

Environmental
Bankers
Association

EBA Journal - Autumn 2026 Edition



EBA JOURNAL

OCTOBER 2026 | VOLUME 11 ISSUE 2



Celebrating 10 Years
of Insight.
Connection. Impact.
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EBA JOURNAL

Autumn Edition

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*Thank you for your service to the
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By John Rybak,
Truist Bank, EBA President



PRESIDENTS LETTER

Hello fellow EBA Members. I hope you all had a wonderful summer, great times with family and/or got to experience some exciting travel adventures. I want to take a personal moment, before I go on to write about all the things we are doing, all the accomplishments we have had, and before I celebrate the efforts of our tireless community.

My reflection is, wow "WE" are part of something great. We are blessed because this is a one of a kind organization in our industry. January marks my 30th year at the EBA. I was a lot younger then, a little lighter, definitely an extra skip in my step, and I knew everything and nothing all at the same time. What I did not know was how special this group of amazing individuals was/is. If you are not in the same reflective part of your career, trust me one day you will recognize what I am saying. Remember you are a part of this great organization, and it's our job to keep it strong. When you have an off EBA Day, or you get frustrated, take a moment and imagine where our profession would be without the EBA. Where would we go, grow, learn, laugh, love, fail and succeed?

We are quickly going to be moving into the fourth quarter and the holidays are right around the corner. It's a great time of the year, albeit a busy time. One of the EBA Holiday Traditions is the Risk Management Committee hosting another Christmas Carol with a fantastic speaker lined up. This is a cannot miss event, so be on the lookout for the registration.

As we look ahead, your Board of Governors and Executive Committee remain focused on ensuring the EBA continues to thrive for the next generation of environmental risk professionals. Your Board of Governors and Executive Committee are focused on leveraging our strong foundation to create an even stronger future. The EBA remains financially sound and highly respected within our industry. The world around us continues to evolve from industry consolidations, workforce demographics, staffing challenges, emerging risks and the adoption of AI into our workflow. We are in a prime position to advance our education, membership and engagement.

Board Priorities – The Board has focused on four strategic priorities designed to ensure the EBA remains a home and the leading resource for environmental risk professionals. These are Revenue Diversification/ Education Program Optimization; Membership Expansion; Committee Governance; and Marketing Strategy. We are building an EBA that is resilient, relevant, and positioned for long-term success.

Education Program remains at the center of the EBA mission. Our goal is not simply to offer more content, but to create learning opportunities that are flexible, practical, and valuable to members at every stage of their careers. Through our Continuing Education Committee and Marty Walters/Director of Education we continue to refine our **Environmental Risk Manager Certificate course**. Special thanks to Marty Walters, Natalie Nardone/NCG and Meghan Cohan/ASTM for doing the heavy lift of getting our education program accredited. In 2Q Marty was instrumental in leading the submission of our application to IACET, the accrediting body. The accreditation process is progressing as anticipated, and our team continues to work diligently through the final stages necessary to achieve accreditation. I cannot state enough our gratitude to these three individuals, and it clearly it takes a village! This year we had three successful ERM Certificate classes, reaching more of our members and building relationships. We continue to receive great feedback from attendees on the quality of the content, excellence in instructor delivery, learning and networking opportunities that expand beyond the course itself. We are continuing to invest in high-quality educational programming, and the committee is developing several short course offerings to supplement and expand our learning opportunities.

Membership is healthy, with strong membership retention and growth in both member banks and affiliates. Our objective is not simply membership growth. It is creating a broader, stronger community of environmental risk professionals who can learn from one another and advance the industry together. The EBA's mission extends beyond banks. Environmental risk management touches many industries. Our membership includes non-lender environmental risk managers, insurance professionals, appraisers, attorneys, and lender environmental risk managers. As you read this article, we are working hard to build a space for non-lender environmental risk managers, including specific agenda session(s) for the 2027 Austin EBA Conference. Inclusion of this group of professionals is designed to bring diversity of thought and content to the EBA. Our Membership Committee is actively connecting with prospective members to share the value of the EBA. They also are responsible for coordinating periodic 'EBA Meet Ups' in cities where there is enough synergy to host a social event for our members. These are great opportunities to connect with members in your community, so please attend them when they are scheduled in your area. If you are interested in organizing a Meet Up in your city, please contact **Enrique Garcia**/Membership Chair to discuss.

Committees - We have many wonderful committees at the EBA, and we have high engagement levels across the board. Our volunteers are the backbone of what makes us special, donating their time, and making our community better with diversity of programs and content. There is a place for everyone, and I would strongly encourage you to find your place, volunteer and help shape our future. Recently we have updated our Committee Charters, bringing clarity to roles, responsibilities and accountability. We are also encouraged as we see committees working together and sharing ideas.

Marketing - Over the past year, EBA communications and social media outreach have continued to expand our visibility and engagement with both members and prospective members. The EBA creates tremendous value. We must ensure both members and prospective members understand that value and can access it easily. NCG has implemented a digital marketing strategy to reach prospective members. On the monthly Risk Management Committee call, Dennis always makes a pitch for membership. Each of you are ambassadors of the EBA, and nothing highlights that value of membership like you sharing your experiences or the benefits of membership. Your role can be having conversations, or reposting EBA LinkedIn posts or forwarding EBA email communications to our Peers. The EBA is doing some exciting things, and we should share the news. In closing I remain as optimistic about the future of the EBA as I have ever been. That optimism comes from the talent, dedication, and generosity of the people who make this organization what it is. Together, we are not simply preserving the EBA's legacy. We are actively shaping its future.



Welcome to the Fall edition of the EBA Journal

From the Editor

You may notice that things look a little different. With this issue, we are introducing a refreshed format and a new publication schedule designed to make the Journal more timely, engaging, and easier to read. Our goal is to continue providing useful industry information while also creating more opportunities to highlight the people and perspectives that make EBA such a strong professional community.

One of the new features we are especially excited to introduce is the **EBA Member Spotlight**. In each issue, we will take a little time to get to know one of our members beyond the business card – their experience, perspective, involvement with EBA, and even a little about who they are outside of work. We are pleased to begin this new feature with Jimmy Kirkland of Womble Bond Dickinson.

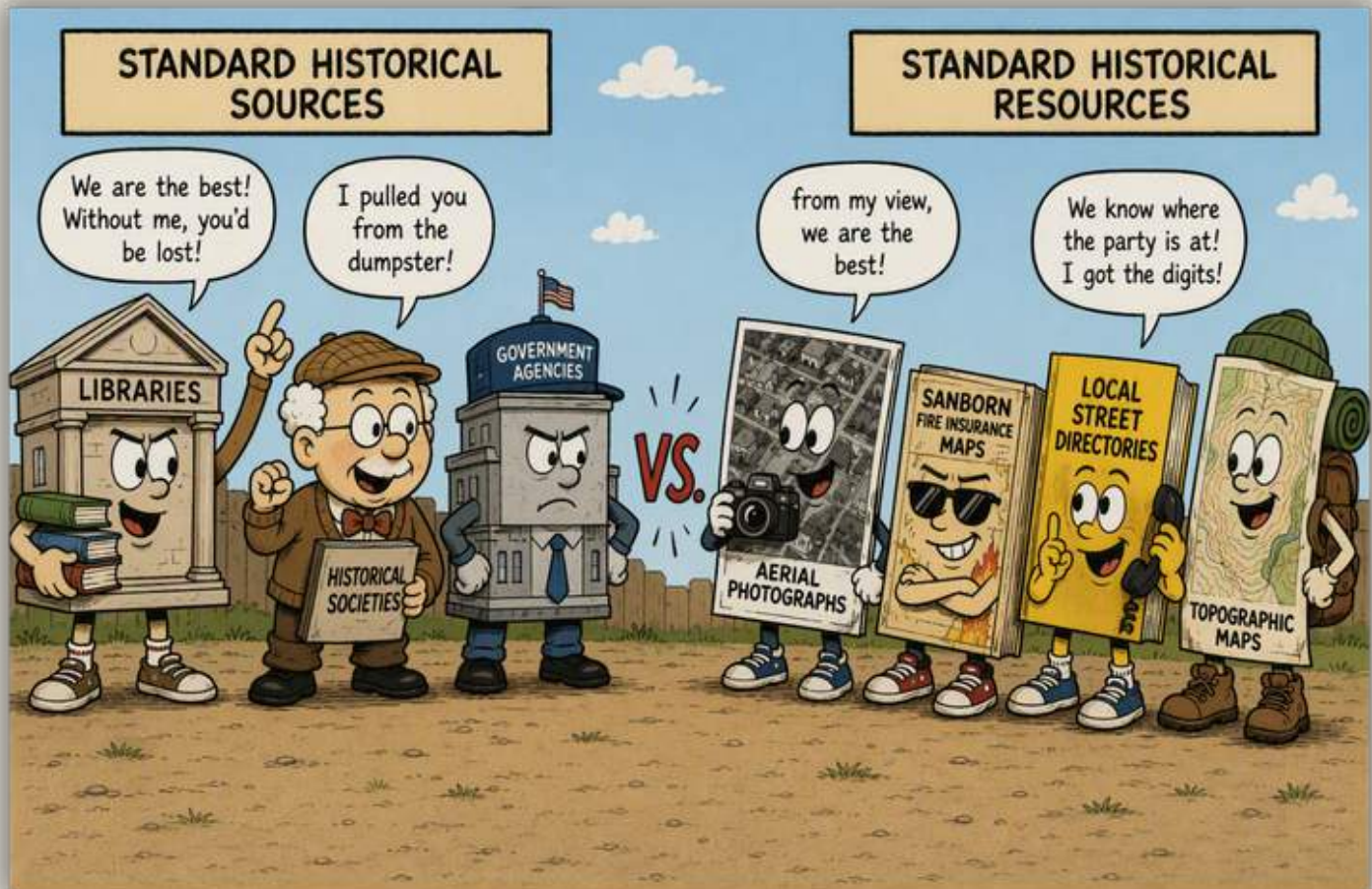
As we move into the fall and look ahead to 2027, we are also getting closer to the **EBA Annual Conference in Austin, Texas, February 1–4, 2027, at the Hyatt Regency Austin**. It is always one of the best opportunities of the year to reconnect with colleagues, meet new members, share ideas, and learn from one another. Registration is now open, so we hope you will make plans to join us in Austin.

Thank you to everyone who contributes to the Journal, shares ideas, and helps us continue to improve it. We hope you enjoy the new format and this Fall issue – and, as always, we welcome your thoughts, article ideas, and suggestions for future editions.

Charlene Webber, EBA Journal Committee Chair



AI COMEDY CORNER



EBA 2026 CONFERENCES YEAR-IN-REVIEW

Rachel McShane, Wells Fargo, EBA Conference Chair

First off, I want to take a moment to thank everyone who helped me as I stepped into the role of Conference Chair in April of this year. I couldn't have been successful without the steadfast support of the BOG, conference committee members, and EBA HQ. Thank you, truly, from the bottom of my heart.

I am perhaps a smidge biased, but I am thrilled beyond belief at the quality of the 2026 conferences, and am super excited for Austin and beyond in 2027. I hope those of you who are just dipping your toes into EBA membership (or perhaps are even just at the membership consideration phase) will take the time to learn about what we have to offer when it comes both to networking and education.

The 2026 conference season started with a bang as always in sunny San Diego, CA, kicking off on Tuesday, February 10th with a surprise Lifetime Achievement award to David Lambert, followed by what has become a much-anticipated tradition, Dianne Crocker of LightBox's CRE Lending Forecast. Now more than ever, when so much is in flux, her calm and well-reasoned insights are needed. Following Dianne came another session which always draws a crowd, the Phase II Data Collection project (which coined the term Contamination Discovery Rate and remains at the forefront of environmental contamination research), hosted by Kathryn Peacock of Partner. This year, Kathryn discussed PFAS and investigations at automotive repair facilities, two areas all of us have become increasingly familiar with. The third session was "Reducing Environmental Risk through Preconstruction Investigations", presented by David Hunter of Partner and David Lutz of United Airlines. An excellent reminder of how stepping in early, prior to breaking ground, is key to minimizing risk, avoiding costly surprises, and ensuring a smooth project.

After lunch on day 1 came a discussion on leveraging Environmental Site Assessment (ESA) data to quantify material value and collateral risk, by Brian Montenegro of Walker Blue, followed by the ever-popular discussion on the evolving world of SBA environmental processes. Derek Ezovski of ORMS and Steve Olear of SBA discussed strategies for navigating SBA loans, with an emphasis on risks associated with oil and gas wells. Day 1 closed out with a deep dive into how environmental reports and appraisals jointly tackle risk, comprised of a panel including Candi Coleman of Sunflower Bank, Richard West of AEI, and Victor DeTroy of AEI.



Attendees gathered for the
EBA 2026 Annual Conference, San Diego



General Sessions at the
EBA 2026 Annual Conference, San Diego

Wednesday, February 11th began with an annual benchmark survey discussing Artificial Intelligence in due diligence, led by Alan Agadoni of LightBox, Eric Bollens of LightBox, and Michael Nesteroff of Ballard Spahr LLP. This session was followed by a touch of Sherlock Holmes, as Hope Cline of AEI, Enrique Garcia of JPMorganChase, and Lizz Lagomarsino of JPMorganChase discussed how thorough detective work during the early stages of due diligence prevents a world of hurt in CRE transactions. Next came an important discussion of the intersection of environmental risk and social equity in real estate lending, from Hope Cline again (way to show up again, Hope!), Cate Landry of Truist, and Elizabeth Krol, then of LiRo-Hill (currently Archimedes Environmental Assessments). The morning was topped off with a case study on the Orange County CA North Basin Superfund Site, from Roy Herndon of Orange County Water District. I always love a good case study, especially from a regulator.

Post lunch day 2, we were treated to a role play of how to do a deal (or not) on a fictional contaminated site. All the players in a typical transaction were represented, and we got to hear their perspectives and peek behind the curtain on how deals are made. This session included Don Kellar of Blew & Associates, Jeremy Squire of Murex, Matt Winefield of Winefield & Associates, Dennis Firestone of JLL, Nick Dofrey of Environmental Works, and Richard Belyea, Emeritus. After the concurrent banker and affiliate only sessions, the day closed out with a deep dive into the ASTM E1527-21 standard, complete with collaborative industry dialog, hosted by Lawrence Falbe, Esq. of Miller, Canfield, Paddock and Stone, PLC, Steven Luzkow of Partner, Sean Leary of GZA GeoEnvironmental, Lori Coolidge of Colliers Engineering & Design, and Brian Walker of JPMorganChase.

The final day, February 12th, included a discussion of PCBs with Nick Godfrew of Environmental Works, and a Continuing Education session discussing how Environmental Risk Managers remain the future of our industry, despite the advent of AI, with Marty Walters of Recovery Risk, LLC. As we all bid our goodbyes, we reflected on not just the excellent content of sessions, but the memories made breaking bread, sharing industry war stories, laughing at the bar, and strolling together by the ocean. The beauty of the scenery, plus excellent accommodations, was the perfect backdrop to yet another successful in-person winter conference.

