp Drop Table, 2015 Macmillan Drop Table, 2014 Pasco Coal Re-Spray, and others. Daryn’s responsibilities have ranged from junior engineer and site supervision, through complete technical design and project management, and ongoing maintenance and support.

Seble Afework - CN Railway

Seble Afework is a professional engineer with a bachelor degree in Chemical Engineering from McGill University. She has over 25 years of experience in the environmental field. She is currently working for Canadian National Railway as Manager - Environmental Operations. She oversees the management and operations of fueling and wastewater treatment facilities, including the management of large capital projects from project conception through implementation and ensuring the performance management. Prior to joining CN she worked in the Environmental Consulting Field where she has managed environmental site assessment studies, compliance audits, and air compliance projects for clients in various industrial sectors.
Keynote Address

Earth Optimism: Learning from Successes in Conservation and Sustainability

Nancy Knowlton, Ph.D., N.A.S.
Sant Chair for Marine Science, Emeritus
National Museum of Natural History
Smithsonian Institution

Dr. Nancy Knowlton is a distinguished author, marine scientist and conservation biologist. She spent much of her career at the Smithsonian, first at the Tropical Research Institute in Panama and then at the National Museum of Natural History in Washington, DC, where she helped launch the Earth Optimism initiative. She was also a professor at Yale and founding director of the Center for Marine Biodiversity and Conservation at the Scripps Institution of Oceanography, University of California San Diego. Her many honors include election to the American Academy of Arts and Sciences and the U.S. National Academy of Sciences, the National Marine Sanctuary Foundation’s Lifetime Achievement Award, and the International Coral Reef Society’s Darwin Medal. She currently serves on the global Board of Directors of The Nature Conservancy. You can learn more about her work in her book Citizens of the Sea and by following her on Twitter at @SeaCitizens.
Environmental Issues Affecting the North American Railroads

AAR is a national, non-profit trade association that represents the nation’s major freight railroads. AAR is a non-profit trade association whose membership includes freight railroads that operate 83 percent of the line-haul mileage, employ 95 percent of the workers, and account for 97 percent of the freight revenues of all railroads in the United States; and passenger railroads that operate intercity passenger trains and provide commuter rail service. AAR is the Nation’s leading railroad policy, research, standard setting, and technology organization. AAR and its members are committed to operating the safest, most efficient, cost-effective, and environmentally sound rail transportation system in the world.

This presentation will discuss current regulatory, legislative, environmental awareness, and pollution prevention initiatives at AAR. The update will include a summary of the AAR’s petition for rulemaking with respect to EPA’s non-hazardous secondary material rulemaking covering other treated railroad ties (i.e. creosote-borate, copper naphthenate and copper naphthenate-borate) to eliminate the design to burn criteria so that crossties are allowed to be burned for cogeneration in all boilers, the status of EPA’s Group Multi-Sector General Stormwater Permit (MSGP), as an update on the latest issues on California emissions, a brief update on the AAR environmental award program, and the recently formed wastewater - fueling task force.

Robert Fronczak - Association of American Railroads

Mr. Fronczak is currently Assistant Vice President Environment & Hazardous Materials for the Association of American Railroads in Washington, DC. His responsibilities include the development and coordination of railroad industry environmental policy. Before joining AAR, he was a Senior Program Manager with Radian Corporation in Milwaukee, WI. He spent six years with the Milwaukee Road Railroad in Chicago, IL as Director of Environmental Engineering. He has a B.S. in Civil Engineering from Valparaiso University, and a Masters in Business Administration from DePaul University. He is a registered professional engineer in the State of Illinois.
Optimizing an Inspection Plan

Precision Scheduled Railroading (PSR) has taken the rail industry by storm. With PSR’s focus on network consolidation and rightsizing of resources came a paradigm shift in how some aspects of environmental compliance are achieved. PSR brought a greater need to relieve Union Pacific’s field employees of tasks to focus more on the core business of moving railcars.

To support that strategy in the environmental space, Union Pacific developed a strategy to transition SPCC and SWPPP inspections and sampling to contractors while ensuring that field employees retain accountability for SPCC and SWPPP compliance activities.

