

NJDEP, LSRPs, Drones, Case Studies, Sustainability and Environmental Law

Facing a more aggressive NJDEP when it comes to enforcement, New Jersey businesses need to consult with key environmental firms and environmental law firms to mitigate risk and liabilities.

COMPILED BY MARTIN C. DAKS
AND JOHN JOSEPH PARKER
CONTRIBUTING EDITORS

THE STATE OF NEW JERSEY FILED six separate lawsuits aimed at recovering damages for the harm caused by pollution to properties, ground water, and waterways across the state, and to recover the costs the state has paid in conducting environmental cleanups. In three of the six cases, the State of New Jersey is seeking payment for damages to the state's natural resources, known as "Natural Resource Damage" cases, or NRDs. Until this action, the state had not initiated a new NRD case since 2008.

"Natural Resource Damage cases are a primary mechanism for restoring our natural environment when it has become polluted or damaged by industrial or other human activities," says NJDEP Commissioner Catherine R. McCabe.

These cases, which in the past have been worth millions of dollars, involve claims for the loss to the value and use of natural resources, including surface and ground water, sediments and wetlands. Three cases involve efforts by the State of New Jersey to recover taxpayer money that was spent addressing contaminations and are known as "cost recovery cases." These lawsuits seek compensation from the parties responsible for pollution at each site.

The lawsuits involve six different sites: the Pohatcong Valley Superfund Site in Warren County; the former site of the Ronson Metals Corporation, a cigarette

lighter manufacturing facility in Newark; the former site of Ruggiero Seaford, Inc., a manufacturing facility in Newark; the former Hess petroleum refinery in the Port Reading section of Woodbridge; a former retail Mobil gas station in the Fords section of Woodbridge; and the former site of a manufactured gas plant, now owned by Deull Fuel Company, near the Beach Thorofare waterway in Atlantic City.

The three NRD cases are the Pohatcong Valley Superfund Site, the Port Reading refinery and the Deull Fuel site.



Environmental Case Studies: New Jersey Success Stories

Facing a new, more aggressive NJDEP when it comes to enforcement, New Jersey businesses need to consult with key environmental firms and environmental law firms to mitigate risk and liabilities. Here are some case studies to illustrate how working with these experts can pay dividends.



Brach Eichler LLC

*By Frances B. Stella, Esq.,
Member and Chair,
Environmental and
Land Use Practice*

We assisted a client who had completed the environmental investigation and all active remedial work pursuant to the Industrial Site Recovery Act (ISRA) at a former manufacturing site. During the period of time after the manufacturing operations ceased but prior to the completion of the ISRA remedial work, the USEPA included our client's property as part of a larger Superfund Site consisting of many parcels that was historically a paint manufacturing operation. Generally, the NJDEP has not allowed an ISRA investigation to be closed and a Remedial Action Permit (RAP) issued while the property was part of an open, USEPA lead Superfund Site with an ongoing remedial investigation. Through negotiations and presentations to the NJDEP, we were able to successfully obtain a RAP for soils allowing the LSRP to issue the Response Action Outcome, while the Superfund Site work is still ongoing and will continue for many years into the future. This work provides a resolution for our client, which will allow our client to transfer the property more expeditiously than if it had to wait until the USEPA and the former paint manufacturer completed the CERCLA work required, which could be decades in the future.

continued from page 30



Concrete Washout Systems
By Bill McGuire, Marketing Consultant

Last June, we were proud to have our washout containers on the Jersey City Superfund Site recognized by the USEPA for Excellence in Reuse. The award recognizes Superfund site partners who have collaborated with the USEPA to support redeveloping Superfund sites in ways that are beneficial to the community and compatible with the cleanup. The PJP Landfill Superfund site is home to a newly constructed warehouse and distribution center, continued commercial use, public open space and restored wetlands. Concrete Washout Systems (CWS) provided and services portable, self-contained and watertight roll-off bins that control, capture and contain washout material and runoff. Our system made it easy to wash out concrete trucks, pumps and equipment on-site and facilitates easy off-site recycling of the same concrete materials and wastewater. All washout water and slurry collected by CWS is 100 percent recycled.



Connell Foley LLP
By Agnes Antonian, Esq., Co-Chair, Environmental Law Group

We guided a renowned, regional hospital through agency permitting regulations in order to set a path forward for expansion. The hospital was seeking to construct an outpatient facility on its campus, as there was no other viable space for development in the urbanized area. However, a dry drainage ditch running through the property was previously considered a State open water and was designated a priority wetland by the NJDEP, which presented a potential bar or delay to development. In order to address the overlapping and conflicting state and federal regulations governing priority wetlands and State open waters, we successfully coordinated with both the NJDEP and the USEPA to discuss the application of the regulations to the hospital's ditch. This meeting

between the two agencies and our client led to a productive discussion of State open waters, priority wetlands and the practical effects of the nebulous regulations. Ultimately, we were able to come to an agreement with the NJDEP on the permitting necessary, a favorable understanding of the success of the permit application, and assurance of a timely review. This provided a cost-efficient roadmap for the hospital to move forward with its efforts to better serve the community.