Next came the 2026 Virtual Conference held July 21st-23rd. After the opening welcome (including presentation of a Lifetime Achievement Award to Bill Sloan of Regions Bank, past president and mentor to many), came the State of the Industry Mid-Year Check-In, in which Dianne Crocker of LightBox reviewed her forecast from the San Diego conference to highlight what did (and did not) come to fruition. As usual, Dianne talked us off a ledge and reminded us that even in times of volatility, there are often bright spots and hopeful tail winds. Next came a discussion of our favorite class of contaminants, PFAS, and what kinds of risks they pose, led by S. Wayne Rosenbaum of Environmental Law Group, Masha Shayan of Geosyntec, and Charlie Stone of Terracon. This session was followed by a discussion of responsible AI in environmental risk management, inclusive of both tips and tricks for use as well as ground truthing straight from the horses' mouth (i.e. opinions of bankers). That session included Alan Agadoni of LightBox, Diana Saccone of ERIS, Scott Rodie of Bank of Hawaii, and Jim King of Fifth Third Bank, led by moderator Victor DeTroy of AEI. The main takeaway was that AI should not be feared, rather, embraced, but that the human in the equation was just as key as ever. After this session came some incredibly helpful tips on how to interpret Phase II reports (i.e., subsurface data on contamination in soil, soil vapor and groundwater), from Suzi Rosen of AEI and Christopher Fay of Truist. It's always good to have a reminder on what constitutes reliable data, and how sometimes a 'clean' report doesn't mean there isn't still a real risk. The day was closed out by the always illuminating discussion of regulatory closures from the perspective of a regulator, in this case, Scott Green of the Arizona Department of Environmental Quality.

Day 2 of Virtual Conference began with a discussion of diversity (both physical and cognitive) in the workplace and how it can be advanced via thoughtful approaches to EHS and other workplace programs, presented by Keara Vigil of First Citizens Bank and Kathryn Peacock of Partner. After this wonderful session was a first for EBA, one which had been highly anticipated and somehow not only lived up to the hype but blew expectations out of the water (pun intended) – a conversation with EBA Book Club author Amy Bowers Cordalis (interviewed by none other than Lori McKinnon of Zions Bank) on her book “The Water Remembers”. I think we all left that discussion energized (and perhaps a little teary eyed) by the reminder that people have power, and working to protect the environment and your heritage is always a worthwhile goal, even when it may feel like David vs. Goliath.

After the inspiration of the author’s talk was a very timely discussion of environmental cleanup in the state of Connecticut now that the Property Transfer Act is no more, and the state has transitioned to release-based cleanup regulations. This practical look at the road ahead was presented by Jennifer Cutrali of Fairfield County Bank and Chuck Mulligan of Partner. This session was followed by a discussion of the One Action Rule by Michael Nesteroff of Ballad Spahr, LLP – anyone involved in foreclosures definitely benefitted from the fascinating legal perspective Michael brought to the table. Day 2 ended with a call to action regarding succession planning, from the dynamic duo of Charlette Clark of AEI and Andrew Bailey of ECA Risk Management. They reminded us that even when it may feel burdensome in the moment, thinking about the future of your teams (or thinking about the future of your VENDOR’S teams) is critical to success in the long-run.



EBA Gives Back activity at the USS Midway Museum, San Diego, CA

The final day was just as jam-packed as ever, beginning with a discussion of alternative pathways to cleanup in California, a state often maligned for burdensome and sometimes confusing regulations, presented by Keith Walker of Cox Castle & Nicholson and Eric Smith of Partner. Next up was a scintillating look at the risks posed by lithium-ion batteries, from Meaghan Colligan Hembree of DLA Piper and Kathryn Peacock of Partner. I know that I personally was blown away by hearing about the significant risks these batteries could pose, and will definitely think twice the next time I worked on a deal in which a warehouse is chock full of them. The following session brought together a mock credit committee to play out environmental risk in action, which was inclusive of audience polling and represented a fantastic example of the types of conversations necessary to do the deal. Hope Cline of AEI, Elizabeth Krol of Archimedes Environmental Assessments, and Holly Pitts of JPMorganChase were to thank for this excellent discussion. What followed was a fascinating look into use of Environmental Escrows as a mitigant for environmental contamination, presented by Brenna Houston and Jessica Crutchfield of McRoberts & Hartis PC. The conference ended with a bang, with the illustrious Marty Walters – ERM certification course lead instructor – as she walked us through some of the evolving information which shapes how we do our jobs, and how that ties into the course. It was not only a wonderful way to stay updated, but also a welcome opportunity to connect with graduates of the program.

Sprinkled throughout virtual conference were a number of “Shop Talk” breakout rooms designed to give space for people to discuss lending in a more targeted way, specific to the type of transaction (i.e. SBA versus Fannie/Freddie versus Securitization). These Shop Talk sessions will make their return in future conferences, so please stay tuned on that front.

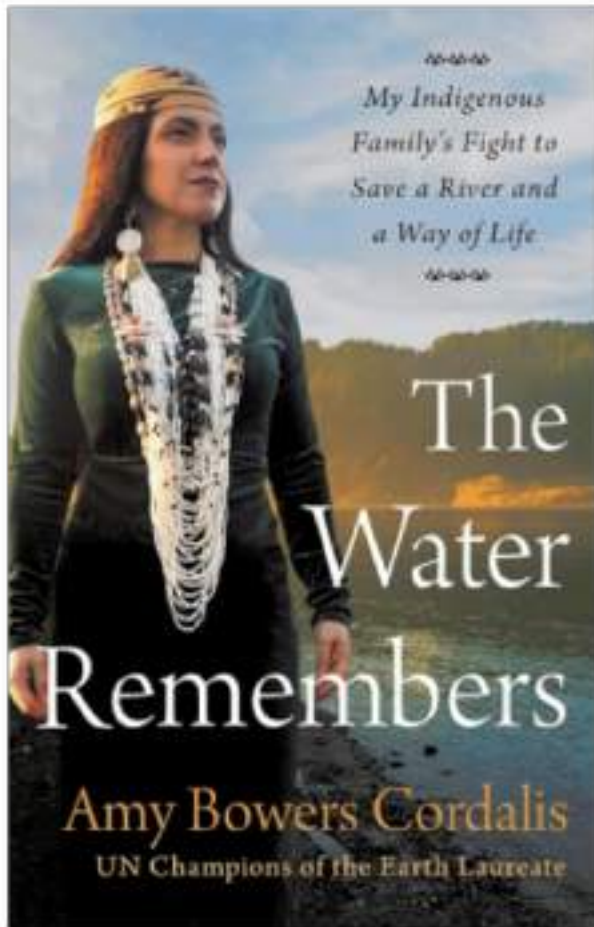


David Lambert, Wells Fargo, receives Lifetime Achievement Award in San Diego, CA

EBA conferences, applicable to both practitioners and consumers of environmental due diligence, are ultimately just one of many ways we can stay connected and learn from each other. I would argue, though, that they are the lifeblood of the organization, and absolutely critical to helping us all grow and be better at what we do. I certainly hope y'all feel the same and will join us the first week of February 2027 in Austin, TX, for a rip-roarin' rodeo of a time. Trust me, you can't beat that with a stick! (Forgive my sad attempts at Texas slang – this Missourian may have the vocabulary of a Midwesterner but still can appreciate the magic of a romp down in the Lone Star State, Darn Tootin'!)

Yee-haw, see you in Texas!

AMY BOWERS CORDALIS PROVIDES EBA WITH A MOVING AND PERSONAL TESTIMONY ABOUT ENVIRONMENTAL JUSTICE



By Lori McKinnon, Zions Bancorporation and
Michael Nesteroff, Ballard Spahr LLP

We don't often get to have an in-depth conversation with an author, let alone one who has been on the front lines of a major environmental issue, but in July 2026, EBA Annual Virtual Conference attendees had that opportunity when Amy Bowers Cordalis, author of *The Water Remembers*, spoke in conjunction the EBA Diversity, Equity, and Inclusion Committee's book club.

The Klamath River, the Yurok People, and the Meaning of Restoration

Amy Bowers Cordalis comes from the mouth of the Klamath River, a place where family history, Tribal sovereignty, ecological loss, and restoration are inseparable. The fog-wrapped redwood edge of Northern California, the "Lost Coast," where the Klamath River meets the Pacific and where the Yurok people have lived with, depended upon, and defended the River for generations.

The River used to support the third-largest coho and chinook salmon runs in the continental U.S., as well as historic runs of sturgeon, steelhead, trout, eels, and candlefish. The land provided Yurok with elk, deer, and a wide variety of plants. Amy's family has always lived at the mouth of the River (Re-Kwoi), since time immemorial, her family and the Yurok people enjoyed the bounty of the River. Their symbiotic relationship with the River, however, came under existential threat from over-fishing by non-native fishers aided by oppressive government intervention to prevent Yurok fishing and the construction in the early 20th Century and operation of four hydroelectric and irrigation dams on the upper Klamath. The dams blocked water flow, changed the River's ecology, and decimated the fish runs. In addition to the declining fish runs, Amy's great uncle and other Yuroks were subject to frequent arrests for exercising their subsistence fishing rights. Although a 1973 victory in the U.S. Supreme Court confirmed Yurok's fishing rights, the Klamath dams continued to block spawning grounds, restrict water flow, and release toxins killing scores of remaining fish.

All that changed in 2024 after years' long, concerted efforts to demolish the dams and reclaim the River. Thanks to those efforts, the River is now flowing freely for the first time in 110 years and more fish are returning to spawn.

A Conversation Beyond the Book

In her session at the conference, Amy discussed her book and invited (challenged) us to reconsider how law, policy, development, natural resources, and cultural survival are inseparably bound together in the life of a watershed. Through her extraordinary ability to braid family history, legal history, and River history, Amy took us on a journey down the Klamath from an Indigenous Yurok perspective that is too often absent from dominant environmental narratives. Her book follows three generations of one family's struggle to preserve a traditional Yurok way of life while confronting the consequences of discriminatory policies, contested resource use, consequential court decisions, dam construction, fish kills, and watershed degradation. The result is both personal testimony and public record: a reminder that environmental harm is never merely ecological when it also disrupts culture, food systems, law, identity, and intergenerational responsibility.

"For me, as a Yurok Tribal member, one of the most powerful themes of The Water Remembers is the recognition of the Klamath River as a living being. I was raised with the understanding that the River is not scenery, infrastructure, or an expendable resource. The River is capable of destruction, renewal, and sustenance; it remembers what has been done to it and what has been asked of it. To understand the Klamath in this way is to recognize that the health of the River and the salmon is intrinsically linked to the health and welfare of the Yurok people. That truth is not metaphorical. It is legal, cultural, ecological, and moral."
 -Lori McKinnon, EBA Bank Member

Environmental Justice and the Work Still Ahead

The long campaign to remove four dams from the Klamath River is, in many ways, a modern epic of environmental justice. It is a story shaped by federal policy, resource extraction, treaty rights, the Fish Wars, catastrophic fish kills, and the sustained advocacy of Tribal nations and allies who refused to accept degradation as destiny. The removal of those dams is not the end of the story; it is the beginning of a larger question. What does restoration require after generations of harm? And who gets to define success when a river, a people, and a way of life are recovering together? Nor is the removal of the dams the end of the story. Climate change is having an effect on snowpack and water flows, which in turn is leading to on-going legal issues in the courts over allocating a scarce resource between runs of salmon protected by the Endangered Species Act and water deliveries to farmers in the Upper Klamath Basin who rely on irrigation water for their crops.

"I will never look at a river the same, as merely water that flows across the land. I spend a lot of time in rivers as a fly fisherman, and they are magical. But now I will see a river as a life force of its own, and she remembers."
~John Rybak, EBA President

Continuing the Conversation

If you missed any of the conference session, please take the opportunity to **watch the video**. The EBA DEI Committee and Book Club are committed to bringing this type of content to the EBA membership. Participation is for everyone, your recommendations for books are welcomed. The next selection for discussion at the in person **February 2027 EBA Annual Conference** is "Paradise Falls," by Keith O'Brien. The book tells the true story of a group of mothers in the 1970s who uncovered Hooker Chemical's deadly secret buried beneath their community at Love Canal. We hope you will **join the conversation**. If you would like to purchase and read The Water Remembers or purchase and download the audiobook (with special content and family interviews), visit Amy's official site: **The Water Remembers by Amy Bowers Cordalis | Hachette Book Group**. To personally support Klamath River Restoration, please contact Amy's advocacy group **Ridges to Riffles**.

Waklou, Waklou, Waklou! (a Yurok heartfelt thank you to the EBA, DEI Committee, and EBA membership)





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INTEGRATING EXTERNAL ENVIRONMENTAL REVIEWERS INTO RISK DEPARTMENTS

By Kate Jordan Rivera

Columbia Bank - New Jersey

As banks continue to refine their environmental risk management strategies, incorporating external environmental reviewers can offer valuable support to internal teams and enhance overall review capacity. External reviewers can play a key role in helping banks assess environmental reports tied to lending decisions and can even offer guidance on policy. However, bringing in outside help presents its own challenges and risks. Managing an external panel requires thoughtful planning, competent vendor selection, clear communication, and strong oversight to ensure reviewers align with the bank's goals, policies, and risk appetite.

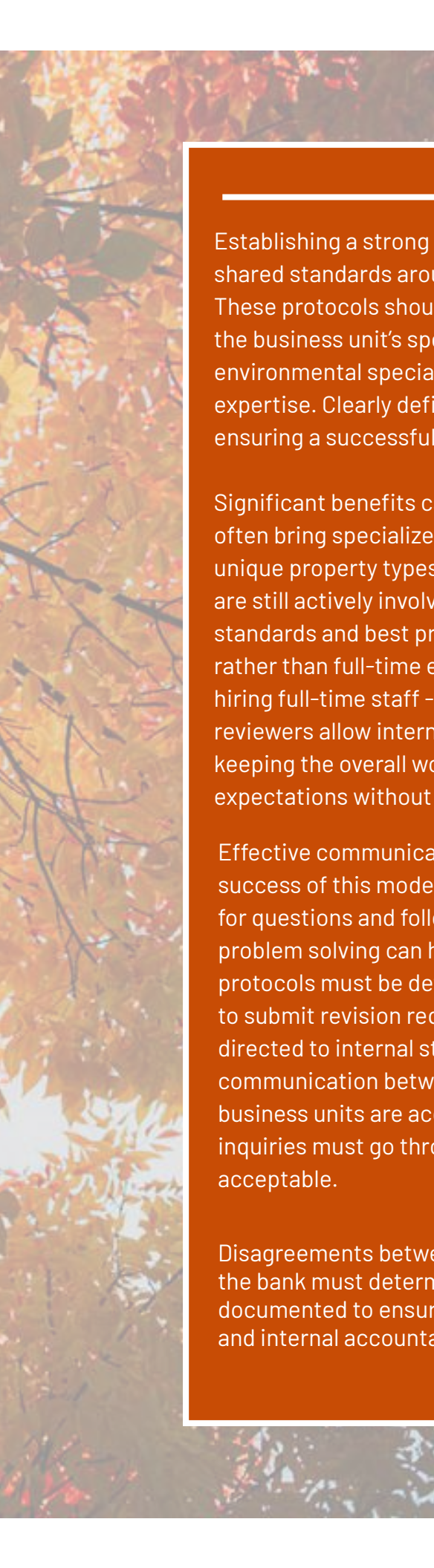
Effective planning is the foundation for success. A critical initial step is confirming that existing policies and procedures permit the engagement of external reviewers. Once established, the process of integrating external reviewers raises several key considerations, such as:

- ***What approval process is required to onboard an external reviewer?***
- ***Can external reviewers be incorporated into current workflows, or will new systems need to be implemented?***
- ***How will they securely access necessary data?***

Evaluating and updating procedures in advance will help facilitate a smooth and efficient transition.

Selecting the right external reviewers is essential. Candidates should have solid experience in environmental review and a strong understanding of regulatory frameworks. Broad technical skills alone is not enough — they must also be trained in the bank's specific processes, documentation standards, and internal systems. This includes understanding the bank's environmental policies, standards for environmental due diligence, and risk appetite. External reviews should reflect the same level of caution and consistency as those conducted by internal staff. Without this alignment, the quality and reliability of their work can vary, which could lead to confusion at best and risk exposure at worst.





Establishing a strong working relationship from the outset begins with creating shared standards around project scope, deliverables, timelines, and communication. These protocols should be tailored to the bank's level of environmental expertise and the business unit's specific needs. For example, banks without in-house environmental specialists will require different support than those that have such expertise. Clearly defining mutual expectations from the outset is essential to ensuring a successful partnership.