This presentation provides an overview of what works with this approach and the challenges it presents. Union Pacific will explain how it answered 3 specific questions in building a comprehensive approach for SPCC & SWPPP inspections across its 32,000-mile network:

1. What resources and data are essential to outsource inspections?
2. How do you roll out and implement over 11,000 annual tasks?
3. How do you measure success?

Jim Brannen - Union Pacific Railroad

Jim Brannen is currently Senior Manager Environmental Programs at Union Pacific Railroad. He’s been with UP for 13 years and with their Fuel and Environmental Management Group the last 8 years. He has extensive experience in multiple Environmental spaces including Sustainability, Mobile Air Emissions, Storage of Regulated Substances, and Community Right to Know. He earned his degree from University of Nebraska at Lincoln and his Masters degree from the University of Nebraska at Omaha. Please welcome Jim Brannen.
Establishing a Reasonable GHG Emission Reduction Target at CSX

This presentation describes the process and considerations in establishing a reasonable greenhouse gas (GHG) emission reduction target at CSX. This presentation will explore the drivers for setting a GHG emission reduction target, the types of targets considered, obtaining internal buy-in, evaluating a Science-Based Target (SBT), and the process for obtaining and establishing the SBT.

Common steps in setting the target level include creating an emissions or energy use inventory, selecting a target year, projecting business-as-usual emissions, and weighing potential target levels against the feasibility and costs of prospective action plans. It is beneficial to involve those who will be responsible for implementing the action plan in this process, in order both to ensure a reasonable target, and to put the organizational elements of the action plan into place.

Establishing a GHG emission reduction target may be important for a variety of reasons, such as:

· Boost credibility and reputation among investors, customers, employees, and policymakers.
· Optimize operational practices and catalyze the development of more efficient technologies.
· With increasing concern about climate change, public reporting frameworks such as CDP and DJSI gives investors a way to differentiate companies with the best prospects for long term investment, based on their reporting.
· Reporting may give companies a competitive advantage by getting ahead of regulatory and policy changes, as well as finding opportunities for climate action expected by customers and investors.
· Fuel efficiency initiatives not only serve to reduce GHG emissions but can also benefit the company financially. Since diesel fuel is a large operating expense to a railroad, increasing fuel efficiency results in lower operating costs.

Examples of GHG emission reduction targets:

· Absolute GHG Emission Reduction Targets – reduction in absolute metric tons of GHG emissions
· Emission Intensity GHG Reduction Targets – reduction in the emission rate of GHG emissions relative to a normalizing metric, such as “ton-miles”

Targets adopted by companies to reduce greenhouse gas (GHG) emissions are considered “science-based” if they are in line with the latest climate science approach necessary to meet the goals of the 2015 Paris Agreement – to limit global warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C. There are three science-based target (SBT) setting approaches:

· Sector-based approach: The global carbon budget is divided by sector and then emission reductions are allocated to individual companies based on its sector’s budget.
· Absolute-based approach: The percent reduction in absolute emissions required by a given scenario is applied to all companies equally.
· Economic-based approach: A carbon budget is equated to global GDP and a company’s share of emissions is determined by its gross profit, since the sum of all companies’ gross profits worldwide equate to global GDP.

CSX decided to pursue a target through the Science-Based Targets Initiative (SBTi). The SBTi includes a verification process to insure submitted emissions reductions targets are meeting the standards set by the 2015 Paris Agreement on Climate Change. This presentation will describe in detail the SBT process, establishing ambition, and obtaining both internal and external approvals for the CSX target.

Meaghan Atkinson - CSX

As manager of environmental programs at CSX, Meaghan has responsibility for regulatory programs including air and water permitting, CSX’s internal environmental compliance review program, and sustainability strategy and communication. She works with a field team to manage compliance for more than 200 water and air permits at facilities throughout CSX’s 23 state network. Meg works across the Company to set sustainability goals, respond to data requests from customers and non-governmental organizations, and build transparency through Environmental, Social, and Governance reporting. Meaghan holds a master’s degree in environmental engineering from the University of Florida and is a LEED accredited professional.