Coughlin Duffy LLP
By Heidi S. Minuskin, Esq., Partner

A letter from the USEPA to a client advising that it is a Potentially Responsible Party at a Superfund Site almost always means an expenditure of a minimum of hundreds of dollars, if not more, to address even if the nexus to the site is non-existent. One of our clients received such a letter for a Superfund Site in New Jersey, where the costs to investigate and remediate were estimated to be in



New Jersey Attorney General Gurbir S. Grewal (right) and NJDEP Commissioner Catherine R. McCabe announced the filing of six separate lawsuits aimed at recovering environmental damages—three address Natural Resource Damage.

excess of \$50 million. We began the process of trying to convince the USEPA, as well as the other responsible parties, that our client had no liability for that site. The alleged nexus was based upon the USEPA and the other parties' designation of the wrong corporate entity as the liable party. Our team conducted extensive research on historical corporate formations and transactions spanning decades in order to obtain proof

that our client was not the entity that had any liability with regard to the site. As a result of our efforts and legal advocacy, we convinced the USEPA that it had designated the wrong party and it released our client from further involvement with the site.



Equity Environmental Engineering
By Peter Jaran, PE, LSRP, Managing Director

A commercial client in northern New Jersey had previously purchased a former gas station in Paterson to store equipment for their business. Unfortunately, they bought it without conducting any due diligence. In early 2016, the company received a letter from the NJDEP Bureau of Enforcement and Investigation saying there was an open spill case on the property, the original Responsible Party no longer existed, and our client was therefore responsible for violations, including failure to remediate and failure to meet the 2014 Remedial Investigation deadline. The client faced substantial fines and Direct Oversight. But Equity's LSRP obtained an agreement that if the remediation could be completed and a Response Action Outcome (RAO) was issued before the end of the year, the agency would hold off on direct oversight and would not levy fines. Equity was able to complete the Remedial Investigation, remedial action and an RAO was issued in December 2016, thereby closing the case and avoiding NJDEP Enforcement actions.



EWMA
By Donald W. Richardson, CPG, President

One of our clients, a prominent industrial-commercial developer, purchased an existing office property with some unresolved NJDEP water supply compliance matters. Because of the capabilities of well-water and well-pump systems that a previous owner had installed, periodic water-use registration reports were supposed to be

continued on page 34

continued from page 32

filed with the NJDEP. Since the production wells were not being used by our client, they were unaware of the need to file the reports to the NJDEP. Facing NJDEP fines of up to \$25,000 per day, the client called in EWMA. When our professionals investigated the property, we discovered three more wells that our client didn't know about. We immediately negotiated a reporting time-frame with the NJDEP and submitted water-use modification documents reflecting the additional newly discovered wells, and our client did not have to pay any fines.



Gibbons P.C.

*By Camille V. Otero, Esq.,
Chair, Environmental
Department*

Our Environmental Department is assisting a major investor in high-quality infrastructure in securing the environmental permits for the redevelopment of a 1,600-acre brown-field site into a multi-use, deep-water seaport and industrial logistics center. To secure the necessary approvals for this state-of-the-art facility, Gibbons has led the client through environmental studies and challenging negotiations with the U.S. Army Corps of Engineers, the USEPA, the National Oceanic and Atmospheric Administration, the National Marine Fisheries Service, the NJDEP, U.S. Coast Guard, and Delaware River Basin Commission. In addition to coordinating review and approvals among several agencies with overlapping jurisdiction and sometimes divergent interests, we devised creative solutions that considered host community and environmental organization concerns. Gibbons built on the compelling narrative of this project, which will return what was once a manufacturing "company town" into a new economic engine that thoughtfully accommodates environmentally sensitive areas and invests significant resources in environmental mitigation. Through the collaborative efforts of private investors and regulators, what has emerged may well be a model for continued private investment in infrastructure, with this project

being one of the largest in the state, enhancing port capacity in the southern New Jersey/Philadelphia region.



**Manko, Gold, Katcher
& Fox, LLP**

*By Bruce S. Katcher, Esq.,
Partner*

For the past several years, we have counselled our client on multiple, complex, technical and legal issues regarding the investigation and remediation of widespread soil and ground water contamination at very large site formerly used for multiple research and development activities.



"By taking necessary legal action, New Jersey continues to bolster its reputation as a national champion for the environment and staunch defender of public health," says Lt. Gov. Sheila Oliver.



Remediation and disposition of the site for institutional and commercial reuse is one of the client's major development priorities. Contaminants include volatile organic compounds, PCBs, radioactive waste and historic pesticides. We have developed a template environmental remediation agreement to address the client's risk management objectives for the investigation, sale and issuance of Response Action Outcomes on a parcel-by-parcel basis as each area of the site is sold for redevelopment by others. Before the enactment of the LSRP program, we worked closely with the client and the NJDEP to resolve issues—including the very favorable resolution of a significant soil reuse issue with the NJDEP, which ultimately saved the client more than a \$1 million—and more recently, we have worked with the client's LSRP to achieve timely regulatory

closure for the remediation of each property, so the transactions may proceed. To date, closings have taken place on three parcels, with two fully built-out.