Significant benefits can be gained from a well-managed panel. External reviewers often bring specialized knowledge that internal teams may lack, particularly regarding unique property types and regional environmental concerns. External reviewers who are still actively involved in fieldwork bring valuable, up-to-date insights into industry standards and best practices. As external reviewers often operate as contractors rather than full-time employees, this approach can also be more cost-effective than hiring full-time staff - especially when workloads fluctuate. Most importantly, external reviewers allow internal staff to focus on complex or time-sensitive cases, while keeping the overall workflow moving. This helps the bank meet turnaround time expectations without sacrificing quality or oversight.

Effective communication between external reviewers and internal staff is vital to the success of this model. External reviewers should have direct access to internal staff for questions and follow-ups to help maintain transparency and avoid delays. Shared problem solving can help foster a collaborative relationship. Communication protocols must be defined clearly - identify appropriate bank contacts, outline how to submit revision requests to vendors, and specify when inquiries should be directed to internal staff. Risk departments should also provide guidance on communication between business units and external reviewers. For example, if business units are accustomed to contacting reviewers directly, clarify what inquiries must go through internal staff and whether any direct communication is acceptable.

Disagreements between reviewers and vendors require clear escalation procedures. the bank must determine when to intervene. All communications should be documented to ensure a clear audit trail, which is crucial for regulatory compliance and internal accountability.

Maintaining consistent documentation standards for both internal and external reviewers is key to creating a seamless experience for other teams across the bank. Whether a review is completed internally or externally, the final product should look and feel the same to ensure ease of use by lending and credit teams. Creating adaptable review templates promotes efficiency and consistency in presenting findings. Translating technical findings into accessible language supports informed decision making for lenders, borrowers, and other stakeholders. Creating stock review comments for common issues can save time and help reviewers stay aligned in their messaging. This approach ensures that lenders receive clear, actionable due diligence recommendations—no matter who conducted the review.

Managing an external panel isn't without challenges. One major concern is ensuring that the reviewers complete the work themselves, rather than outsourcing it further. Engagement letters should provide clear guidance on the scope of work and the role of the engaged party to align expectations. Banks must set clear expectations regarding review process expectations, standards for deliverables, and communication. Implementing a process to regularly review the work being submitted is essential. This includes establishing key performance indicators (KPIs), documenting feedback, and making sure external reviewers understand how their performance will be evaluated. Lending institutions can foster stronger relationships by offering support and guidance, advocating for external reviewers when appropriate, and providing prompt payment.

External reviewers often work with multiple clients and have visibility into a wide range of industry best practices. Regularly soliciting feedback can provide lending institutions valuable sights for shaping effective policies and processes. At the same time, external reviewers must establish their own best practices to ensure compliance with each client's specific policies, guidelines, and procedures. A critical component of this approach is understanding and aligning with each client's unique risk appetite.

Another challenge is system access—granting external reviewers access to internal workflow tools can streamline collaboration, but also introduces potential security concerns. Banks need to carefully manage role-based permissions and limit access to sensitive data, while also balancing efficiency. Conducting regular process audits helps maintain ongoing compliance in the handling of confidential information.

Bringing external environmental reviewers into the bank's risk department can be a smart move—if done thoughtfully. With the right selection process, training, communication, and oversight, external reviewers can enhance the bank's capabilities while controlling costs and maintaining workflow efficiency. The key is to find reviewers who can operate as an extension of the internal team, with the same standards, expectations, and support. When managed well, an external panel can be a valuable asset in navigating environmental risk.

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HOW TO GUIDE ON PUBLIC PARTICIPATION

By Marty Walters, EBA Education Director and Principal Consultant, Recovery Risk LLC

At our EBA virtual conference in July 2026, author Amy Bowers Cordalis (The Water Remembers) encouraged us to find local initiatives, projects, and issues that align with our values and participate whenever there are public notices requesting participation and comment.

Our democracy rests on citizen involvement. Our most basic obligation is to vote in local and national elections, but for this article I want to focus on participating in government actions, projects, and regulation development. In the last 12 months, I've written and submitted public comment on seven different government actions, and some of those included multiple submissions. It turns out that not only did I provide some of my professional expertise and personal experience, but I also met some new folks that expanded my horizons and my professional circle.

I have a formula for how to get started in public participation, and I'm going to use the great state of Missouri as an example for this article.



1. Subscribe to some newsletters. Like many states, Missouri centralizes all of its newsletters and email lists through a common subscription page. There are all kinds of topics you can subscribe to, including many related to the hazardous waste program. To get a feeling for what issues community members are focused on, find some environmental activist groups to follow. It could be through Facebook, like the Labadie Environmental Organization. Or you may find some organizations who maintain email newsletter lists, like Missouri River Relief.
2. Attend some public meetings. The MO DNR has a page on getting involved that makes it really easy to find a list of upcoming meetings, some relating to specific cleanup activities and some relating to regulation changes.
3. Read local news coverage on projects in your region. I want to make sure I'm getting a good range of information, so I found an independent journalist site that specializes in energy and environmental coverage. The Missouri Independent has a great website and allows you to subscribe to daily update newsletters for free.
4. Choose where you want to invest your time and your expertise. Every community is grappling with a range of different environmental challenges, so you will find an issue or community group that could really use your particular expertise.
5. Once you've chosen an issue, group, or project, stay engaged and try to experience the issue from multiple perspectives.
6. Prepare and submit formal comments when requested.
7. Provide live comments at public hearings and meetings.
8. Keep in mind the basic rules of good rhetoric when you are communicating - check out my slide on rhetoric from our ERM Certificate Course.



Reviving the Art of Rhetoric

Rhetoric is "the ability, in each particular case, to see the available means of persuasion."
— Aristotle

Use rhetoric to authentically connect your audience to your environmental risk policy
— Marty Walters

Ethos
Establish your credentials and credibility with your audience. How can you connect your background and experience with the problem at hand?

Logic
Be clear about what facts are known and agreed upon, where data gaps exist, and where you are using experience to make assumptions.

Pathos
Emotional connection and storytelling will connect you to your stakeholders.

Brevity
Short is beautiful, so start with your strongest point and your key recommendation. Don't spend time on minor points or details that are not relevant to the decision that must be made.

Metaphor
Making abstract concepts more concrete.



My first experience with being a public commenter was back when I was at my first professional job. I pored over Federal Register notices of draft regulations, asked my co-workers millions of questions, and put together a series of comment letters that were submitted to the US Environmental Protection Agency. It led me to become the internal expert in land disposal restrictions under the Resource Conservation and Recovery Act. Then the company president invited me to participate in industry groups in Washington, D.C., where I further developed my expertise in this very wonky area of hazardous waste management. It was amazing to see that the information I provided to EPA about detection limits for organic constituents in incinerator ash and the interference from the ash matrix made it impossible to comply with the proposed technology-based treatment standards. We ended up creating a task group with other commercial incinerators and EPA to develop more realistic standards that reflected real world conditions. In the process, I met and worked with people across my industry and learned a lot about my industry and how it is regulated. These lessons have stuck with me all these years later.

About five years ago, my county in the Sierra Nevada experienced the largest single wildfire in California's history, and we lost small towns and communities, and millions of acres of forestland were burned. Since then, I've been putting my regulatory and program management experience to work in a plethora of programs relating to wildfire resiliency, recovery, and response. My public participation with wildfire is centered around one guiding principle: to advocate for residents of rural California communities who don't have the wealth and resources of Lake Tahoe or Marin County. Each time I submit a public comment or speak at a government agency meeting, I'm thinking about how my neighbors and family members are going to respond to each new regulation, how they will pay for the cost of compliance, and how these programs will preserve affordable housing and prevent the incredible cost and trauma that comes with losing communities to wildfire.

I hope you'll consider getting involved with your community through public participation. Please share your stories with the EBA Journal!



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By Angie Ellis, MBA, EP, REM, CES
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REC VS. RISK: FROM CLASSIFICATION TO CLARITY

Why Environmental Due Diligence Is Increasingly
About Understanding Significance, Uncertainty,
and Decision-Making



Early in my career, I believed the value of a Phase I Environmental Site Assessment was finding every issue.

Twenty-two years later, after reviewing hundreds of transactions involving environmental concerns, building condition challenges, redevelopment projects, and lending decisions, I have come to a different conclusion. The true value of due diligence is not identifying every issue. It is helping stakeholders understand which issues matter most.

The Phase I Environmental Site Assessment is one of the most important risk management tools in commercial real estate transactions. It was never intended to identify every possible issue associated with a property. Rather, it was designed to identify recognized environmental conditions and support informed decision-making regarding environmental risk. That distinction may seem subtle, but it has become increasingly important.

Our industry has become remarkably good at collecting information. Historical records are more accessible. Regulatory databases are more comprehensive. Mapping tools, aerial imagery, and environmental data continue to improve. In many transactions today, the challenge is no longer finding information. The challenge is understanding what that information means within the context of the transaction.



Environmental professionals review records, conduct site reconnaissance, perform interviews, evaluate environmental conditions, and communicate their findings and opinions through established frameworks such as RECs, CRECs, and HRECs.

Those findings are essential.

Yet despite all the information available to us, I find myself asking a different question during many transactions:

What is this information telling us, and does it matter to the decision?

Not every environmental finding carries the same significance, and not every identified condition materially affects a transaction. The challenge is understanding which conditions have the potential to influence risk, value, operations, or future decision-making.

The challenge is not simply identifying environmental conditions.
The challenge is understanding their significance.

The Finding Is Not the End of the Discussion

One of the greatest values environmental professionals bring to a transaction is the ability to identify conditions that could affect a property's environmental profile. ASTM classifications provide an important framework for communicating environmental findings consistently across the industry.

However, identifying an environmental condition and understanding its significance are not necessarily the same exercise.

Environmental professionals evaluate conditions and communicate their opinions regarding those conditions. Lenders, investors, owners, and other stakeholders must then determine what those conditions mean within the context of a transaction, an asset, or a business plan.

The strongest due diligence outcomes occur when both perspectives are considered together.

A recent transaction illustrates this point.

During the initial review of a property located near a former dry-cleaning facility with a documented chlorinated solvent groundwater plume, the neighboring site appeared to be progressing through a voluntary cleanup pathway. Based on the information readily available, the condition appeared manageable and of limited relevance to the subject property.

As the review continued, a deeper evaluation of regulatory records revealed additional information. The voluntary cleanup agreement had been terminated years earlier due to inactivity associated with cleanup efforts, while groundwater monitoring continued to document contamination within portions of the plume. Additional delineation work was also being planned to further define the extent of impacts and migration; however, had since halted.

The issue was no longer simply the existence of a historical release on a nearby property. The combination of ongoing contamination, terminated cleanup status, uncertainty regarding plume extent, and groundwater flow direction raised legitimate concerns regarding the potential for migrating impacts to the subject property. Based on the information available, the condition was ultimately evaluated as a REC.

The REC determination was not where the discussion ended.

In many ways, it was where the most important discussion began.

The question shifted from whether a REC existed to understanding the significance of that determination. How much confidence could stakeholders place in historical assumptions regarding cleanup progress? What level of uncertainty remained regarding future plume migration, regulatory closure, or redevelopment considerations? What additional information would be necessary to support an informed decision?

The value of the due diligence process was not simply identifying a REC. It was helping stakeholders understand what was known, what remained uncertain, and how those uncertainties could affect the transaction. That understanding allows decision-makers to evaluate available options, whether through additional investigation, risk allocation, transaction negotiations, or simply moving forward with greater confidence in the information available.

Context Matters

One multifamily transaction involved a property with widespread moisture intrusion, microbial growth concerns, deferred maintenance, and a significant number of uninhabitable units.

Building systems required substantial investment, occupancy challenges were affecting operations and revenue generation, and questions existed regarding the property's long-term viability.

Interestingly, a prior due diligence report had identified microbial growth concerns but noted that the condition fell outside the scope of the environmental assessment. The statement was technically accurate and consistent with the purpose of the assessment being performed. However, when viewed through the broader lens of transaction risk, the condition carried implications that extended far beyond the environmental discussion.

The environmental findings, including identified RECs and other conditions requiring evaluation, warranted attention. However, they were not the issues that posed the greatest concern for the long-term performance of the asset.

The larger risk involved habitability, occupant health and safety, capital expenditures, operational performance, and the long-term viability of the property.



The new Phase I ESA report evaluated microbial growth. Had the discussion focused exclusively on environmental findings, stakeholders would have missed the broader picture.

This example highlights an important distinction. Conditions such as microbial growth may be identified during the due diligence process but are generally considered nonscope considerations under ASTM E1527. That does not make them unimportant. In this case, understanding the extent of those conditions and their relationship to habitability, operations, and future capital needs was central to understanding the overall risk associated with the asset.

Environmental conditions represent only one component of a broader risk profile that may also include habitability, life-safety concerns, operational performance, and future capital needs.

The Most Important Question

I've sat in countless meetings where the room was focused on a specific environmental finding, a specific cost estimate, or a specific regulatory concern.

When that happens, I often find myself asking a different question:

What are we actually trying to accomplish?

Because until that question is answered, it is difficult to determine whether the discussion involves a major risk, a manageable condition, or simply another piece of information.

A redevelopment project provided a good example.

The primary concern was not a REC at all. It was a known condition that carried significant implications for redevelopment feasibility, project scheduling, and budget assumptions.

The property contained extensive asbestos-containing materials that would require large-scale management and abatement as part of a planned conversion project.

There was little uncertainty regarding the existence of asbestos.
The uncertainty involved execution.

Could remediation be completed within budget? Were assumptions realistic? Did project schedules adequately account for the work required? Were qualified contractors available with experience performing abatement at the required scale?

The environmental condition was known.

The larger question was whether the assumptions surrounding its management supported the business plan.

That distinction changed the conversation from environmental compliance to project feasibility, risk management, and decision-making.

In today's environment, stakeholders are often presented with hundreds of pages of reports, assessments, cost estimates, regulatory files, and supporting documentation. The temptation is to focus on every issue simultaneously.

The better approach is often to step back and identify the underlying objective of the due diligence effort. Whether the concern involves potential liability, operational performance, future capital needs, or redevelopment feasibility, understanding the objective helps determine which findings warrant immediate action and which can be managed through planning, monitoring, or future investment.

The goal of due diligence is not to answer every question. It is to answer the questions that matter.

Putting Findings into Context

Environmental due diligence will continue to evolve as new technologies, emerging contaminants, regulatory changes, and environmental challenges reshape the industry.

The fundamental objective, however, remains unchanged.

Environmental due diligence is not about identifying every possible issue. It is about identifying material environmental conditions and providing the information necessary to support informed decision-making.

The industry does not need more information. The industry needs context.

The industry needs experienced professionals who can evaluate environmental findings within the broader context of uncertainty, asset performance, risk, and decision-making.



As environmental professionals, lenders, and risk managers, our greatest value may not be our ability to uncover more information. It may be our ability to provide context, reduce uncertainty, and help others understand what truly matters.

The most important question is not whether a condition exists. It is whether we understand the significance of that condition well enough to make a confident decision.

Environmental professionals will continue to identify environmental conditions and communicate their findings and opinions regarding those conditions. That responsibility remains fundamental to the due diligence process.

Increasingly, however, the greatest value created by due diligence occurs after the environmental findings have been identified. Understanding the significance of a condition, the uncertainty that remains, and whether it materially affects a transaction is where environmental due diligence creates the greatest value.

The information itself does not change the conclusion.

It changes the conversation.