Sarah Elsokkary, Mariana Saldana - Arcadis U.S., Inc.

Mrs. Elsokkary is an Arcadis staff environmental engineer part of the Planning, Permitting, and Compliance team with the team’s significant focus directed towards the rail sector. She has 10 years of experience in the environmental compliance field and is currently focused on rail sector sustainability initiatives.
Big Sandy Crayfish vs. Norfolk Southern: How Newly Listed Threatened Species Delayed Construction and Drove Up the Cost for Replacement Bridges Over Tug Fork River

Matewan, West Virginia has been the scene of many historical conflicts, including the Hatfield–McCoy feuds and a violent coal miners’ strike in 1920. The latest conflict involved a tiny crayfish, which was newly listed as a threatened species and delayed the replacement of Norfolk Southern’s twin bridges over the Tug Fork River at Matewan. This presentation will describe the difficulties of preparing the first biological assessment of the Big Sandy crayfish (Cambarus callainus) in West Virginia with an uncertain and nervous agency. We will discuss proactive and reactive measures implemented to guide the process to eventual issuance of a biological opinion that enabled permits to be issued and the project to proceed. These measures included negotiating crayfish survey methods and intervals acceptable to both the agency and NS, innovative solutions including funding setup of a crayfish holding facility/research laboratory and installing a temporary work bridge and cofferdam to prevent crayfish from entering the construction zone. The extended review and coordination time delayed obtaining the required construction permits and drove up costs directly related to the agency coordination, modifications to the construction methods, a lost construction season, and compliance measures.

Ruth Brown - Norfolk Southern Railway

Ruth graduated from the Georgia Institute of Technology with a Bachelor of Science in Civil Engineering with a focus on structures in 2008. She became a licensed Professional Engineer in the state of Georgia in 2013. She is the Regional Engineer Structures of the Southern Region at Norfolk Southern Railway, where she has been employed since 2008. Ruth has been an active member of American Railway Engineering and Maintenance-of-Way Association (AREMA) Committee 15 – Steel Structures for 11 years. She has served as chair of Subcommittee 5 – Ratings for six years and is currently vice-Chair of Committee 15. In her free time, she enjoys swimming and biking the Silver Comet Trail.

Jennifer Sunley - Hanson Professional Services, Inc.

Jennifer graduated with her master’s degree in biology from Illinois State University in 2000. She is a specialist in federal and state compliance with the Clean Water Act including Section 404 permitting with the U.S. Army Corps of Engineers and Section 401 Water Quality Certification with various state agencies. Jennifer is currently the Natural Resources Discipline Manager at Hanson and has spent the last 14 years assisting the Class I railroads in federal compliance issues such as: wetland delineations, water quality and habitat assessments, mitigation planning, threatened and endangered species compliance, federal and state agency coordination, and stormwater compliance.
Operationalizing Sustainability for Large Railway Transit Construction Projects

Major freight and commuter rail providers in North America have adopted corporate sustainability strategies. These strategies focus on reconciling amongst environmental, social and economic demands to ensure that our society, and the corporation, has the economic prosperity and stability to enable maintenance or improved quality of life, protect the environment and promote a prosperous and competitive economy. With this focus, these strategies are being operationalized in all aspects of the organizations, including construction. Construction specific sustainability planning is typically a component of the construction environmental management plan.

Sustainability in construction is a broad and complex subject that must be considered from the earliest stages of project development as the potential environmental, social and economic impacts can be very significant. The incorporation of a project specific sustainability plan is critical to understanding and managing the potential environmental, social, and economic impacts. Elements within the sustainability plan will often include transportation, embodied energy/carbon, use of harmful materials, material sources, working methods, site waste, noise and vibration management plans, recycling, pollution/contamination, water conservation, dust generation and light pollution, amongst other items. Further, the construction industry is one of the largest consumers of raw materials and conventionally very little of the wastes generated from its activities have been recycled or reused, constituting a major concern for the environment.