McCarter & English LLP

*By Lanny S. Kurzweil, Esq.
Partner, Environment
& Energy Practice;
Co-Moderator, CIANJ
EBC Roundtable*

Environmental issues involving impacted sites are typically resolved by a New Jersey LSRP, sometimes with the help of an attorney, but just as often not in the absence of a compelling legal question. Other times, a lawyer can be instrumental in resolving or avoiding exposure to an environmental claim at the outset with some sleuthing and legal analysis. This summer, a McCarter & English, LLP client—a manufacturer of household and personal care products—was sued in a major multi-party case brought under federal environmental laws. The claims in the case concerned events decades old and, importantly, questions over possible corporate successor liability. By building the record, analyzing the detailed business transactions and purchase and sale agreements, and marshaling the law, we conclusively presented a case to our adversary showing that our client was not the successor to the liability, resulting in our client's prompt dismissal from the lawsuit.



**PennJersey
Environmental Consulting**

*By Rodger A. Ferguson Jr.,
LSRP, President and
Incoming President
of the LSRPA*

PennJersey Environmental Consulting is assisting an Essex County board of education where 10 school sites are under NJDEP direct oversight. Ten regulated heating oil underground storage tanks (USTs) were closed in 1991, but the UST Site Investigation reports were not submitted by the former consultant within one year, and the Remedial Investigation reports also were not sub-

continued on page 36

continued from page 34

mitted by May 2014. Because the reports were not submitted to the NJDEP, direct oversight and enforcement action resulted. PennJersey has worked with the NJDEP enforcement staff to keep them informed, avoiding penalties and the onerous direct oversight requirements. A file review was reconstructed from the previous work to develop a comprehensive compliance strategy and budget, and each former UST has been investigated to close the data gaps. The required reports are being finalized to meet the NJDEP enforcement's deadline and the client's project budget. Clear communication with the NJDEP has alleviated the potential penalties.



Sadat Associates, Inc.

*By Dr. Lahbib Chibani, PE,
President*

The Jersey Gardens Mall, now The Mills at Jersey Gardens, in Elizabeth is a prime example of the reuse of a former landfill. In addition to the design of numerous engineering control systems, including landfill capping, landfill gas control and storm water management, Sadat Associates, Inc. (SAI) designed and obtained the necessary permits for a pipe culvert to replace a mile-long ditch that extended to Newark Bay and divided the property nearly in half.



While the federal government loosens environmental rules and regulations, the NJDEP is trying to create a vision for New Jersey that goes in the opposite direction—with more stringent requirements and laws.

This enabled the separation of leachate—that contaminated surface water for decades—from storm water. This and other SAI designs resulted in a savings of more than \$7 million in project costs. The 1.2 million square foot regional mall, four hotels, two restaurants and a waterfront parcel available for further redevelopment exist at this property, which was once home to an old landfill. SAI continues to provide services related to ground water monitoring, leachate system monitoring and maintenance, wetlands monitoring and maintenance, and other required inspections.



Sills Cummis & Gross P.C.

*By Andrew B. Robins, Esq.,
Chair, Environmental Law
Practice Group*

Should recommendations in a Phase I Environmental Site Assessment be implemented? Don't follow them blindly. Take a step back and understand the full context. A client selling a light industrial site recently came to us with a sale in jeopardy when the buyer's Phase I recommended substantial follow-up work at high costs and long timeframes would kill the deal. Phase I's are commonly relied upon by purchasers and their lenders to assess risks of potential impacts from hazardous substances. However, Phase I's are not designed to develop a conceptual site model to guide how to investigate potential concerns. Proceeding with further investigations based solely on a Phase I can lead to unnecessary costs and confusion about risks and liabilities. That confusion can kill deals when a better understanding can allow the parties to address their respective concerns. Instead of proceeding with the recommended investigations, we took a step back and found that concerns raised were actually related to offsite and regional issues being addressed by an ongoing publicly funded cleanup. The parties could then focus

on what would be needed to protect the proposed use. Taking that step back removed the deal killers and the transaction went forward.



The ELM Group Inc.

*By Mark D. Fisher, LSRP,
CHMM, Managing Partner*

An ELM Group developer client had acquired a former retail petroleum property in northern New Jersey that needed to be quickly remediated to facilitate an aggressive redevelopment schedule. ELM first conducted a streamlined due diligence and remedial design program to quantify contamination conditions and establish an appropriate remediation plan in conjunction with the planned redevelopment of the property. We then worked closely with the NJDEP to secure the necessary permit approvals in an expedited manner to complete a focused remedial injection program. This allowed the construction of the new building to occur without any impact to the project schedule. ELM's streamlined proactive remedial activities allowed the redevelopment to occur on schedule, with ELM maximizing the benefits of the NJDEP's LSRP program to complete remediation work in an expedited manner.