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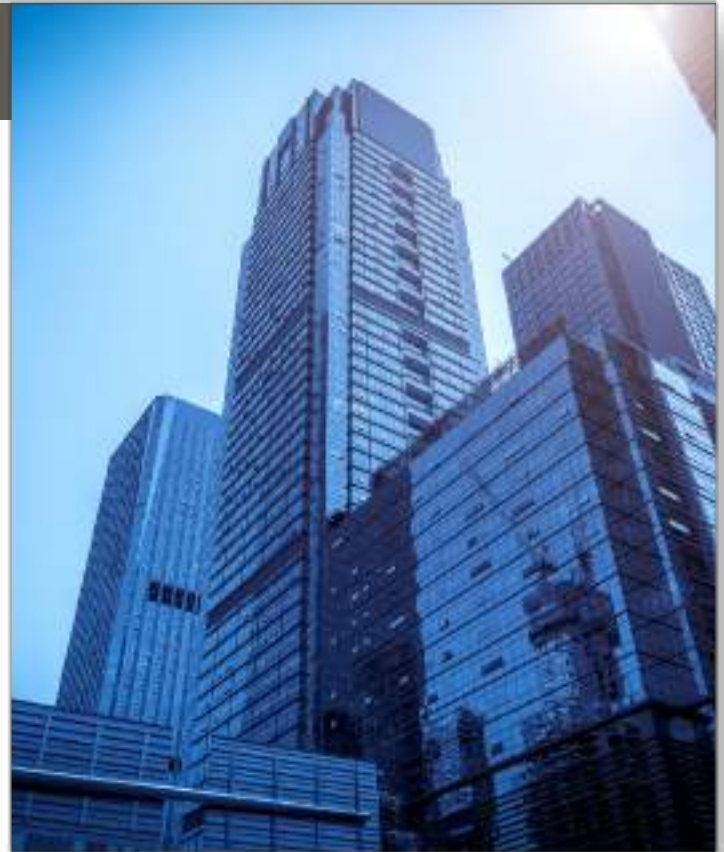
The Myth of Neutrality: How Environmental Risk Data Can Produce Unequal Outcomes in Commercial Lending

Hope Cline, PhD, AEI Consultants

Elizabeth Krol, Archimedes Environmental Assessments

Environmental due diligence is widely regarded as objective, data-driven, and grounded in established regulatory and ASTM frameworks to identify and assess risk in commercial lending. Yet the environmental information that informs lending decisions reflects decades of land use policy, industrial zoning patterns, infrastructure investment, regulatory enforcement history, and redevelopment cycles.

If environmental professionals and lenders interpret environmental findings without considering the historical and geographic context that produced those findings, they may unintentionally reinforce existing disparities in capital allocation. Environmental data is not generated in a vacuum. Understanding this context does not weaken technical rigor. Rather, it can improve the precision of environmental risk evaluation, support more informed lending decisions, and help ensure that historically burdened communities are not disproportionately disadvantaged by the interpretation of environmental information.



This article examines how environmental data is generated, how regulatory activity becomes concentrated in certain geographies, and how contextual interpretation can strengthen analytical rigor while preserving established risk management standards.

The Comfort of Objectivity

Environmental due diligence occupies a critical role in commercial real estate lending. It is structured, repeatable, and defensible. ASTM Standards define Recognized Environmental Conditions (RECs). Regulatory databases provide a record of environmental and regulatory activities over time, while historical research documents prior land use and site development. Together, these resources help establish the environmental context of a property. The process is intentionally systematic.

Within this framework, environmental risk is frequently described as objective.

However, environmental data does not arise independently of historical conditions that caused it. Regulatory listings reflect past industrial zoning, infrastructure placement, enforcement activity, redevelopment patterns, and public investment decisions. They are not randomly distributed indicators of hazard. They are records of regulatory engagement layered onto land use policy.

The data itself may be accurate. The question is whether it is interpreted with sufficient context.

Technical objectivity remains fundamental to environmental due diligence. Environmental professionals are responsible for identifying environmental conditions in accordance with ASTM standards, regulatory requirements, and established industry practices. RECs are determined based on the presence or likely presence of hazardous substances or petroleum products under conditions indicative of a release, regardless of location, demographics, property ownership, or broader social considerations. A REC remains a REC whether it is identified in a historically industrialized urban corridor, a rural community, or a newly developed commercial district.

However, environmental information does not emerge independently of the historical and geographic conditions that produced it. Environmental databases, regulatory listings, and historical records are products of decades of industrial development, land-use planning, zoning decisions, infrastructure investment, redevelopment activity, and regulatory oversight. Areas that historically hosted manufacturing facilities, transportation corridors, fuel storage operations, dry cleaners, rail infrastructure, or other regulated uses will naturally accumulate more environmental records than areas where such activities were never concentrated. The resulting distribution of environmental data reflects not only environmental conditions, but also the geography of historical land use and regulatory engagement.



Understanding this context does not alter technical environmental conclusions, nor should it. Rather, it provides additional perspective for interpreting what environmental findings represent and how they may influence decision-making. A concentration of environmental listings may reflect active material risk, historical regulatory activity, completed remediation, redevelopment of former industrial properties, or some combination thereof.

Distinguishing among these possibilities requires more than simply counting listings or screening results. It requires understanding the conditions that generated the data, the current status of potential environmental concerns, and the pathways through which actual exposure or liability may exist.

True neutrality is therefore not achieved through detachment from context, but through disciplined evaluation of both environmental conditions and the circumstances that produced the available information. When environmental findings are interpreted with appropriate context, environmental professionals (EPs) can maintain technical consistency while providing a more complete understanding of risk. Such an approach strengthens the defensibility of environmental conclusions and supports more informed lending, investment, and redevelopment decisions.

Environmental Databases as Historical Records

Environmental databases capture sites that have been regulated, reported, permitted, remediated, and/or subject to oversight. They do not capture contamination uniformly. They capture regulated contamination or regulatory oversight.

Communities that historically accommodated industrial corridors, bulk fuel storage, rail infrastructure, dry cleaning operations, and manufacturing inevitably accumulated higher concentrations of regulated sites. In many metropolitan areas, these same corridors align with residential neighborhoods shaped by historic disinvestment or exclusionary land use policies. The resulting density of listings reflects decades of zoning and infrastructure decisions. Database clustering therefore represents industrial geography as much as environmental hazard.

A higher number of listings does not automatically equate to greater present-day exposure. Many sites are closed. Many releases achieved regulatory resolution decades ago. Many exposure pathways are incomplete. Yet listing density often functions as a proxy for perceived risk.

Without distinguishing historical regulatory presence from active material exposure, environmental conclusions risk conflating history with hazard.

Environmental Determinations and Capital Allocation

When history is equated to hazard without adequate analysis, communities can lose financing and investment opportunities. Lenders evaluate environmental risk as part of capital allocation decisions. Guidance from banking regulators requires that financial institutions have an environmental risk management program, though the specifics are not prescribed and vary from one institution to another. Often, environmental risk is evaluated using a tiered system where a lower dollar loan on a perceived lower risk property starts with a desktop review and higher dollar/higher risk sites start with a Phase I ESA. If the lower tiered due diligence product, such as an environmental database search, indicates elevated environmental risk, a Phase I may be required. And Phase II ESAs may be required when contamination is suspected or is known but not yet delineated.

How perceived environmental risk impacts traditional capital allocation can vary significantly from bank to bank. Some lenders may choose not to finance a deal with any perceived environmental risk. Others may look for ways to mitigate the environmental risk during the underwriting process. For lenders to make appropriate capital allocation decisions, it is imperative that environmental risk is adequately defined. If potential collateral is deemed too risky without defining the actual risk to the property, capital may be denied. This can occur in areas where industrial use has historically been concentrated and there is a perceived risk based on geography alone. Environmental risk should not be ignored based on the community benefits a project can bring. Completing sufficient due diligence allows lenders and borrowers to understand the risk so it can be mitigated.

When there is planned redevelopment at a site, environmental remediation and mitigation measures can be planned into the process. For properties that plan to continue operations as is, costs to address environmental risk may be structured into the loan. Risk management tools may include environmental insurance products, indemnification agreements, escrow mechanisms, holdbacks, remediation reserves, engineering controls, land use restrictions, and adaptive reuse strategies that allow properties to be utilized safely while environmental conditions are addressed or managed.

Lenders with in-house environmental professionals can leverage that expertise to find solutions that allow a deal to close without taking unreasonable environmental risk. In addition to successful business outcomes for lenders and borrowers, this can strengthen the collateral value. Other lenders may rely on their environmental consultants and outsourced risk management partners to assist in this process. Understanding the stakeholders in the project, what your role is, and looking for solutions along with identifying risk can increase the value you bring, while also potentially helping investment in communities that have otherwise seen a history of disinvestment.

Brownfield programs and savvy developers can turn these blighted properties into opportunities to rejuvenate communities while receiving grant funding and/or tax credits. Programs such as the Low-Income Housing Tax Credits (LIHTC) and New Markets Tax Credits (NMTC) can also be utilized to support financing projects that will benefit communities impacted by concentrations of industry and historic land use policies. Additionally, many financial institutions have foundations, community impact lending, and/or purpose driven lending where potential positive social and/or environmental outcomes are considered along with the potential for financial returns. In many cases, the most successful redevelopment efforts build upon existing infrastructure, transportation access, industrial corridors, and workforce characteristics rather than replacing them entirely. Environmental remediation and risk management can allow these areas to continue serving productive economic functions while reducing environmental and public health concerns. Redevelopment outcomes are often influenced by factors beyond environmental conditions alone, including local planning initiatives, public-private partnerships, infrastructure investments, market demand, and community development programs. Environmental due diligence informs these decisions but does not independently determine redevelopment success.



Importantly, none of these programs alter the technical standards used to identify environmental conditions or determine whether a REC exists. Rather, they provide regulatory, financial, and risk management mechanics that allow stakeholders to address documented environmental concerns while facilitating responsible redevelopment. The environmental condition remains the same; the tools available to manage that condition may differ.

Objectivity as Professional Responsibility

Environmental due diligence is designed to reduce uncertainty in commercial real estate transactions and lending decisions. It relies on established ASTM standards, regulatory information, historical research, site observations, interviews and professional judgement to identify environmental concerns that may present material risk to a property owner, lender, or occupant. These frameworks remain essential because they provide a structured, repeatable, and defensible approach to evaluating environmental concerns and informing risk management decisions. Environmental conditions are only one factor influencing how a property is perceived in the marketplace. Brownfields and other historically challenged properties may carry reputational or market stigma long after environmental conditions have been addressed. Distinguishing actual environmental risk from perceived risk is therefore an important component of informed lending and investment decisions.

Yet the environmental information that feeds those frameworks is not historically neutral. Regulatory listings reflect where industrial activity occurred, where releases were reported, and where regulatory oversight was concentrated. Historical aerials, fire insurance maps, city directories, and land use records document decades of development decisions, infrastructure investment, zoning patterns, redevelopment activity, and regulatory engagement. As a result, environmental databases often reflect not only environmental conditions, but also the historical geography of industrial and commercial development.



Environmental professionals do not determine RECs based on database density, community demographics, or broader social considerations. Social context does not influence whether a condition meets the ASTM definition of a REC, CREC, or HREC. Those determinations must remain grounded in documented environmental conditions and established professional standards. Context becomes relevant only after the environmental condition has been identified, when stakeholders evaluate risk management options, redevelopment strategies, and lending decisions. A REC remains a REC regardless of where it occurs. However, interpreting environmental information without understanding the context that generated it can result in an incomplete understanding of risk. A concentration of listings may reflect active environmental concerns, completed remediation efforts, extensive redevelopment, long-standing industrial land uses, or a combination of these factors. Distinguishing among those possibilities requires more than identifying the presence of a listing; it requires understanding the nature of the condition, its current status, and the pathways through which exposure, liability, or business risk may exist.

Similarly, lenders use environmental findings as one component of broader underwriting and investment decisions. Environmental reports do not make lending decisions, but they often influence how risk is perceived and evaluated. When environmental findings are viewed in context, decision-makers are better positioned to distinguish between historical regulatory activity and current material environmental risk. This supports more informed capital allocation decisions while maintaining the technical consistency and objectivity required by established environmental standards.

True objectivity does not require detachment from context. It requires a disciplined evaluation of environmental conditions together with the historical, regulatory, and land use factors that produced the available information. Context does not weaken environmental due diligence. Properly applied, it strengthens the credibility, defense-ability, and usefulness of environmental conclusions. When environmental consultants integrate structural awareness into their evaluation and recommendations, and when lenders interpret findings proportionate to documented exposure, the risk assessment becomes more accurate, more defensible, and more aligned with responsible capital deployment.

Neutrality is not the absence of perspective. It is the disciplined integration of context into analysis. Environmental risk assessment is at its strongest when it is technically rigorous, repeatable, and proportionate to actual material risk. Context does not alter environmental conclusions; it improves our understanding of what those conclusions mean, how they were generated, and how they should be applied in decision-making.

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The Importance of Construction Inspections in Vapor Intrusion Mitigation

By James P. Cinelli, P.E.,
P.G., BCEE, Liberty
Environmental



In my previous article I discussed the importance of following established design standards to ensure the effectiveness of vapor intrusion mitigation systems. However, the ultimate success of these engineered controls does not rely solely on their design. It also hinges heavily on rigorous construction inspections during installation. Without diligent oversight, even the most advanced systems can fail, leaving future occupants exposed to site contaminants.

The first line of defense against vapor intrusion is the sub-slab vapor barrier or membrane. Vapor intrusion membranes are engineered to resist chemical degradation and diffusion. However, a barrier is only effective if it remains completely contiguous. Movement of heavy machinery, sharp gravel, dropped tools, and worker foot traffic can easily puncture a membrane. Furthermore, sealing penetrations by utilities, columns, and perimeter foundations requires careful workmanship.



Construction inspections ensure that every seam is properly taped according to manufacturer specifications. Inspectors verify that all penetrations are sealed with appropriate boots or mastics, and that any accidental punctures are immediately repaired before the concrete slab is poured. Once concrete covers the barrier, identifying and fixing leaks becomes virtually impossible, making real-time inspection during installation non-negotiable.

Complementing the barrier is the active or passive sub-slab depressurization system (SSDS). An SSDS relies on a network of sub-slab pits or perforated piping in a permeable venting layer beneath the slab. This network creates a continuous low-pressure zone that intercepts vapors and vents them safely above the roofline. For an SSDS to function correctly, the sub-slab dynamics must allow for uniform airflow. Inspectors are responsible for verifying that the aggregate venting layer meets the specified thickness and gradation, ensuring it is free of fines that could clog the system. They also check the slope and placement of the piping network to prevent moisture accumulation or blockages that could choke the airflow. In some jurisdictions, environmental agencies and/or local building departments mandate post-installation testing (typically by measuring vacuum at predetermined monitoring points) to confirm system integrity before issuing certificates of occupancy. Performing frequent inspections to ensure strict adherence to project drawings and specifications helps to eliminate the possibility of disruptive, costly and time-consuming system retrofits after start-up.

If field changes are made to foundations or other structures, appropriate guidance for applying the vapor barrier or running SSDS piping may be necessary. The inspector ensures that changes satisfy the original intent of the design, and gaps in slab coverage do not occur. Detailed inspection logs, photo documentation, and field reports create a transparent record of compliance. This documentation not only satisfies regulatory frameworks but also protects developers from future legal liabilities and property devaluation stemming from vapor intrusion issues.

Installing vapor intrusion mitigation system components is a sophisticated environmental remedy requiring professional oversight. By catching installation errors and verifying structural integrity before the concrete is poured, inspectors bridge the gap between design intent and long-term performance. Robust construction oversight guarantees that the intended system design is followed and that the new building is safe for its future occupants.

James P. Cinelli is an environmental engineer and the president of Liberty Environmental, Inc., an environmental consulting firm which he co-founded in 2004. Mr. Cinelli has over 30 years of experience in environmental consulting with an emphasis in the areas of soil & groundwater remediation, brownfield redevelopment, and water resource engineering. He has provided expert witness testimony and has spoken at state and national conferences on topics such as stormwater management, erosion control, site remediation, and spill prevention.