Traditionally, construction projects have followed a “take-make-usedispose” concept, although industry evolution and changing client requirements are slowly moving the needle to a circular economy approach. Metrolinx, an agency of the Province of Ontario, is building a seamless, convenient and integrated transit network across the Greater Golden Horseshoe region (GGH), an area home to over 8 million people.

In 2015, Metrolinx issued its corporate sustainability strategy with a focus on five priority goals: climate resilience, reduced energy use and emissions, sustainability in the supply chain, ecosystem health, and enhanced community responsibility. Metrolinx is presently in the midst of delivering its GO Expansion program, which will transform the GO network into a modern, convenient, rapid transit system and provide two-way, all-day train service.

Metrolinx will be building 205 kilometres of new track, 687 kilometres of electrified track, upgrading 42 stations and in doing so will be increasing the number of weekly trips on the GO Transit system from 1,500 to over 6,000. Today, the expansion of transit in the GGH Area is one of the largest concentrations of infrastructure projects in North America. A significant aspect of these capital works is integration of the corporate Sustainability Strategy (2015-2020) into the construction of assets.

This presentation will focus on project specific sustainability plans for two (2) major Metrolinx construction projects, namely the Highway 401 Tunnel and the reconstruction of Rutherford GO Station. The Highway 401 Tunnel project will twin an existing 170 m / 560 ft rail tunnel which passes beneath twenty (20) lanes of Highway 401 in Toronto (~$115 million construction budget; construction timeframe 2018 to 2022). The Rutherford Station reconstruction project began in 2019 and is planned to be completed in 2022 with a construction budget of ~$250 million.

The Project Sustainability Plans for these construction projects provide near-term approaches, and long-term aspirations, to the development and implementation of sustainable practices and approaches during the design and construction phases of these Projects to demonstrate alignment with Metrolinx’s sustainability priorities.

Peter Nimmrichter - Wood
Peter leads Wood’s Canadian Climate, Resilience and Sustainability Services program. Peter began his 32 year career focused on water resources engineering. In 2005, this focus shifted to climate and sustainability themed projects given the link between extreme weather and water resources. He supports clients to better understand the risks and opportunities presented by climate change and the broader challenge of sustainable infrastructure. Peter shares his expertise through a number of national professional associations and has demonstrated the experience in climate vulnerability assessment, risk management and climate adaptation to attain the Engineers Canada Infrastructure Resilience Professional (IRP) credential.

Franca Costantino - Metrolinx
Franca Costantino, Senior Manager at Metrolinx, has over 20 years of experience in project management having led a number of large infrastructure projects delivered through various project delivery models. Franca graduated with a BASc in Civil Engineering from the University of Toronto, and an MBA from Wilfrid Laurier University. As part of GO Expansion, Franca is currently responsible for leading the delivery of both the Highway 401/409 Tunnel Project and the Rutherford Station and Grade Separation Project. Franca has also previously worked on the vivaNext BRT program; as well as, having worked on the Toronto Pearson Terminal Development Project.
Transforming Portfolio Management through Digital Innovation

Class I railroads have portfolios of remediation sites that can include a large number of individual sites with a wide range in complexity to manage. At the same time, Railroads are under increased pressure to identify meaningful approaches to driving efficiencies in their portfolios while driving restoration progress and keeping safety a priority. To achieve these goals, there are several new tools and approaches, including digital platforms, to help managers meet these challenges.

Canadian National Railway (CN) uses five pillars as a foundation for its management approach: Safety, Compliance, Efficiency, Cost Control and Technology. With these pillars in mind, CN engaged in an evaluation of its remediation portfolio management processes. The goal was to not only to reduce the level of effort required for management functions, but also increase the level of visibility to the actionable underlying data.

By bringing a customized approach to digitize their remediation financial and site operations data and combine it with domain expertise, effective data management, and analytics; CN has achieved a faster route to insights that allow them to more effectively manage their portfolio. This was accomplished through the following four steps:

1. Identification of relevant Key Performance Indicators (KPIs), metrics and goals;
2. Identification of and linking to key data sources;
3. Design of business intelligence platform overlay to support reporting and analytics; and,
4. Development of a process to achieve insights that improve efficiency and ensure cost control.