Whitestone Associates, Inc.

*By Thomas K. Uzzo, LSRP,
PEA, President*

Whitestone Associates, Inc. applied the administrative and technical guidance for offsite source assessments to achieve case closure for chlorinated volatile organic (CVO) contamination in ground water at a site in Union County. Subsurface impacts had been documented during removal and remediation of regulated heating oil underground storage tanks (USTs) in the early-2000s, and although the CVO impacts to ground water were not anticipated to be associated with the former heating oil USTs, historic industrial site uses of potential concern were identified during a Preliminary Assessment. Site Investigation activities

continued on page 38

continued from page 36

conducted to address these concerns included an evaluation of potential on-site source areas in soil and supplemental ground water investigation along the property boundaries and deeper water bearing zones for vertical profiling. No CVO-impacted soils were documented at the site, and the ground water investigation findings indicated CVO migration from offsite sources. Based on these findings, Whitestone's LSRP issued a Response Action Outcome for the former heating oil USTs and off-site impacts to ground water in advance of the applicable regulatory timeframes.



Using Drones for Environmental Projects/Clients in New Jersey

New Jersey has been awarded a \$3 million grant by the U.S. Department of Commerce to build a 20,000-square-foot, unmanned, aerial systems training and innovation facility within the Cape May County Airport to manufacture advanced drones. Here are some case studies that show how environmental firms and colleges and universities are already using drones to assist their clients, students and research.



Bergen Community College
Luis De Abreu, STEM Program Director and Tutorial Supervisor

Thanks in part to a \$5.3 million grant from the U.S. Department of Education, Bergen Community College fields a robust drone R&D program, according to BCC's Luis De Abreu, STEM program director and tutorial supervisor.

"One initiative, Scaredrone, is developing a drone that will help farmers by automatically detecting birds and other



"Flooding from heavy rainfall or storm surge makes communities vulnerable to the spread of contamination from hazardous chemical releases or movement of hazardous wastes," says Colette Santasieri, NJII's executive director of Policy and Planning Innovation for Civil Infrastructure and Environment.



animals that threaten crops," explain De Abreu. "The drone will take off and broadcast predatory animal sounds over its speakers to scare off the creatures."

BCC also uses a drone to monitor a weather-type balloon launched with instrumentation, on an annual basis, some 100,000 feet up to engage in atmospheric testing and analyses.

"Last year, we traveled to Jefferson City, Missouri, and launched a balloon to record and analyze the solar eclipse," says De Abreu. "We used the drone to track and recover the payload. The application for drones, or unmanned aerial vehicles, are endless."



GEI Consultants Inc.
Jamey A. Stynchula, PG, LSRP, Senior Project Manager

GEI Consultants Inc. uses "UAS or drone technology in variety of ways for environmental projects," says Senior Project Manager Jamey A. Stynchula, PG, LSRP, "We use photogrammetry [surveying and mapping] to generate topographic maps of sites quickly and inexpensively. We have conducted pre- and post-remediation surveys of sites and have been able to track soil excavation progress periodically and visualize progress."

GEI uses orthomosaic imagery "to tile together aerial photos of pipeline rights-of-way, which are often irregular and difficult to manage," he adds. "Our water resources divisions used drones to inspect areas of dams that are difficult or unsafe to access."

Applications in the oil and gas industry include leak detection, through the use of lasers, "to the part per million level and through thermal imaging. We also conduct visual inspection of erosion and sediment control measures along pipeline routes. We anticipate that the FAA will be granting exemptions to line-of-sight flying which will make the aerial inspection of pipelines much easier and more efficient."



Geomatix, LLC
By Thomas Gregory, President

Geomatix, LLC employs high-definition cameras, and thermal and multispectral sensors for civil, environmental and ecological applications. Uses include property transactional due diligence; 3-D imaging of structures; infrastructure inspection; surface cover and pavement monitoring; digital elevation modeling; topographic change detection; settlement monitoring; stockpile volumetrics; construction monitoring and as-built documentation; ecological wetlands monitoring; surface water discharge and ground water upwelling; and spectral imaging of terrestrial and aquatic flora photosynthesis. Advanced software solutions with sophisticated post-processing algorithms and state-of-the-art hardware marry image and sensor data into common orthorectified and georeferenced outputs for use in any conventional CAD or GIS software. During processing, GNSS located ground control points are integrated to ensure deliverables have global, centimeter-level accuracy. Our solutions are aligned with client work flows to expertly and safely acquire the highest quality auditable data and deliver actionable analysis at low cost and cycle time while reducing occupational and institutional risk.

continued on page 40

continued from page 38



Langan Engineering & Environmental Services
Stephen A. Ellis, GISP, CMS, UAS Pilot, Manager of Mobile Mapping and UAS Operations; Senior Survey Project Manager

Langan was contracted to use one of its Unmanned Aerial Vehicles (UAVs) to collect imagery and create full topographic and planimetric mapping for the ILR Landfill to Solar Farm redevelopment project in Edison.