The Intersection of Business and Science: The Evolution of a Career in Environmental Risk Management

By: Nadine VigilSVP, Eastern Bank

My professional path began at Bryant University, then a college, where I majored in management during a period of uncertainty about my long-term goals. I chose management for its versatility, believing it would prepare me to one day start a business, even though I had no clear vision of what that business would be. It was a pragmatic decision aimed at keeping future options open.

That trajectory changed when I enrolled in a geology course taught by Dr. Doug Levin. I did not yet understand how profoundly his influence would shape my academic and professional life. Dr. Levin challenged me to think critically, nurtured intellectual curiosity, and presented scientific concepts—plate tectonics, soil composition, earth systems—in a way that made them vivid and interesting. His mentorship revealed a scientific aptitude I had not previously recognized. Earning As in science courses and Bs in business created a pattern that aligned with how I felt in the classroom and lab: I was not only interested in scientific work; I excelled at it.

Dr. Levin's impact extended far beyond my undergraduate years. Over the next two decades I had the opportunity to reconnect with him multiple times. He remembered my early ambitions with striking clarity, asked incisive questions, and continued to offer guidance marked by sincerity and intellectual generosity. He even met my children, which felt deeply meaningful—introducing them to the person who first affirmed my capabilities and helped set the direction of my career. His mentorship embodied rigor, humility, and a genuine belief in the potential of his students.

His passing in 2023 was a profound loss. It underscored the depth of his influence on my development as both a scientist and a leader. The curiosity he cultivated and the integrity he modeled continue to guide me, shaping how I mentor emerging professionals and how I encourage my own children to think critically and pursue knowledge with purpose. Declaring a minor in environmental science solidified my academic direction. Coursework in ecology, oceanography, and applied scientific methods expanded my understanding of natural systems and strengthened my commitment to analytical thinking. For the first time, I felt clarity about the kind of work I wanted to pursue.

Motivated by that clarity, I earned a master's degree in Environmental Science & Management at the University of San Francisco. The program's structure allowed me to work full time while advancing my education. An environmental engineering course—particularly the study of chemical fate and transport—was especially formative, blending mathematical rigor with practical environmental problem solving.

For my thesis, I conducted an extensive investigation into cancer incidence on Cape Cod, Massachusetts, in relation to contamination originating from operations at Otis Air Force Base. While the research confirmed elevated cancer rates relative to statewide averages, limited data prevented drawing definitive exposure correlations. Although I had hoped for an outcome that would directly serve affected residents (my own Erin Brockovich moment), the experience strengthened my analytical discipline and deepened my commitment to environmental protection and remediation.



After completing my degree, I returned to Massachusetts following September 11th to be closer to family. I began my career in environmental consulting, applying the technical foundation developed during my studies. While the work affirmed my passion, the extensive travel prompted me to seek a role with greater stability. This led me to Citizens Bank, where my combined background in science, management, and finance aligned well with environmental due diligence responsibilities. It was the beginning of a career path that blended environmental science with business decision-making.

I later joined CVS Health, where I spent more than a decade contributing to the development of the company's environmental real estate program. My work included building tracking systems, strengthening interdepartmental collaboration, and eventually leading the team for five years with a focus on compliance, operational efficiency, and continuous improvement.

Today, as Environmental Risk Director at Eastern Bank, I oversee the Environmental Risk Department within Corporate Credit. I ensure alignment with regulatory expectations, industry standards, and institutional risk appetite. My work has focused on implementing new metrics, enhancing reporting, improving processes, and advancing the team's analytical capabilities. I am energized by the strategic, leadership, and problem-solving dimensions of the role, particularly those that require both technical fluency and sound judgment.



Know the Keys to Unlocking CERCLA Defenses

Understanding CERCLA liability protection and the critical role of a Phase I ESA

By Gary Reynolds, CREtelligent

Environmental liability can be one of the most costly and disruptive risks in any real estate transaction. Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), property owners may be held responsible for contamination even when they did not cause it.

Because of CERCLA's strict liability framework, buyers must take proactive steps to protect themselves before acquiring real property.

A properly conducted Phase I environmental site assessment (ESA) is the essential tool that enables buyers to unlock CERCLA's statutory defenses. Without it, purchasers risk exposure to cleanup costs that can reach millions of dollars.

Why protection matters

CERCLA assigns liability to current owners, past owners, operators, arrangers and transporters. A buyer can inherit liability simply by taking title to contaminated real estate.

To avoid this outcome, the law allows several defenses, but each requires the buyer to demonstrate that they performed "all appropriate inquiries" (AAI) before acquisition. The accepted method of meeting AAI is a Phase I ESA performed to ASTM E1527 standards, which are due diligence processes adopted by the Environmental Protection Agency.

A compliant assessment is the foundation for three major statutory defenses:

- The bona fide prospective purchaser defense permits a buyer to knowingly purchase contaminated property without becoming liable for existing contamination, provided they conduct AAI before closing and meet their ongoing obligations after acquisition.
- The innocent landowner defense applies when contamination was unknown and not reasonably discoverable at the time of purchase, again requiring the buyer to show that they acted responsibly by completing AAI.
- The contiguous property owner defense protects owners whose land becomes contaminated solely due to migration from an adjacent site. It similarly depends on having completed AAI.

In each of those scenarios, a Phase I ESA serves as the gateway to CERCLA protection, providing a structured investigation into the environmental condition and history of a property.

A Phase I ESA evaluates historical and current land uses, identifies “recognized environmental conditions,” determines whether further investigation such as a Phase II ESA is warranted and documents the buyer’s due diligence efforts to demonstrate compliance with AAI. This documentation serves as evidence that the buyer acted responsibly and is entitled to the statutory protections CERCLA affords.

What comes next

Completing a Phase I ESA is only the initial step. To maintain protection under CERCLA, buyers must also fulfill continuing obligations after the acquisition. These include taking reasonable steps to prevent or limit exposure to contamination; providing access and cooperation to regulators; complying with land-use restrictions and institutional controls; avoiding interference with response actions; and ensuring they are not affiliated with a liable party. These ongoing responsibilities are critical to preserving CERCLA defenses long after closing.

Another often-overlooked requirement concerns reliance. The party seeking CERCLA protection must be identified as an authorized user of the Phase I ESA. The environmental professional must know who the user is, and the report must be prepared for that user. A common issue arises with U.S. Small Business Administration (SBA) transactions, where reliance letters may authorize only the lender and SBA to rely on the report and may specify that the borrower receive a copy merely for informational purposes. When the buyer is not named as a user, they technically have not conducted AAI, even if they paid for the report. Courts have rejected CERCLA defenses on this basis. A reliance letter can correct this issue by retroactively authorizing the buyer to rely on the report – an inexpensive and standard practice in most transactions.

Phase I ESA shelf life

The timing of the Phase I ESA is equally important. For AAI purposes, a Phase I ESA has a one-year shelf life, but this does not mean that CERCLA protection expires after one year. The critical rule is that the Phase I ESA must be less than one year old on the date of acquisition. Once the buyer takes title, the report does not expire for CERCLA purposes.

Certain components — such as interviews, the environmental lien search, the government records review, the site reconnaissance and the environmental professional's declaration — must be updated if they are more than 180 days old at the time of closing, even if the overall report is less than a year old. After acquisition, CERCLA does not require annual updates or new Phase I ESAs; protection continues indefinitely so long as the buyer maintains their continuing obligations.

Courts have consistently enforced AAI timing requirements strictly. In the 2020 case *Von Duprin LLC v. Moran Electric Service*, a U.S. district court in Indiana held that a Phase I ESA older than 180 days was stale and therefore insufficient to establish bona fide prospective purchaser status. This case and others

illustrate that courts "count days," and missing AAI timing has repeatedly caused buyers to lose CERCLA defenses and face substantial cleanup costs.

In practice, buyers, lenders and developers should recognize that a Phase I ESA is critical for CERCLA liability protection, with the following essential conditions:

- The buyer must be named as an authorized user or obtain a reliance letter.
- The report must be less than one year old at closing, and the key components must be updated if they are older than 180 days.

Once acquired, CERCLA protection continues indefinitely, provided the buyer meets ongoing obligations. Courts rigorously enforce these requirements, and expired or incomplete reports have repeatedly resulted in the loss of important statutory defenses.

Gary Reynolds has spent the past 19 years helping lenders navigate ASTM environmental requirements and the U.S. Small Business Administration's current SOP, with a focus on protecting borrowers, lenders, and the SBA through the safeguards available under CERCLA. As a Client Executive and Consultant with CREtelligent, Gary advises lenders, developers, and investors on commercial real estate due diligence, delivering compliant, defensible environmental and engineering solutions for transactions nationwide.

The Impact of EBA's ERM Certificate Program



By: **Nikole Morgan**, Northwest Bank

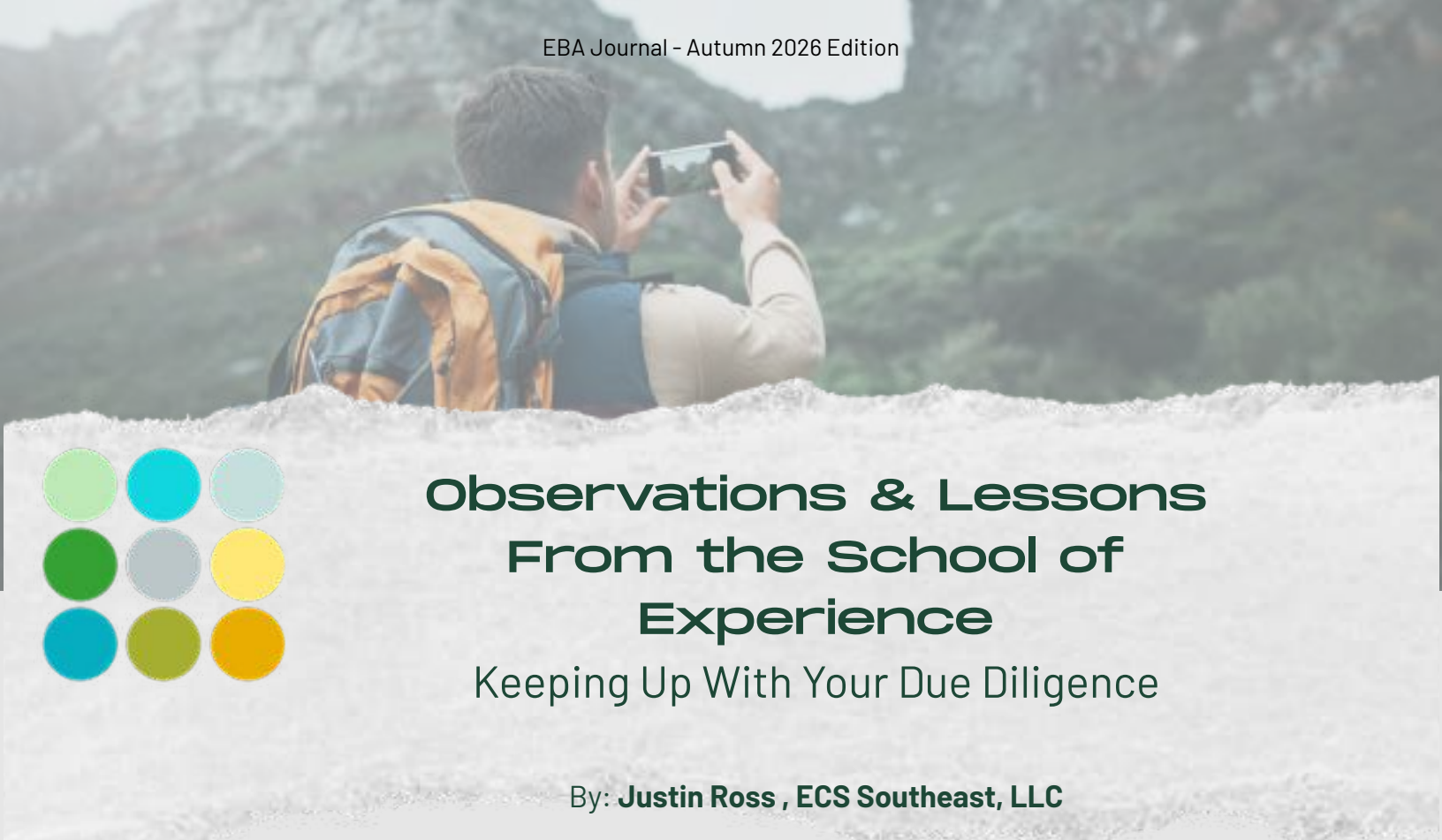
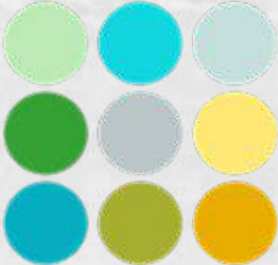
The ERM Certificate Course covers a broad range of topics and, while comprehensive, only begins to address the full scope of risks environmental risk managers encounter. What stood out most to me was the weekly interaction with classmates. Those discussions created a strong sense of community as it was an opportunity to share ideas, experiences, and challenges with professionals who truly understand our work. I consistently looked forward to that collaborative environment.

The course also provided valuable exposure to the diverse professionals involved in this field, including ERMs from regional and national banks, environmental consultants, attorneys, and appraisal specialists. The collaboration between environmental bankers, consulting firms, and affiliated professionals plays a critical role in shaping industry standards. Aligning our approaches to identifying and managing environmental risks helps ensure our recommendations are consistent with peer institutions, ultimately strengthening risk management practices across the industry.

One particularly impactful topic was the challenge of communicating the importance of non-scope ASTM concerns such as asbestos and lead-based paint to lending and credit teams. For large, older multifamily properties, exterior and interior renovations can introduce significant costs that may not be identified early in the construction budget. In my experience, these non-scope items are often downplayed, with responsibility shifted to contractors to comply with applicable regulations. To mitigate this risk, I strive to obtain cost estimates for testing and potential abatement and communicate these clearly to construction and credit teams, so they are appropriately reflected in the project budget. Depending on project size, these costs can be substantial. I have found partnering with environmental consulting firms affiliated with the Environmental Bankers Association, rather than firms retained by regional or local developers or contractors, can significantly improve transparency and ease the risk management process.

I value the professional community the EBA has built and look forward to continuing to learn and grow as an environmental risk manager.



Observations & Lessons From the School of Experience

Keeping Up With Your Due Diligence

By: **Justin Ross , ECS Southeast, LLC**

What is considered good environmental due diligence? This question can have multiple meanings depending on who you ask. Probably the most common response you will get is related to the completion of an ASTM E1527-21 Phase I Environmental Site Assessment (ESA). It is true that completion of a Phase I ESA is likely one of the most important pieces of the puzzle. It is also important to understand what the findings of the Phase I ESA means with respect to your project. This is where the emphasis on “good” environmental due diligence comes in.

So why is this important to you, the User of the report. Why is proper identification of Recognized Environmental Conditions (RECs), Historical Recognized Environmental Conditions (HRECs) and Controlled Recognized Environmental Conditions (CREC) important? We know that identification of a REC typically leads to additional assessment of soil, groundwater and/or vapor. From that additional testing we can determine the appropriate course of action whether that involves remediation, regulatory oversight, specialized site designs including vapor intrusion mitigation systems, etc. However, properly identifying a HREC vs CREC can assist with determining potential construction and property maintenance costs. While both a HREC and CREC are indications that a past release has occurred and affected the subject property, a HREC indicates that the release has been addressed to the satisfaction of the applicable regulatory authority and meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls.

As a result, it is unlikely that special handling of soil and/or groundwater would be required during earthwork activities. Alternatively, identification of a CREC would indicate that the release has been addressed to the satisfaction of the applicable regulatory authority with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls. So when a CREC is identified within a Phase I ESA, the assumption can be made that impacted soil and/or groundwater exists on the subject property and while additional assessment is not necessarily required by the regulatory agency, there is an on-going obligation to maintain the property in a manner not to impede the integrity and effectiveness of activity and use limitations. Furthermore, development of an impacted site could result in soil disposal costs, treatment of impacted water that accumulates in excavations, designing vapor mitigation measures for on-site structures, and additional consultation with regulatory authorities.