We will present the process CN undertook to transform the management of their remediation portfolio. Additionally, we will explain how the new framework and approach has given CN the ability to more effectively monitor progress, report out on their KPIs, and ease the interpretation, readability and understanding of their data. This new approach also allows CN the ability to analyze the impact of their decisions, proactively support supplier performance, identify opportunities for continuous improvement, and ultimately better manage the risk associated with remediation sites and close them faster.

Maura Matthews - CN Railway

Maura Matthews is a Remediation Specialist at CN based out the Homewood, IL office. Before joining CN in 2011, Maura gained a breadth of experience working for various environmental/engineering consulting firms. Her experience primarily includes environmental due diligence, industrial hygiene, and risk management. Maura holds a BS in Biological Engineering from the University of Missouri and is happiest spending time with her husband, Ahmar, and 12-year old daughter, Zora.

Janisse Diaz - Arcadis U.S., Inc.

Janisse Diaz is a professional environmental engineer with background specialized in business advisory and information management systems. Janisse focuses on helping clients through the selection, implementation, and usage of the information management system of their choosing. She also specializes in the standardization and digitization of business processes. Janisse holds a BS in Environmental Engineer from the Polytechnic University of Puerto Rico and is currently a proud buckeye undertaking a Masters in Engineering Management at The Ohio State University.
Using a Mobile App to Gather Data and Streamline Clean Water Act Compliance Plan Generation

Railroad facilities across the county are subject to Clean Water Act (CWA) regulations. These regulations require facility owners to collect information about the facility subject to the regulations and prepare a response plan. Some of the more common response plans that are prepared are Spill Prevention, Control, and Countermeasure (SPCC) plans, and Stormwater Pollution Prevention Plans (SWPPP). For the Norfolk Southern Clean Water Act (CWA) project, TRC gathers data for response plan preparation at Norfolk Southern facilities across 22 states and affecting more than 150 facilities. With a focus on creating consistency and efficiency in response plan development across the Norfolk Southern System, TRC has integrated a flow-chart-based data gathering tool into our electronic, mobile data gathering application. The application guides every user (regardless of experience level) through the CWA and SPCC compliance visit, and facilitates the collection of consistent, thorough data at each site.

The purpose of this presentation will be to discuss the initial development of the mobile application, challenges that were encountered and lessons learned at the roll-out stage, refining and streamlining of the mobile application based on user and client requests, the incorporation of system-wide written SPCC Plan templates, and finally, integrating the mobile application with the templates to auto-populate significant portions of the draft report for the facility. The presentation will go through the mobile application and template development timeline as well as the current status of the project. The presentation will also discuss the efficiency of the mobile data collection application versus traditional data collection methods.

TRC developed the initial CWA flow-chart-based data gathering tool in 2017 with the initial immediate goal of collecting consistent site data across the Norfolk Southern system. The mobile application allowed all data collected in the field to be preserved electronically, allowing other users to review site visit information online instead of having to pass handwritten field notes and scanned pages between authors and reviewers. By the end of 2018, TRC assembled an extensive database including from bulk storage tanks, to stormwater outfalls, to spill response materials inventories at approximately 100 facilities.

In concert with the recent roll-out of the final version of the mobile application, TRC has engaged with its mobile solutions group to facilitate the conversion of the collected data to applicable tables, sections, and appendices of the draft SPCC plan. The template SPCC plan was redesigned in order to allow for data gathered in the app to populate various tables and headers within the report automatically. After multiple test runs and changing portions of the questionnaire and SPCC template, the end result was the ability to generate a SPCC plan with pre-populated tables based on data gathered at a site by a simple click of a button.