"We began the project by flying a drone mission and mapping the entire existing landfill site for an accurate surface model, as well as for plan and topographic features to use for design and construction of the new solar farm," says Stephen A. Ellis, GISP, CMS, UAS Pilot, manager of mobile mapping and UAS operations, and senior survey project manager.

Langan also mapped the solar farm and developed orthomosaic images, 3D-surface maps and other mapping of the project site. To increase accuracy, Langan leverages Cardinal Systems' VR Mapping Software for "all aerial triangulation and photogrammetric soft-copy compilation from the UAV stereo imagery," he adds, noting this provides "a tighter and more accurate surface, as well as increased ability to define planimetric and topographic features."



New Jersey Institute of Technology
By Dr. Moshe Kam, Dean, NJIT's Newark College of Engineering

Three years ago, researchers from the New Jersey Institute of Technology's Crisis Communication Center and other partners met in Cape May to conduct the first unmanned aircraft system (UAS) flight from New Jersey soil under a Federal Aviation Administration program. Today, campus researchers include "Bratislava Dimitrijevic, an assistant professor of civil engineering, who works on drone technologies for remote traffic surveillance and connected vehicle applications," says NJIT's Newark College of

Engineering Dean, Dr. Moshe Kam. "Pramod Abichandani, an assistant professor of engineering technology, is designing and testing a communication-centric unmanned multi-quadcopter platform for outdoor navigation and formation control. NJIT student Chrystoff Camacho founded ParaTrees, a forestry management company that has already secured contracts." Next March, NJIT, in collaboration with the IEEE North Jersey Section, will host IEEE Drones for Infrastructure 2019, a technical workshop on the design, implementation, applications and societal implications of drone use.



Rowan University
Dr. Rouzbeh Nazari, Associate Professor, Director of Rowan Resiliency Lab, Dept. of Civil & Environmental Engineering

"We're in a unique location to partner with universities in New York and other places," says Dr. Rouzbeh Nazari, associate professor and director of the Rowan Resiliency Lab, Dept. of Civil & Environmental Engineering. "South Jersey has more farmland, so there are more places to fly drones, giving us more opportunity to develop knowledge that could then be offered to others on a consulting or other basis."

He hopes to turn South Jersey into a "drone hub" of research and development. Meanwhile, Rowan is fielding multiple drone projects. "We developed a drone-based system for New Jersey American Water that can inspect water mains and tanks, and we've completed basic testing for subsurface leak detection in water mains."

The university also works with the New Jersey Department of Community Affairs to develop high-resolution mapping of coastal areas. "This digital elevation model will enable us to capture changes and analyze the way water moves, for flood impact prediction and assessment," Dr. Nazari says. "These and other applications offer a great deal of growth potential."



Stockton University Coastal Research Center
Dr. Stewart Farrell, Director and Founder

"Stockton University has employed drones for multiple uses," according to Stewart Farrell, executive director of Stockton's Coastal Research Center. "We use a Phantom II to take video, stills and infrared photos as part of the center's ongoing analysis of beach erosion along the New Jersey shoreline.

Drones are also used for maintenance, mapping, marketing and to record



New Jersey has been awarded a \$3 million grant by the U.S. Department of Commerce to build a 20,000-square-foot, unmanned, aerial systems training and innovation facility within the Cape May County Airport to manufacture advanced drones.

(This aerial photo from a drone is courtesy of Tectonic Engineering & Surveying Consultants, PC.)

continued on page 42

continued from page 40

major events: one project has tracked the construction of Stockton's new Academic Quad buildings at the main campus in Galloway, in addition to the new beachfront campus in Atlantic City.

The university has also offered a course in drone operations through the Office of Continuing Studies that introduces the types of UAS (Unmanned Aviation Systems), their mission, power capability, satellite uplink and direct line-of-sight flight, as well as autonomous flight. Students also learn about drones' sense-and-avoid capability, the Certificate of Operations application, and approval for flight of UAS in the National Airspace System.



Tectonic Engineering & Surveying Consultants, PC

By Peter T. Sutherland, PE, LEP, LEP, PG, Senior VP, Corporate Director of Environmental Services

Tectonics' Environmental Department has recently established a Drone Technology Program to advance our services and work products for our clients. The Unmanned Aerial Vehicles (UAVs) are operated by our FAA Licensed Pilots to conduct visual assessments and produce aerial photographs for our reports. Most recently, Tectonic Engineering & Surveying provided UAV services as a less expensive alternative to manual inspections and traditional aerial inspections. We have completed several Visual Impact Assessments for clients to accompany traditional balloon tests, as well as visual assessments for tower installations and other land development structures. The drone is flown at the target GPS coordinate locations to the altitude/elevation desired by the client. Once at the desired altitude, the pilot-in-command rotates slowly 360 degrees, in place, while recording video as well as the flight record data. The flight record data is displayed as telemetry data overlaid on the 360-degree videos. Our clients have found the most useful data gauges to be the GPS coordinates, altitude and compass direction. The videos can be used to determine visual impacts using desired azimuths at certain alti-

tudes by pausing the videos at a particular compass direction of importance, which can be converted to a photo for further analysis.