While a Phase I ESA is a very important piece of the puzzle, it is not the only thing that should be considered during your evaluation of risks related to a property. There are many additional 'non-scope' items that can and should be considered as well. Some of the additional items to consider could include the presence of asbestos-containing materials, lead-based paints, radon, mold and other potential indoor air quality issues, etc. But why is it important to consider these? The presence of these hazards could impede development, add additional time/delays, increase overall project fees, and come with on-going obligations related to property maintenance just to name a few.

In addition to these concerns, the due diligence industry has seen an increased emphasis on climate-related and zoning issues. Climate change has put an increased emphasis on the location of the project and what types of natural conditions/disasters could pose future problems. Examples of this include projects that are located in areas that have higher risks of flooding, wildfire, earthquakes, etc. Additionally, existing zoning of a property could dictate how an existing structure can be restored and/or rebuilt following a natural disaster. To conclude, "good" environmental due diligence should include a holistic approach to the potential issues that could affect a project. Depending on the situation, you may only be required to obtain and review a Phase I ESA in order to satisfy a lender requirement, a.k.a. "checking the box". However, a savvy purchaser/developer should be consulting with an environmental risk manager/ due diligence professional that has the industry knowledge to consider the bigger picture and provide insight on the many different challenges that "good" environmental due diligence encompasses.



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PFAS DUE DILIGENCE: MOVING BEYOND DETECTION TO ASSESS EXPOSURE RISK

How plume mobility, mass flux, and retention can help to evaluate PFAS risk and long-term liability.

By: **Maureen Dooley**, Regenesys,
and **Douglas Davis**, Davis Allen LLC

PFAS detections are becoming more common in environmental due diligence. For lenders, property owners, consultants, and risk managers, the important question is no longer simply whether PFAS are present. It is whether those detections can create exposure, drive long-term liability, or require active risk mitigation.

EBA's current data collection initiatives reflect the broader trend. Recently presented Phase II ESA data identified one or more PFAS above federal or state regulatory action levels at more than half of the sites tested across multiple property types (Figure 1).

Year	Number of Sites	Contamination Detected %	Contamination Detected Above Regulatory Standards(%)
2012	452	70%	40%
2015	1,167	76%	44%
2023	1,755	80%	54%

Figure 1 - Time series table of PFAS contamination detected and frequency above regulatory standards during Phase II ESAs. Source - PFAS at dry cleaners, car washes, airfields and warehouses: A Phase II data deep(ish) dive. EBA - 2025 Conference Presentation

These findings underscore why PFAS due diligence should move beyond detection. The next question is what those detections mean for exposure risk. From a human-health perspective, risk depends on exposure. In groundwater, exposure risk often depends on whether PFAS-impacted groundwater is moving toward a receptor, such as a public water supply well, a private drinking water well, surface water, or another point of use.

Evaluating that risk requires understanding how PFAS move through the subsurface, whether a plume is stable or still migrating, how much contaminant mass is in motion, and whether natural or engineered processes can limit downgradient transport.

Three concepts are central to that evaluation:

- **Plume** mobility describes whether PFAS are moving through the aquifer and where they may be headed.
- **Mass flux** measures plume strength by estimating how much PFAS mass is moving through a given area over time. It is a key factor in evaluating how far a plume may travel and how much risk it may pose downgradient.
- **Retention** describes the extent to which PFAS movement may be slowed, limited, or controlled by subsurface conditions or engineered remedies.

This article introduces two complementary frameworks, PFAS Monitored Retention and PFAS Enhanced Retention, that translate these concepts into practical due diligence and risk management tools.

PFAS Monitored Retention: Can Natural Processes Limit Plume Mobility and Exposure?

Many environmental professionals are familiar with Monitored Natural Attenuation (MNA) as a long-accepted approach for evaluating whether site conditions and monitoring data support a conclusion that a contaminant plume is stable, shrinking, or not creating unacceptable exposure risk.

For PFAS, however, the attenuation question is different. PFAS are persistent and generally are not expected to biodegrade under typical groundwater conditions. Therefore, the more relevant question is not whether PFAS are naturally breaking down, but whether site conditions are limiting mobility in a quantifiable and defensible way.

This is where PFAS Monitored Retention (PMR) becomes useful. PMR is a recently developed framework that broadens the scope of MNA, evaluating whether non-biodegradation processes such as sorption, dispersion, and matrix diffusion support a conclusion that a PFAS plume is stable or not creating unacceptable exposure risk.

In the PMR framework, retention means that native subsurface conditions may be slowing or limiting PFAS movement sufficiently to protect downgradient receptors.

When PMR can demonstrate that plume mobility is limited and exposure pathways are controlled, monitoring may support long-term risk management. But when those conditions cannot be demonstrated, or when the plume is continuing to migrate toward receptors, more active risk mitigation may be needed.

PFAS Enhanced Retention: When Monitoring Alone May Not Be Enough

Monitoring can support risk management when the data demonstrate that PFAS mobility is limited and exposure pathways are controlled. But where monitoring indicates that PFAS-impacted groundwater is continuing to migrate toward an exposure point, monitoring alone is not sufficient. Likewise, if plume behavior is uncertain, mass flux is significant, or long-term liability concerns exist, a more proactive response may be required.

In these settings, the due diligence question shifts from whether a plume is adequately monitored to whether plume movement can be controlled—and how.

This is where PFAS Enhanced Retention (PER) can be applied. PER describes engineered approaches designed to increase subsurface retention capacity, limit plume migration, and mitigate exposure risk before impacted groundwater reaches a receptor. PER may be needed when existing conditions do not provide enough protection, certainty, or liability reduction to support long-term risk management.

PER approaches can be applied in both saturated and unsaturated settings. In the saturated zone, colloidal activated carbon (CAC) can be injected to form in situ permeable adsorptive barriers that intercept PFAS-impacted groundwater and reduce downgradient mass discharge. In the vadose zone, CAC or other particulate sorbents can be mixed into PFAS-impacted soils, often in combination with surface caps or other infiltration controls, to reduce PFAS leaching from source areas.

These approaches may also be combined to address both the PFAS source contributing to groundwater impacts and the downgradient plume itself (Figure 2). In this way, PER may be applied as a broader source-to-plume risk mitigation strategy, reducing PFAS mobility, limiting plume expansion, and supporting long-term liability management.



Figure 2: In the left image, aqueous film-forming foam (AFFF) containing PFAS is sprayed on an airport runway, causing a PFAS plume to develop in groundwater. In the right image, CAC is applied beneath the source area and in a downgradient permeable barrier as PER measures to mitigate PFAS exposure risk. Image source - REGENESIS.

PER strategies are engineered and modeled around site-specific PFAS mass flux conditions, allowing the treatment zone to be designed for a target longevity that supports long-term risk mitigation and liability management. This provides an important contrast with hydraulic containment approaches, such as pump-and-treat, which rely on long-term groundwater extraction to control plume migration.

Pump-and-treat may be necessary in some settings, but it can also transfer PFAS from groundwater to aboveground treatment media or waste materials that require ongoing management. Once those PFAS-impacted materials are transported, regenerated, treated, or disposed of off-site, they may create additional long-term liability considerations, including potential CERCLA-related concerns where PFOA or PFOS are present.

PER offers a different risk mitigation pathway by reducing PFAS mobility in place, limiting downgradient mass discharge, and reducing reliance on groundwater extraction systems that can create long-term pumping, treatment, and PFAS waste-management obligations.

PER in Action: Mitigating PFAS Exposure Risk

A useful example of PFAS Enhanced Retention can be seen at a former fire training area in the Cape Cod region of Massachusetts, where PFAS-impacted groundwater had migrated downgradient toward public water supply resources.

Monitoring documented plume behavior and indicated that PFAS migration would continue without intervention. A pump-and-treat system, previously installed to address another groundwater contamination issue, had been repurposed for PFAS treatment at an annual operating cost of approximately \$450,000. Expanding that system to control PFAS plume migration would have required substantial additional long-term operation and maintenance costs, along with ongoing management and disposal of PFAS-impacted treatment residuals.

To address these concerns, Barnstable County implemented a PFAS Enhanced Retention strategy using an engineered CAC barrier installed across the subsurface PFAS migration pathway. The barrier was designed to increase retention capacity within the aquifer, thereby reducing PFAS mobility and limiting downgradient mass discharge. As groundwater continues to move through the treatment zone, PFAS are retained within the barrier rather than continuing to migrate downgradient. In essence, the barrier functions like an in situ filter, reducing PFAS concentrations as groundwater flows through it.

In PMR/PER terms, the project represents a shift from documenting plume behavior to actively mitigating exposure risk through engineered retention. Following implementation, the framework shifts back toward monitoring, with performance data used to confirm that enhanced retention is continuing, downgradient migration remains controlled, and exposure risk remains mitigated. To date, quarterly performance monitoring has shown a 99% reduction in regulated PFAS concentrations in the downgradient performance monitoring well network within four months of barrier installation.

Due Diligence Takeaway

The PMR/PER framework is not intended to replace existing PFAS screening, regulatory evaluation, or site investigation practices used by environmental bankers and risk managers. Rather, it provides a practical way to interpret what PFAS detections may mean for exposure risk, plume stability, and long-term liability.

PMR and PER can be highly effective risk management tools: they help determine whether monitoring is sufficient, whether engineered retention is needed, and how either approach can be documented over time. This framework can also help guide the next round of due diligence questions:

Is PFAS present, and if so, is there a complete or plausible exposure pathway?

Is PFAS-impacted groundwater migrating toward public water supplies, private wells, surface water, property boundaries, or other receptors?

Is the plume stable, expanding, or undetermined?

Has plume strength been evaluated through mass flux or other lines of evidence?

Are natural retention processes limiting PFAS mobility in a measurable and defensible way?

Can monitoring support a conclusion that exposure risk is controlled?

If monitoring alone is not enough, what engineered retention approaches could reduce migration risk?

Can the selected strategy be modeled and monitored to support target longevity, long-term risk mitigation, and liability management?

The value of the PMR/PER framework is that it moves PFAS due diligence beyond detection and toward decision-making. The key question is whether PFAS are moving in a way that can create exposure, and if so, whether that movement can be mitigated before it becomes a long-term liability problem.



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Maureen Dooley has over twenty-five years of experience in many aspects of remediation industry, including project management, research and development, senior technical oversight, remedial design and laboratory management. Her prior experience includes the completion of numerous treatability studies designed to evaluate the biodegradation of a wide range of chemical constituents that include chlorinated solvents, petroleum hydrocarbons, explosives, aromatic hydrocarbons and pesticides. In her current role at REGENESIS, she provides technical leadership for complex soil and groundwater remediation projects, including PFAS groundwater contamination treatment, throughout North America, as well as remediation design, strategy, and business development.

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Doug Davis is the owner of Davis Allen LLC, a remediation consultant specializing in in situ groundwater remediation, PFAS risk management, and environmental communications. He has over 30 years of experience helping environmental professionals translate complex remediation science into practical guidance for consultants, site owners, lenders, and environmental risk managers.

THE PFAS CLEANUP LONG GAME

Remedy Selection and Economic Impacts

By: Maureen Dooley, Regenesys / Land Science

When PFAS contamination is identified at a property, two questions quickly emerge: How can it be addressed, and what will it cost? Answering the first often becomes a choice between treating PFAS aboveground or containing them belowground. The second requires a longer view: What financial obligations and liability exposure will the selected remedy create over its operating life?

PFAS are highly persistent, and practical groundwater remedies currently available generally contain or separate the compounds rather than destroy them. Remedy selection therefore affects not only initial capital investment, but also the duration and predictability of operating costs, whether PFAS-containing waste is generated, and the regulatory and potential liability considerations associated with managing that waste.

An Early Warning Signal: The Military PFAS Cleanup Program

The scale and growth of these obligations are visible in the Defense Department's PFAS cleanup program. From 2022 to 2025, as investigations progressed, projected costs more than tripled, from \$3.9 billion to \$14.1 billion, while anticipated schedules to complete investigations and select a remedy via the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) moved more than nine years into the future.

Military installations are larger and more complex than most commercial properties, and many were subjected to repeated releases of firefighting foam. The fundamental cost drivers, however, are not unique to military facilities. PFAS plumes can be extensive, regulatory thresholds are low, and the compounds are highly persistent. Containing PFAS plumes is likely to be a decades-long operation. Defense Department officials told the Government Accountability Office (GAO) that the cleanup process can take "5 to 10 decades" to complete.¹

The military portfolio is therefore an early warning for the commercial market: estimates made before site conditions are fully characterized may differ substantially from the obligations that emerge as investigations progress. Changes in cost, schedule and reserve requirements can affect borrower cash flow, collateral value, refinancing and property transfer. The eventual exposure also depends heavily on the remedy selected.

(1) U.S. Government Accountability Office. *Persistent Chemicals: DOD Needs to Provide Congress More Information on Costs Associated with Addressing PFAS*. GAO-25-107401, February 2025, p. 31. [GAO report](#)

What Drives Life Cycle Cost

Remediation costs are often summarized as a single present-value estimate. Although formal evaluations generally include capital, operation and maintenance, and periodic costs, the total is only as reliable as its assumptions. For PFAS remedies expected to operate for decades, assumptions about duration, discount rates, treatment-media use, equipment replacement and waste disposal can materially affect the result.

A life cycle estimate is not a fixed price. It is a financial model of uncertain future obligations. Cleanup strategies that limit these obligations, where practical, can reduce financial and liability exposure.

Active groundwater treatment creates continuing expenses for energy, labor, monitoring, reporting, maintenance, media changeouts and waste management. Systems may also require modification as plume conditions change or performance falls short. Even stable annual costs become substantial over 30 or 50 years, with greater exposure to inflation and changes in energy, labor, media, and disposal costs.

Present-value calculations help compare alternatives, but discounting can make future expenditures seem less consequential. Property owners must still fund those expenses as they occur, potentially under regulatory, technological, and market conditions that could not be anticipated when the remedy was selected. These life cycle cost-drivers for PFAS cleanup are all rapidly evolving now.

For lenders, the critical question is whether a remedy's complete financial obligation has been reasonably quantified and incorporated into the borrower's plans. That assessment should include what happens to PFAS once they are removed from groundwater.



When Groundwater Treatment Becomes Waste Management

Pump-and-treat removes PFAS from groundwater but does not, by itself, destroy them. Granular activated carbon and ion-exchange resin capture PFAS on treatment media, while membrane systems separate them into concentrated liquids. These residuals require storage, transportation, reactivation, destruction or disposal for as long as the system operates.

PFAS' long-term fate in the environment after disposal of pump-and-treat waste residuals remains an area of developing science and policy. [EPA's 2026 interim guidance on PFAS destruction and disposal](#) evaluates landfilling, underground injection and thermal treatment, while recognizing continuing uncertainties with these approaches and the need to minimize future releases. Remedy planning must therefore consider where the captured PFAS will ultimately go and how securely they will be managed.

The "where does PFAS go?" also has potential liability significance. PFOA and PFOS, including their salts and structural isomers, are designated as hazardous substances under CERCLA--a 2024 EPA rule upheld by the U.S. Court of Appeals for the D.C. Circuit on August 18, 2026. CERCLA includes parties that arrange for treatment or disposal of hazardous substances among those responsible for cleanup costs when a release or threatened release occurs at a receiving facility. An owner sending PFOA- or PFOS-containing media off-site could potentially face future CERCLA claims if the material contributes to contamination requiring a response.

An extraction system can consequently become both a water-treatment asset and a long-term waste program, with recurring costs, multiple third parties and potential liabilities beyond the originating property.