Terri Allen - Norfolk Southern Railroad

Terri N. Allen is a graduate of Grambling State University with a BS in Biology and a Master’s of Science in Environmental Science from Southern University and A&M College. Terri’s past experience have included work at the NASA Specialized Center of Research and Training as well as the United States Army Environmental Command, the Georgia Department of Defense - Army National Guard, and the US Army 81st Regional Support Command prior to joining the environmental team at Norfolk Southern. As an Environmental Compliance Officer, Terri is responsible for the development and implementation of environmental policies and procedures as it relates to corporate compliance of standard operations across the Norfolk Southern system.

Kevin Sullivan - TRC Companies, Inc.

Kevin Sullivan has over 30 years of experience in environmental engineering including Regulatory Compliance, Remedial Investigation, Remedial Design, implementation of Interim Remedial Measures and Remedial Actions, Construction Management, and Project Management for hazardous and radioactive/mixed waste remediation projects. Among other project and administrative management responsibilities, he is currently assisting several railroad clients and various other industrial clients in maintaining environmental compliance across their network of facilities. Kevin received his bachelor’s degree in Civil Engineering in 1990 from the State University of New York at Buffalo, and he holds PE licenses in New York as well as various other northeastern and midwestern states.

Nick Gier - TRC Companies, Inc.

Nick Gier has 5 years of experience in environmental compliance and permitting within the sand and gravel mining and railroad industries. His focus has been on regulatory compliance inspections and preparation of Spill Prevention, Control, and Countermeasure plans, Stormwater Pollution Prevention Plans, and Industrial Stormwater Permitting. He received his bachelor’s degree in Environmental Studies in 2014 from the University of Pittsburgh at Bradford and is also a licensed commercial drone pilot.
If We Knew Then What We Know Now: Evaluating the Strategy at a Former Tie Treating Facility After 35 Years

This presentation looks back at more than 3 decades of remediation activities performed at a single site and asks, “would we make the same decisions again?”

When impacts to soil and groundwater were found at a 100-year old railroad tie treating plant located near the Laramie River in the early 1980s, remediation science/engineering was in its infancy. Available technologies, their costs, and their effectiveness were not well established. Likewise, the process for framing an overall strategy to protect human health and the environment at this type of site was not yet tested or established.

Because of the uncertainties of remediation approaches at that time, Union Pacific undertook a phased effort to identify and select long-term remedies for the site. Initial activities focused on the most immediate risks, which were preventing further migration of creosote DNAPL and dissolved contaminants from the site. These initial activities included moving a portion of the river away from the contaminated area, construction and operation of a containment system (including an underground barrier wall around the entire facility, groundwater extraction trenches and a water treatment plant), and a monitoring program. This system has been in place for over 33 years and has been very effective in containing contaminants at the site.

This long-term management strategy protected human health and the environment and allowed Union Pacific to focus on managing the source area inside the site. Approaches considered or implemented included incineration, a waterflood oil recovery program, a phytoremediation study, and construction of a 2.5-mile-long recreational trail.

This presentation looks back at the decisions and applies current scientific knowledge to provide a broader perspective on site remediation’s maturation.

Anne Walsh - Union Pacific Railroad

Anne Walsh is a Director of Fuel and Environment at Union Pacific Railroad. Anne has 12 years of environmental experience, 7 years with the railroad. Before transitioning into her current role she was the Site Remediation Manager for the presentation subject site. During her site rem time she managed a portfolio of over 100 sites in a territory covering 9 states. Anne is always looking for new solutions and works to create valuable relationships with regulatory agencies. She has a Bachelor’s Degree in Environmental Science from Metropolitan State University of Denver and currently resides in Denver, CO.