The ELM Group Inc.

David B. Towsey, GIS Manager

The Princeton-based environmental consulting firm ELM Group Inc. uses Small Unmanned Aircraft System (sUAS, or drone) technology to collect remotely sensed data for projects and clients, according to GIS Manager David B. Towsey.

"The sUAS has made it possible to evaluate environmental conditions from a fresh perspective and at spatial and temporal scales that were previously difficult to monitor," he explains. Towsey and Cathrine Rinnier, FAA Part 107 certified pilots, use drones to collect data and quickly generate products such as orthomosaic imagery, a map-like rendering made up of many drone photos.

ELM recently flew over a southern New Jersey site for a client "who is purchasing an abandoned industrial property that will be rehabilitated into a new active processing facility," Towsey adds. "The flyover captured video and orthomosaic imagery in inaccessible areas" that will let ELM create enhanced presentations for stakeholders and regulatory agencies.



Woodard & Curran

By Phyllis Brunner, President of Consulting

On a recent project for a client in New Jersey, Woodard & Curran utilized drone technology to overcome hazards and complete safe and thorough infrastructure and building inspections. A 1,200-foot shoreline break wall along a large tidal river was difficult to inspect because of a lack of visibility during high tide and the absence of stable ground during low tide. Drone inspection provided visual access to the wall, allowing Woodard & Curran's engineers to assess structural damage and potential stumbling blocks for future replacement.

Drone technology was also implemented for the inspection of several former industrial buildings in various stages of deterioration on the premises, deemed too dangerous for physical entry. This unmanned access allowed for a greater understanding of building characteristics and potential hazards. Overall, drone utilization significantly contributed to the team's ability to develop informed construction and remediation plans for the site, while removing personal risk to the engineers involved.



NJDEP's Blue Acres Program Expands into Atlantic County

NJDEP's Blue Acres program has expanded into Atlantic County and is in conversations with 25 eligible property owners in Pleasantville who are interested in participating in this effort that moves residents away from areas that are impacted by severe storms. With the addition of Atlantic County, the NJDEP's Blue Acres Program is now active in nine counties.

Since its inception shortly after Sandy struck the state, the Blue Acres program has secured funding for the purchases of 981 homes. To date, the program has closed on the purchases of 648 properties and has completed 531 demolitions. Structures are demolished, and the land is converted into open space to serve as natural flood buffers. Participation in the program requires willing sellers and clusters of homes or entire neighborhoods.

The Blue Acres Program and its acquisition practices have earned national recognition as a flood-mitigation best

continued on page 44

continued from page 42

practice, including awards from the FEMA and the U.S. Department of Housing and Urban Development. Both federal agencies have been key partners in the effort, providing the bulk of the funding the state has used to acquire and demolish the properties.

In addition to Pleasantville, the program is active in New Milford, Bergen County; Downe and Lawrence, Cumberland County; Newark, Essex County; East Brunswick, Old Bridge, Sayreville, South River and Woodbridge, Middlesex County; Pompton Lakes, Passaic County; Ocean and Keansburg, Monmouth County; Manville, Somerset County; and Linden and Rahway, Union County.



New Jersey Innovation Institute
By Colette Santasieri,
Executive Director,
Policy and Planning
Innovation for Civil
Infrastructure and Environment

Flooding is becoming an increasing and persistent problem. No matter whether that flooding is a result of heavy rainfall or storm surge, communities can be vulnerable to the spread of contamination from hazardous chemical releases or movement of hazardous wastes. These threats come from various sources: the drums and chemical storage tanks from chemical plants, petroleum



refineries, and other industrial sites may be compromised when carried off site by floodwaters, or when covered by floodwaters for a significant period. Contaminated soils contained on Superfund sites, brownfields and agricultural properties may be transported by floodwaters and deposited on other properties or within waterways. These contaminants may include synthetic chemicals, pesticides, heavy metals and other hazardous substances. Storm water runoff from roadways can carry contaminants such as petroleum hydrocarbons. But not all of these chemical and contaminant releases pose immediate threats to humans and animals. Threats vary depending on the type and level of the contamination, as well as the type and duration of people and animals' exposure to such contaminants.