Comparative Analyses: Aboveground Treatment vs. Belowground Containment

Two published site-specific analyses illustrate how remedies designed for the same plume-containment objective can distribute cost, waste and operating risk differently. One compared an operating pump-and-treat system with a modeled colloidal activated carbon (CAC) barrier; the other compared an installed CAC barrier with a modeled pump-and-treat alternative.

The first used public records from the former Wurtsmith Air Force Base in Oscoda, Michigan. A pump-and-treat system has operated at a former fire-training area since 2015. Researchers compared documented capital and operating costs with a hypothetical CAC barrier.

Over 15 years, the Wurtsmith analysis estimated pump-and-treat costs at approximately \$13.9 million, versus \$5.6 million for CAC—a 59% reduction. At 30 years, the estimates were \$19 million and \$7.2 million, respectively. The pump-and-treat projection included continuing energy, labor and media costs but excluded future major equipment replacement and potential increases in PFAS disposal costs (Figure 1).

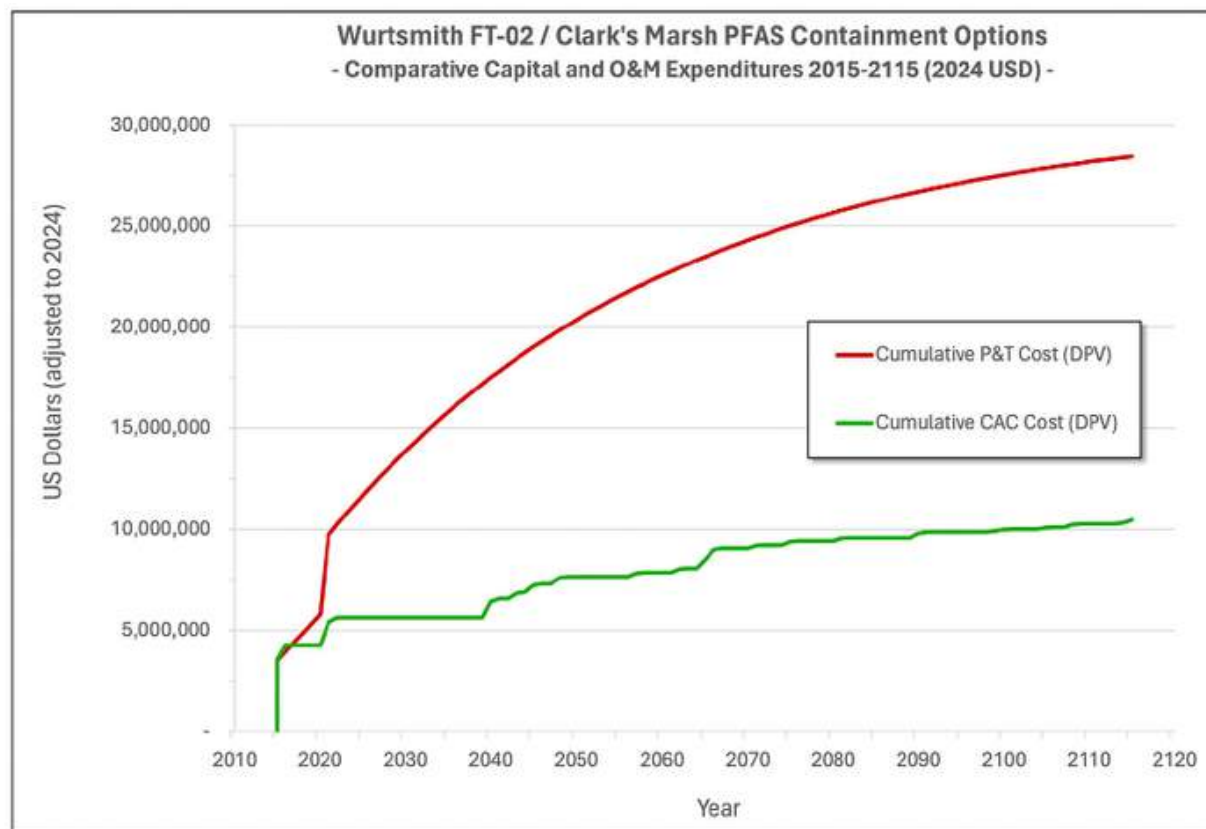


Figure 1. Projected cumulative capital and operation-and-maintenance costs for the operating pump-and-treat system at Wurtsmith Air Force Base's FT-02/Clark's Marsh and a modeled in situ colloidal activated carbon (CAC) barrier designed to meet the same containment objectives. In discounted 2024 dollars, recurring pump-and-treat expenditures drive continued cost growth, while modeled CAC costs occur primarily during installation and periodic reapplication. Source: Birnstingl and Wilson (2024).

The second analysis examined a commercial airport in the United Kingdom where a CAC barrier was installed downgradient of a former fire-training area. Researchers used installation data to model a granular-activated-carbon pump-and-treat system meeting the same objective. The 15-year life-cycle assessment calculated net-present-value costs of approximately \$1.6 million for CAC and \$4.1 million for pump-and-treat—again, a reduction of about 60%. Approximately 85% of the CAC cost was capital expenditure, while 59% of the pump-and-treat cost was future operating expense.

The CAC alternative was also calculated to produce 98% fewer greenhouse-gas emissions. The modeled pump-and-treat system would consume about 53,000 pounds of granular activated carbon annually, producing nearly 800,000 pounds of spent media over 15 years; the CAC barrier generated no recurring treatment residuals.

These studies do not establish a universal cost ratio or show that one remedy suits every site. They demonstrate why life-cycle analysis matters: remedy selection can change total projected expenditures by millions of dollars and determine whether the obligation is largely incurred upfront or carried through decades of operation and waste management.

A Different Risk Profile: In Situ Containment

In situ containment manages PFAS without continuously extracting groundwater. The most commonly used approach involves injecting colloidal activated carbon--CAC--into the aquifer to create a permeable sorption barrier. Once injected, carbon particles attach to the aquifer matrix while allowing groundwater to flow through the treatment zone. As dissolved PFAS encounter the barrier, they sorb to the activated carbon, reducing their mobility and the mass transported toward downgradient receptors.

The objective is risk reduction through enhanced retention rather than removal or destruction of the entire PFAS mass. A CAC barrier can intercept a migrating plume or control mass flux in selected areas. Once installed, it operates without permanent pumps, treatment vessels or continuous energy use.

This shifts much of the expenditure to design and installation, followed by monitoring and, if needed, localized reapplication. Because PFAS remain below ground, routine operation does not generate spent carbon, resins, liquid concentrates or other PFAS-containing treatment residuals requiring off-site management. Site-related obligations remain, however: the owner must demonstrate that the barrier controls migration and protects receptors, and institutional or land-use controls may be required.

In situ containment is not appropriate in every case. Performance depends on site characterization, effective delivery through the treatment interval, groundwater velocity, PFAS mass flux, aquifer heterogeneity and other geochemical conditions. Barrier capacity is finite, and partial reapplication may eventually be necessary.

A recent technical review of the technology emphasizes that performance and longevity must be evaluated through site-specific design and monitoring.

For lenders, a remedy with more front-loaded and predictable costs presents a different underwriting profile from one dependent on decades of mechanical operation, media replacement and off-site disposal. Neither is risk-free; the relevant issue is whether its particular costs, uncertainties and continuing obligations are understood.

Questions Lenders and Environmental Risk Managers Should Ask

Lenders are not expected to select or design PFAS remedies. They should, however, understand the financial commitments and residual risks created by the proposed approach. Useful due-diligence and underwriting questions include:

- **How complete is the site investigation?** Is the estimate based on a well-characterized plume and source area, or could the anticipated scope change substantially as additional data are collected?
- **What is the remedy intended to accomplish?** Does it provide interim receptor protection, plume containment or eventual restoration—and over what anticipated period?
- **Does the estimate reflect the complete remedy life cycle?** Are energy, labor, monitoring, reporting, treatment-media replacement, equipment recapitalization, inflation and waste management included?
- **What PFAS-containing waste will be generated?** How much is anticipated, where will it be sent and what regulatory, contractual or potential CERCLA liabilities could accompany its off-site management?
- **What happens if the remedy underperforms?** Are contingency measures defined, and have their potential costs been estimated?
- **Who will fund and manage the continuing obligations?** Are adequate reserves, escrows or other financial assurances available for operation, monitoring, maintenance or future reapplication?
- **How could the remedy affect the property and the loan?** Could infrastructure, institutional controls or continuing obligations constrain redevelopment, borrower cash flow, collateral value, refinancing or sale?
- **Were lower-waste or passive alternatives evaluated?** If not, is that because site conditions make them technically unsuitable or because the evaluation focused on a familiar remedy?

No PFAS remedy eliminates every form of risk. The concern arises when lending decisions rely on an initial cleanup estimate that does not reflect the full duration, operating requirements, waste-management consequences and uncertainties of the selected remedy.

The Defense Department's experience shows how rapidly anticipated PFAS obligations can grow as investigations advance. The comparative analyses show that remedy selection can materially change both the amount and the form of that financial exposure. For lenders and property owners, the initial cleanup estimate serves only as the beginning of the inquiry.

The most important to consider is what that remedy commits the property owner, and potentially future owners and lenders, to funding and managing over its full life cycle.

About the Author:

Ms. Dooley has over thirty years' experience in many aspects of environmental industry including project management, research and development, senior technical oversight, remedial design and laboratory management. Ms. Dooley's current position is the Vice President Industrial Sector for REGENESIS. She is responsible for business development and technical support associated with REGENESIS bioremediation, chemical oxidation and carbon sorption industrial client remediation programs.

As part of her responsibilities at REGENESIS® she has reviewed hundreds of potential projects and provided recommendations for remediation. Much of her work over her career has been focused on the development and implementation of bioremediation programs.

Over the past several years she has been focused on PFAS and chlorinated hydrocarbon sites working with commercial manufacturing clients and property developers to mitigate risk and liabilities. Ms. Dooley has drafted hundreds of project proposals, evaluations and reports related to the feasibility of using in situ remediation. In addition, prior experience includes the completion of numerous treatability studies designed to evaluate the biodegradation of a wide range of chemical constituents that include chlorinated solvents, petroleum hydrocarbons, explosives, aromatic hydrocarbons and pesticides.

UNDERSTANDING PFAS RISK IN CONSTRUCTION LENDING

By: Kathryn Peacock, Partner Engineering and Science, Inc.

PFAS: A Rapidly Evolving Regulatory Landscape

PFAS and their impact on commercial real estate and construction are just starting to be understood. Recently regulated as a hazardous substance in 2024, PFAS are beginning to be recognized as a potential risk in construction projects, with implications for site feasibility, construction schedules, disposal options, cost certainty, and long-term liability. Additionally, liability frameworks continue to evolve as states adopt their own unique regulatory standards. By addressing PFAS early in the due diligence process, costly surprises can be proactively addressed through the construction lifecycle.

PFAS Basics

Per- and polyfluoroalkyl substances (PFAS) are a man-made class of chemicals that are resistant to heat, water, and oil. They were originally designed for applications like non-stick pans and stain-resistant carpets. Due to their beneficial properties, PFAS became widely used starting in about the 1940s and are now present in aqueous firefighting foam (AFFF), waxes, cosmetics, food packaging, paint and coatings, petroleum, plastics, polish, soaps, fabrics, and other textiles. In addition, biosolids used in agriculture derived from wastewater treatment plants or landfills are known to have PFAS from industrial and domestic waste discharge.

While PFAS have been in use since the 1940s, their risks to human health and the environment were not widely recognized until much later. Research beginning in the 1970s identified PFAS in workers and animals, and by the 1990s, studies confirmed their widespread presence in the general population, highlighting concerns about persistence, bioaccumulation, and toxicity. Regulatory attention in the United States accelerated in the 2000s, with the EPA issuing health advisories for PFOA and PFOS in 2009 and establishing a lifetime drinking water health advisory in 2016—marking formal recognition of PFAS-related health risks. PFAS also persist for long periods in the environment and are highly mobile (i.e., they can travel long distances through air, surface water, and groundwater).

The Changing Regulatory Environment

The U.S. Environmental Protection Agency (EPA) classified PFAS as hazardous substances in 2024, designating two of the most prevalent PFAS compounds, PFOA and PFOS, as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also known as Superfund). In April 2024, the EPA finalized the National Primary Drinking Water Regulation (NPDWR) for six PFAS chemicals, establishing Maximum Contaminant Levels (MCLs) for safe drinking water. Additionally, the EPA established enforceable drinking water standards for both PFOA and PFOS at 4 parts per trillion (ppt)—levels so low they approach the limits of laboratory detection. While these standards are intended to be protective of human health, they pose practical difficulties for construction projects.

Additionally, because PFAS have numerous and widespread applications, they may be present at a variety of sites, including what the EPA refers to as “passive receivers”—sites that did not manufacture, use, dispose of, or intentionally release PFAS into the environment but nonetheless have come into contact with these substances through incidental or unavoidable means. This designation is significant because Superfund imposes strict, retroactive, and “joint and several” liability. In practical terms, parties can be held responsible for cleanup costs regardless of fault or intent, and liability can extend back to historical activities that predate current regulations.

The current regulatory framework creates uncertainty and potentially increased risk for lenders, owners, and contractors with respect to potential retroactive CERCLA liability. While there is no existing pathway to alleviate risk for passive receivers, in September 2025 the EPA announced that it would urge Congress to revise CERCLA’s strict liability framework, and on December 18th, 2025, the House Energy & Commerce Subcommittee on Environment received testimony from expert witnesses on the impacts of the EPA’s CERCLA designation of PFOA and PFOS on property owners and developers.

Why PFAS Matter in Construction Lending

Predevelopment Considerations

Prior to the development of a project, it is important to understand the potential level of risk associated with PFAS. Potential change orders and schedule delays that can directly affect project cash flow, erode contingencies, increase reliance on additional capital, or impair a borrower’s ability to meet debt service obligations can be identified proactively during predevelopment.

Documentation Review

With the designation of PFOA and PFOS as hazardous substances in 2024, Phase I ESAs are now required to address PFAS. Other assessments, such as geotechnical assessments, Phase II Environmental Site Assessments, regulatory closure letters, groundwater or soil monitoring reports, environmental database reports, or other types of environmental assessments may also be provided as part of due diligence and should be reviewed thoroughly, with an emphasis on identifying PFAS-related risk that may be lying dormant in these documents.

While PFAS are required to be addressed as part of a Phase I ESA, they may not always be discussed in the executive summary, particularly if they are not identified as a Recognized Environmental Condition (REC) or Business Environmental Risk (BER). As a result, it's imperative to read the entire report. Even where PFAS are identified as a REC or BER, this doesn't necessarily mean the report will recommend further actions if there isn't a threat to human health or the environment identified. Because the main path of exposure for PFAS is drinking water, and the forms of regulated PFAS are not known to be volatile (indicating a lack of vapor intrusion concern), sampling is often not recommended when PFAS concerns are identified.

Even where PFAS are not determined to pose a direct threat to human health or the environment, their presence in soil or groundwater can still disrupt construction budgets and schedules in unpredictable ways. Routine activities such as excavation, demolition, and groundwater dewatering may trigger additional testing, treatment, or disposal requirements. In these situations, PFAS may still affect material handling, disposal options, and construction costs, leaving owners and lenders exposed to unanticipated delays and overruns.

Offsite Considerations

PFAS are mobile, meaning that if present in soil or groundwater, they have the ability to move offsite and impact adjacent properties, including residential areas or drinking water wells. In such cases, lenders and owners may face heightened exposure to third-party claims, regulatory enforcement actions, or cost recovery demands—potentially at a scale far exceeding the original project footprint.

State Regulatory Programs

A project may be enrolled in a state remediation program for non-PFAS contaminants and underwritten with the expectation of timely regulatory closure. In several states, regulators are now requiring PFAS sampling and evaluation as part of site closure or no-further-action determinations, even where PFAS were not included in the original remediation scope. Late-stage PFAS analysis can delay regulatory closure, extend monitoring obligations, and postpone stabilization, refinancing, or disposition—undermining cost certainty and defined exit timelines relied upon by lenders.