Rebecca Rewey - Jacobs

Becky Rewey is a Portfolio Manager at Jacobs Engineering Group with over 18 years of experience in environmental investigation and remediation. She has managed a variety of complex site remediation projects for the railroad industry. She is an advocate for innovative remediation solutions and works closely with her clients, principal technologists, and regulatory agencies to apply the solutions to unique site-specific field settings. She has a Bachelor’s degree in Civil Engineering from the University of Wisconsin-Madison and currently lives in Dillon, Colorado.
Successful Remediation of a Remote and Complex Site in a Provincial Park with Full Stakeholders' Satisfaction

Remediation was successfully completed in 2019 at a remote and complex site on a decommissioned CN line in a Canadian Provincial Park following ten years of detailed site characterization, risk assessment and remedial design in partnership with Aboriginal groups, regulatory agencies and non-governmental organizations. A derailment in the mid 1970s caused metal impacts in soil and groundwater along approximately 150 m of the rail line as well as in sediment and surface water in the adjacent wetlands and river channel. The remedial option selection was based on sustainability assessment with direct and interactive involvement of the Algonquins of Ontario and regulatory agencies. Golder designed and monitored the implementation of a complex, multi-year, full-scale remediation including soil excavation, sediment dredging using mechanical and hydraulic technologies, armouring and on-site water treatment of over 200,000 m³ of metal impacted water and discharge of the treated water via a mixing zone to a lake within the Provincial Park. The treatment and discharge of the water on-site required an innovative design, a rigorous permitting process and monitoring, but was critical in saving several millions in disposal costs. Remedial operations were successfully conducted over 3 years without negative impacts to the sensitive habitat beyond the work area thanks to robust environmental protection measures and proactive environmental monitoring. The project resulted in the creation of a new lake within this sensitive natural environment that is expected to become a resource for species at risk, including turtles, and fish, and is of value to the local Aboriginal community. The project received full support from Aboriginal Groups and other stakeholders thanks to the timely and well coordinated engagement from the onset of the project. The level of trust developed among all parties was critical in the success of the project.

Stella Karnis - CN Railway

Stella Karnis is the Sr Manager Environmental Affairs for Canadian National Railway, with over twenty five years of experience in the environmental field. Her responsibilities include the oversight of all corporate environmental programs for CN in Canada and the US, including Contaminated Sites, Environmental Due Diligence and Real Estate Transaction, Environmental Assets (fueling, Wastewater Treatment Plant etc. capital improvements), Environmental Impact Assessment and Permitting, and EMS implementation and management. She is responsible for reducing the company's environmental risks related to historic and current operations at CN sites and ensures the continuous improvement of the programs.

Stefano Marconetto - Golder

Stefano Marconetto is a Senior Environmental Engineer and Associate with 16 years of experience in site investigation and remediation. Stefano is responsible for technical oversight, direction and management of environmental engineering and contaminant hydrogeology projects in Canada and internationally.
In situ burning (ISB) can be a safe and effective oil spill removal technique. While primary response priorities remain to protect people, the environment, and assets, inland oil spills present unique and different challenges from offshore oil spills, including considerations for ISB applications such as consistency with Area Contingency Plans (ACP) and state and local regulations.

Additionally, BNSF will provide a case study for an Inland ISB performed as part of the response to the February 4, 2019 North Platte River Canyon derailment near Guernsey, Wyoming. This derailment resulted in the loss of nearly 7,000 gallons of diesel fuel and lubricating oil to the ice packed North Platte River. Low water levels and freezing conditions rendered traditional and mechanical oil recovery options practically useless. ISB was evaluated and ultimately performed at the incident to great effect. Pre-planning for the ISB allowed for the safe implementation of the burn and for the collection of information and data using drones to support mass balance estimates for the recovery.

This presentation is intended to provide an overview of the ISB regulations and ACPs which cover BNSF’s operating network as well as an overview of the 2019 North Platte derailment, inland ISB, and mass balance development.

Andrew McManus - Arcadis U.S., Inc.

Andy is the Incident Response and Recovery lead for Arcadis North America and has been supporting the freight rail industry for 15 years. Andy is a geologist and is based near Tampa, Florida.
Railroad Environmental Legal Update

Theresa Romanosky - Association of American Railroads

Theresa is the Assistant General Counsel at the Association of American Railroads. She holds a B.A. in Environmental Studies from the University of Pittsburgh and a J.D. from the University of Michigan Law School. Her main focus at AAR is on environmental legal issues impacting the rail industry.
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Special thanks to the  
AAR Environmental Affairs Committee  
for their vrRES consultation and guidance!