New Jersey Institute of Technology
By Michel C. Boufadel,
Director, Center for
Natural Resources

Coastal flooding has obvious impacts on life and the economy through the inundation of inhabited areas. One aspect that is not fully understood and/or accounted for is the migration of chemicals from industrial and other sites to residential sites. The large water volume is likely to cause dilution of chemicals that could dissolve in water. However, certain chemicals that are hydrophobic—they do not dissolve in water—could potentially get transported to residential areas without dilution and could cause health problems. Contaminated sediments with heavy metals like lead, arsenic and mercury can end up settling on the soil. The scientific community has numerous models that account for the impact of storm surge combined with the impact of waves riding on the surge, but the scientific community is still not working on predicting the movement of chemicals following coastal flooding. Raising capital is a main challenge in implementing solutions—imagine a seawall around Manhattan—which leads to mini projects that can offer a false sense of safe-

ty. Much effort is placed on preventing the oil from reaching the shorelines, and techniques involve applying chemicals known as dispersant to break the oil slick into small droplets causing it to “disperse” in water. *With John A. Reif Jr., Dept. of Civil and Environmental Engineering*



This column was provided by the Licensed Site Remediation Professionals Association (LSRPA) and authored by environmental specialist Raymond Minarovic, PG, LSRP, of T&M Associates and project engineer Ryan Andersen, CHMM, EIT of Langan Engineering & Environmental Services. Ryan is an associate member of the LSRPA. The contaminated water was photographed by a drone and provided by Woodard & Curran.



Unusual Sampling Protocols Required By PFAS Emerging Contaminants

By Raymond Minarovic,
PG, LSRP, T&M Associates;
and Ryan Andersen, CHMM,
EIT, Langan Engineering
& Environmental
Services Oratori



On Sept. 4, 2018, New Jersey became the first state to promulgate a drinking water standard for perfluorononanoic acid. The standard will require more sampling, but the physical properties of Polyfluoroalkyl Substances (PFAS) and the extremely low regulatory limits (in the parts per trillion range) will require unusual sampling protocols.

According to the Interstate Technology and Regulatory Council

continued on page 46

continued from page 44



(ITRC), a public-private coalition sharing innovations in environmental remediation technologies and processes, PFNA is one of 3,000 manmade chemicals in the complex family of PFAS.

PFAS are found in a surprising number of places, such as coatings for textiles, paper products, cookware and firefighting foams. Their unique properties—oil and water repellency, temperature resistance and friction reduction—make them desirable in aerospace, photographic imaging, semiconductors, automotive, construction, electronics and aviation.

Although many PFAS compounds are no longer in use, they have accumulated in soil, sediment, ground water and surface water. The science to understand PFAS is continually evolving.

Because the allowable limits are so low and PFAS are in so many products, current protocols for sampling call for what some believe are extreme measures to avoid contaminating a sample from an outside source.

Common items used during sampling should be avoided during PFAS sampling, such as Teflon tubing, coated Tyvek, waterproof field books, chemical ice packs, certain food packaging and cosmetics, according to guidance cited by the ITRC. Although there is little data

and literature about cross-contaminating samples, the ITRC recommends avoiding these types of materials where possible.

Developing a Quality Assurance Project Plan that includes a sound sampling strategy is the preferred approach. It should include the type of sampling equipment, clothing to be worn by samplers, allowable personal hygiene products, decontamination procedures, the sample containers, and sample collection methods.

If time allows, rinseate blanks of your required materials can be analyzed to assist in materials selection. Always use laboratory supplied and certified PFAS-free water in blanks.

We suggest you ask your environmental consultant or LSRP if they are experienced in the assessment and remediation of PFAS and what steps they are taking to avoid cross contamination before they collect PFAS samples on your site.



Environmental Recruiting



NPZ Law Group, P.C.

By David H. Nachman, Esq.,
U.S. Managing Attorney

As an immigration and nationality law firm, we assisted an environmental consulting and remediation company located in New Jersey to bring a highly qualified environmental engineer to the United States from India on an H-1B non-immigrant visa. The worker is uniquely educated and trained in data collection, environmental testing, research and remediation efforts of contaminated

soils. The company is a small business in New Jersey and it is the small businesses in America which greatly strengthen the U.S. economy.



Making Redevelopment a Priority for Failing Commercial Districts



By Lieutenant
Governor Sheila Oliver,
Commissioner, Dept.
of Community Affairs

We want to make our economy stronger, and that's going to happen through growth. One of our main focuses will be working with communities on new development and redevelopment. We will be making a move toward electronic permitting, as we are committed to making a smoother experience for everyone. In a lot of older suburban communities, the commercial corridors have been challenged by the malls and by online shopping. We now have a revival of the Main Street New Jersey program to help these communities in creating what people want. I can point to communities like Westfield and Summit who worked with the Division of Local Planning Services as success stories. Look at what Bloomfield has done with its Avalon development, with restaurants, an urgent care center, food stores and more. We are in competition with Pennsylvania and New York for gambling, but we have something they don't—the ocean—so we can make seaside, family destinations with diverse entertainment. New Jersey can win for a variety of reasons—our location, our labor force, our transit, Newark Liberty international airport and Port Newark.

continued on page 48

continued from page 46



"The United Nations estimates that one-third of all food produced for consumption is wasted each year," says Bayshore Family of Companies President and CEO Valerie Montecalvo. "About 40 percent of food grown in the United States is not eaten, and in July of 2017, the New Jersey Legislature passed S-3027, the Food Waste Reduction Act, which aims to reduce food waste by 50 percent by 2030."