Additionally, disposal and management options may be limited, costly, and subject to evolving landfill acceptance criteria. Materials otherwise suitable for reuse or recycling may require specialized treatment or long-distance disposal, increasing costs, extending schedules, and complicating construction sequencing.





Post-Construction and Post-Closing Considerations

PFAS-related risk doesn't end once construction is complete or a loan has closed. Post-development site conditions, operational practices, and evolving regulations—particularly those at the state level—warrant continued attention from owners and lenders. For example, the use of onsite groundwater for irrigation, cooling towers, or other non-potable purposes may trigger additional regulatory scrutiny if PFAS are later identified. In certain jurisdictions, reuse of groundwater (even for non-drinking applications) can prompt sampling requirements, restrictions on use, or reporting obligations that were not anticipated during underwriting.

Long-term monitoring is another potential post-closing risk. Some state programs may require ongoing PFAS sampling of groundwater, surface water, or discharge points following development, particularly where dewatering occurred during construction or where offsite migration is a concern. These monitoring programs can persist for years and represent a recurring operational cost that should be understood upfront. Annual monitoring expenses can vary widely by state and site conditions, but they could be significant over the life of an asset and should be evaluated with an environmental consultant during underwriting.

Projects or loans initiated prior to the 2024 regulatory changes may present additional challenges. Assets that were underwritten, constructed, or stabilized before PFAS became a required consideration in environmental due diligence may now face retroactive exposure. In response, some large lenders are beginning to conduct portfolio-wide PFAS reviews, reassessing legacy assets to better understand groundwater use, historical land use, and proximity to potential PFAS sources. These reviews may result in new operational controls, restrictions on groundwater use, or requirements for updated environmental assessments.

Lenders should pay close attention to assets that have remained in loan pipelines or portfolios for extended periods. Many borrowers are likely not actively reevaluating those assets, particularly if no redevelopment is planned. It's important to recognize that assumptions made during original Phase I ESA reviews may no longer be sufficient. In other words, a "clean" Phase I ESA conducted prior to April 2024 may now have a PFAS issue that needs to be addressed. For example, understanding the source of drinking water post-development, whether municipal or private, remains critical as PFAS risk may emerge even where no recognized environmental condition was previously identified.

Insurance Considerations

PFAS-related liabilities may be partially or entirely uninsured. Most commercial general liability policies exclude pollution-related claims, and some insurers have implemented explicit PFAS exclusions. Contractor pollution liability coverage may also exclude PFAS. Given these limitations, lenders cannot rely solely on insurance to mitigate PFAS exposure. As a result, lender policies play a critical role in risk protection by requiring enhanced environmental due diligence, conservative underwriting assumptions, and clear contractual allocation of environmental responsibilities. Common policy tools may include heightened environmental review for higher-risk projects, PFAS-specific representations and covenants, reserve requirements to address potential cost overruns, and ongoing reporting obligations where PFAS conditions are identified. Together, these measures help lenders manage uninsured PFAS risk, preserve collateral value, and protect loan recovery in an evolving regulatory landscape.

Looking Ahead

As PFAS continue to reshape the construction risk landscape, lenders that proactively integrate PFAS considerations into underwriting, due diligence, and loan structuring are better positioned to manage uncertainty and protect collateral value. For many construction lenders and project owners, it may make sense to engage a qualified consultant with both environmental and construction expertise to stay abreast of developing regulations and ensure that PFAS considerations are integrated into due diligence, contracting, and risk management. Taking steps now to understand and plan for potential PFAS impacts can help protect investments and reduce the risk of costly disruptions.



BEYOND CERCLA: THE HIDDEN METHANE RISK OF BURIED WOOD WASTE

By: Tina Huff, Farallon Consulting

Introduction

Environmental due diligence has traditionally focused on identifying hazardous substances, petroleum contamination, and potential liabilities associated with federal and state environmental regulations. However, some site conditions can present significant financial and operational risks despite falling outside the traditional framework of environmental contamination. One such condition is buried wood waste and the methane gas it can generate.

As lenders increasingly finance redevelopment projects on infill properties, former industrial sites, and challenging urban parcels, understanding the risks associated with buried organic material has become increasingly important. While methane is not classified as a hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), methane generation from buried wood waste can create substantial project delays, unanticipated costs, regulatory complications, and collateral risks that directly affect loan performance and asset value.

Understanding the Risk

Wood waste buried on a property, whether as historical fill material, former disposal areas, or undocumented landfilling activities, undergoes anaerobic decomposition when oxygen is absent. As organic materials break down, methane gas is produced. While methane is often associated with municipal landfills, it can also be generated on sites where wood waste was historically placed as fill during land development or grading activities.

The risks associated with methane generation extend beyond environmental compliance. Methane is combustible and can accumulate beneath structures or within utility corridors, creating potential explosion hazards. More importantly for lenders and investors, the discovery of methane during the development process frequently triggers additional investigations, engineering evaluations, permitting requirements, mitigation measures, and long-term monitoring obligations. These requirements can significantly alter project schedules, budgets, and financial assumptions.

Unlike more traditional environmental conditions, buried wood waste is not always associated with a regulated landfill or well-defined regulatory framework. As a result, uncertainty may exist regarding which local or state agency has jurisdiction over methane mitigation and closure requirements. This regulatory ambiguity can further complicate project planning and increase entitlement and permitting timelines.

Financial and Collateral Implications

For financial institutions, the primary concern is often not environmental liability, but rather the impact methane-related conditions can have on project economics and collateral performance. The presence of methane-generating fill frequently requires additional site characterization, soil gas investigations, vapor intrusion assessments, active or passive mitigation systems, regulatory approvals, and ongoing operation and maintenance programs. When these conditions are discovered late in the acquisition or development process, the resulting costs can materially affect project feasibility and challenge underwriting assumptions.

Methane-related issues may also affect collateral value and loan repayment. Unanticipated mitigation costs, project redesign, construction delays, or extended monitoring requirements can reduce project profitability and create refinancing challenges. In some cases, ongoing obligations for monitoring and maintenance are transferred to future property owners, property management companies, or homeowners' associations, potentially influencing long-term marketability and asset value.

Several related risks should therefore be evaluated during underwriting and due diligence. Methane concerns can create permitting and entitlement risks that delay project approvals and increase carrying costs. Construction and design risks may arise when mitigation systems must be integrated into building foundations, utility corridors, or site infrastructure. Buried wood waste can also contribute to geotechnical concerns such as differential settlement and subgrade instability, requiring specialized foundation design and engineering controls. Together, these issues can affect both the borrower's execution risk and the lender's long-term collateral protection.

Managing Risk Through Early Due Diligence

The most effective strategy for managing methane-related risk is early identification. Environmental due diligence should consider the potential presence of buried organic fill and methane-generating materials whenever historical site uses suggest fill placement, land clearing activities, or undocumented disposal practices.

A thorough evaluation typically begins with determining the lateral and vertical extent of buried wood waste to understand the potential for methane generation and the scope of any required mitigation. Where feasible, excavation and disposal of buried wood waste can eliminate the source of methane generation and reduce future monitoring obligations. In many cases, however, engineering controls are required to manage methane migration and vapor intrusion risks. These may include active soil gas extraction systems, passive venting systems, vapor barriers beneath structures, and specialized protection measures within utility corridors.



Coordination between environmental professionals, geotechnical engineers, developers, and lenders is often critical. Buried wood waste can present both methane-related concerns and foundation performance issues, making an integrated evaluation essential to understanding the true financial and operational impacts.

Conclusion

As redevelopment projects increasingly target urban infill properties and other challenging sites, buried wood waste represents a growing environmental due diligence consideration for financial institutions. Although methane is not regulated as a hazardous substance under CERCLA, the costs associated with investigation, permitting, mitigation, monitoring, and long-term maintenance can materially affect project viability, collateral value, and loan performance.

For lenders, the key issue is not simply whether methane is present, but whether its financial implications have been fully identified and incorporated into underwriting decisions. By recognizing buried wood waste and methane generation as potential sources of development and collateral risk, financial institutions can make more informed lending decisions, appropriately allocate reserves, and better protect long-term investments.





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EBA would like to extend a warm welcome to all new members who have recently joined. We are excited to grow with you!

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Archimedes Environmental Assessments	May 2026	Acton	Massachusetts
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Company Name	Registration Month	City	State
Bank OZK	June 2026	Dallas	Texas
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Principal Financial Group	July 2026	Des Moines	Iowa
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EBA Member Spotlight on: Jimmy Kirkland

Partner, Womble Bond Dickinson (US) LLP



By: Charlene Webber

Welcome to the first EBA Member Spotlight, a new feature where we get to know a little more about the people who make the EBA community so special. We are excited to begin with Jimmy Kirkland, Partner with Womble Bond Dickinson (US) LLP. Jimmy brings decades of experience in environmental regulation, law, and risk management, along with a wealth of knowledge and perspective that he has generously shared with the EBA community

1. Tell us a little about your background and your work with Womble Bond Dickinson. What led you into environmental law?

I earned a Bachelor in engineering from Georgia Tech. After graduating into a difficult job market and unsure of my career path, I joined an engineering company. In 1976, I moved to the Georgia Environmental Protection Division's Air Protection Branch, although I knew little about environmental protection at the time. I later transferred to the Hazardous Waste Program in the Land Protection Branch, established and managed EPD's 24-hour emergency response team for chemical spills, and managed the Community Right to Know Program. While at EPD, I attended law school at night and earned a master's degree in taxation. In 1989, I joined King & Spalding's environmental practice, where I primarily worked on CERCLA and RCRA remediation projects. After 18 years there, I joined Womble Bond Dickinson in 2006.

2. How did you first become involved with EBA, and what has kept you engaged with the organization?

Shortly after joining Womble, I met John Rybak and he introduced me to lender due diligence and the EBA. This was an eye-opening experience since I had never been exposed to the lender perspective in the transactions I had worked on. I began attending conferences and listening to and participating in the monthly Risk Management calls. I met a lot of very knowledgeable and smart people. What has kept me engaged with the EBA is the people and the willingness of everyone to share what they know about relevant issues and to give advice freely. Those exchanges broaden my knowledge and help me better serve my clients.

3. From your perspective, what has changed the most in environmental risk management over the course of your career?

My 50-year environmental career has spanned the majority of the development of environmental law and regulations.

From my perspective, in the early days environmental laws were implemented through a command and control approach since most companies had very little respect for the protection of the environment. With the passage of time and tightening of the laws there has been a tremendous change in companies' perspective. Today, most companies are committed not only to compliance with applicable laws, but often go beyond what is legally required to protect our limited resources.

In the early 1980's environmental risk management really did not exist since most cleanups were generally considered a potential minor compliance cost. When Congress enacted CERCLA in 1980, it sent shockwaves through the financial sector because it established strict, and joint and several liability for cleanup. For the first time lenders were potentially liable for costly environmental cleanups when they foreclosed on contaminated properties. Environmental risk management has evolved over the years to a process that is proactive, data-driven, and involves financial and business development considerations.

4. What legal or regulatory issue should environmental consultants and lenders be paying especially close attention to right now?

PFAS! PFAS! PFAS! Environmental consultants and lenders should closely monitor the rapidly shifting regulatory requirements and liability for PFAS because it is now a CERCLA hazardous substance which brings with it strict, and joint and several liability for cleanup. This is a complex area of concern because there are so many different definitions of what is a regulated PFAS on the federal level and many states have their own definition and liability structures. The addition of PFAS to the scope of a Phase I ESA has added another level of complexity to the Phase I process. We are learning that PFAS has been used in the production of almost countless products. This makes identifying the use of PFAS very difficult if not impossible during a Phase I ESA. This may be a driver in the future for lenders to require more non-scope assessments to better quantify the potential risks.

In addition, lenders will have to carefully navigate foreclosures of PFAS contaminated properties to ensure they maintain the secured creditor exemption. But CERCLA liability protection will not provide protection against state liability claims unless there is corresponding liability protection in state statutes. Even if a lender is able to maintain the secured creditor exemption, the presence of PFAS may have a significant impact on the value of the collateral. Lenders should be conducting rigorous due diligence to avoid owning collateral that is inconsistent with the underwriting.



5. Is there an environmental risk you think is sometimes overlooked during commercial real estate transactions?

I think the greatest potential environmental risk for some properties may arise from non-CERCLA hazardous substances under state law. The ASTM standard is a fairly comprehensive roadmap for evaluating current and historical uses of properties for the purpose of determining whether there any have been a release of a CERCLA hazardous substance or petroleum products. There are many chemicals that are not CERCLA hazardous substances that have the potential to result in significant liability, especially under state statutes. An evaluation of these risks is outside the scope of the ASTM standard.

6. What can environmental consultants do to work more effectively with environmental attorneys, particularly when a project involves complicated liability or regulatory issues?

Clear and timely communication is essential when consultants and environmental attorneys work together on complex client matters. Consultants often have a thorough understanding of the technical aspects of environmental regulation, but they must explain them concisely so counsel can help develop an effective strategy. Consultants should involve the attorney when preparing sampling plans to ensure the investigation addresses relevant issues without exceeding the requested scope. Reports should clearly identify and explain key findings, and supporting documents should be organized and tabbed for easy reference. Consultants who provide clear, concise reports supported by well-organized documentation are valuable assets to environmental attorneys.

7. What advice would you give someone who is relatively new to environmental due diligence, lending, or environmental law?

I would advise that person to find one or more mentors to guide them and to help grow their understanding of the subject matter. I think it is very important to keep current in the constantly changing regulatory arena. I would also suggest that they consider volunteering to participate in opportunities that maybe go beyond their specific job requirements. Lastly, I strongly encourage getting involved with the EBA and one or more of the many EBA programs. The EBA monthly Risk Management calls are a great opportunity to learn about a broad spectrum of issues that may come up and to identify potential contacts and resources when you have an issue for which you need guidance. I have had the good opportunity to work with Marty Walters on the EBA Environmental Risk Manager (ERM) Certificate Program. This program is a great opportunity to learn essential information for understanding environmental risk and to interact with other professionals.



8. EBA brings together lenders, consultants, attorneys, regulators, and other environmental professionals. What do you value most about that community?

I can't say enough positive things about the EBA. The EBA community brings together tremendous resources with a broad spectrum of experience and expertise. I look forward every month to the Risk Management call hosted by Dennis Firestone which presents timely information on a broad range of topics relevant to environmental risk management.

Over the years I have been confronted with issues that I had little experience with but was able to get great guidance from EBA members. Likewise, I, too, have been contacted by other EBA members and asked for advice. I am more than happy to share my experience and thoughts with others. I believe the EBA has made us all better at what we do.

9. When you are not working, what is something you enjoy doing that your EBA colleagues might not know about you?

I began running in 1981 for fun and I still run. Running provides me a great opportunity to relax and, admittedly, think about issues that I am working on. I ran my first half-marathon at 61 and I continued to run 3-4 a year until COVID.

John Rybak introduced me to fly fishing. I had no idea there was such a steep learning curve for fly fishing. It was very frustrating at times. I got tangled up a lot; I had challenges learning to tie knots especially when my fingers are cold and, most of all, successfully casting. I have learned a lot, improved a lot, and still have a lot to learn. Fishing is also a great opportunity to bond with others and-- best of all-- an opportunity to tell fish stories about the one that got away.

10. Just for fun – if you had to choose a completely different career for one year, what would you do?

That is an easy question. I would be a fly-fishing guide. I love being outdoors especially in more remote non-urban areas with beautiful scenery and I love fly fishing. I would really enjoy the opportunity to share what I know about fishing with others and to help them have a fun time.



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Collects, writes, edits, and assembles articles our members contribute to our 2x annual publication.
2026 Chair: Charlene Webber, ERM

Risk Management Committee

Works closely with members and other industry professionals to present trending topic risk management webinars.
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