**Food Sustainability:
An Appetite for Recycling**

The NJDEP partnered with the Rutgers EcoComplex, Sustainable Princeton and Princeton University's Office of Sustainability to host "Restaurants For Tomorrow," a free workshop on incentives and green best practices to help the restaurant industry become more sustainable.

The workshop introduced restaurants, diners and related food-service business owners and managers to initiatives they can take to "go green," including how to comply with a new law.

Last year, New Jersey passed a law establishing a food waste reduction goal of 50 percent by 2030. The law requires the DEP, in conjunction with the New Jersey Department of Agriculture, to develop a plan with public input to accomplish this goal.

The DEP is working with various stakeholders -- food and grocery industries, businesses, food banks, schools and universities, environmental groups and others -- to develop a draft plan to promote strategies to reduce food waste at the source of loss and to educate consumers about ways they can reduce food waste. Once a draft plan is developed, the DEP will hold a series of public meetings to gather further public input and finalize the plan.

The environmental and societal benefits associated with food waste reduc-

continued on page 50

NOTE

AD

P/U P. 00 ZZZ. 00

PRINTER PLACED THAT AD

continued from page 48

tion are significant. Landfill disposal capacity is saved through effective waste reduction programs, energy is saved by only producing the amount of food that is eaten, and air pollution is reduced because waste does not have to be transported to disposal sites. When food waste is buried in landfills, it decomposes and generates methane, a powerful greenhouse gas that contributes to climate change.



**A Conversation with
Agriculture Secretary
Douglas H. Fisher**

New Jersey is also known as the Garden State and for good reason. In this exclusive interview with New Jersey

Agriculture Secretary Douglas H. Fisher, *COMMERCE* learns that the state has 9,000 farms, 720,000 acres tilled and generates more than \$1 billion per year in farm-grown consumables. Here are Secretary Fisher's thoughts on the key issues impacting New Jersey farmers, the market for agriculture and the economic impact of the industry.

New Jersey's Crops. "New Jersey grows more than 100 different varieties of fruits, vegetables and herbs, and is ranked nationally in the top 10 as a producer of blueberries, peaches, bell peppers, squash, tomatoes and cranberries.

We also make a strong showing in corn, soybeans, trees, shrubs and sods."
Market Value. "The value of New Jersey's produce or nursery stock is approximately \$1.1 billion a year. But if you consider all of New Jersey's food activity, including food processing, value-added products and ancillary farm-based businesses, such as Goya, the value is more than \$115 billion a year."

Geography. "Most parts of New Jersey are involved in agriculture. The No. 1 county for hay is Hunterdon, followed by Sussex county, while Salem county is a big corn producer. Monmouth and Hunterdon are responsible for a lot of poultry, and the choose-and-cut Christmas tree capital is Warren county, with an annual yield of about 70,000 trees. Farms across the state benefit from agritourism activity, including hay rides, apple picking and farm-to-table meals at restaurants. Even in densely populated counties like Essex, Passaic and Union, you can find farmers' markets."

continued on page 52

NOTE

AD

P/U P. 00 ZZZ. 00

PRINTER PLACED THAT AD

continued from page 50

NJ's Department of Agriculture.

"We have five divisions: agriculture and natural resources; animal health; food nutrition; marketing and development; and plant industry. Among other services, we help farmers to make connections. People across the country call us and tell us what kinds of crops they need, and we pass this information to the New Jersey farmers, so they know what to plant."

The State Agriculture Development Committee (SADC).

"Our department's SADC manages the farmland preservation program, under which landowners can sell the development rights on their land to our SADC, County Agriculture Development Boards, municipalities or nonprofit organizations. The farmers still own their land, but future development is limited to agriculture. The \$1.5 billion we've put into in preservation puts us at No. 1 nationally for farm preservation investment dollars."



"Remediation activity will accelerate as more people live and work in urban areas," says Riker Danzig Scherer Hyland & Perretti LLP's Steve Senior, Esq., partner, Environmental Group. "Brownfields are often the only undeveloped sites in urban locations."

Jersey Fresh. "We also maintain the Jersey Fresh advertising, promotional and quality grading program that helps farmers inform consumers about the availability and variety of fruits and vegetables grown in New Jersey. These activities include social media, point-of-purchase materials and other promotions. We recently relaunched the find-



"New Jersey grows more than 100 different varieties of fruits, vegetables and herbs, and is ranked nationally in the top 10 as a producer of blueberries, peaches, bell peppers, squash, tomatoes and cranberries," says Agriculture Secretary Douglas H. Fisher.

continued on page 54

NOTE

AD

P/U P. 00 ZZZ. 00

PRINTER PLACED THAT AD

continued from page 52

jerseyfresh.com website with new features. Now, someone can enter their location, tap in the distance they're willing to travel, and they can find farms, crops, agritourism, wineries and other attractions."

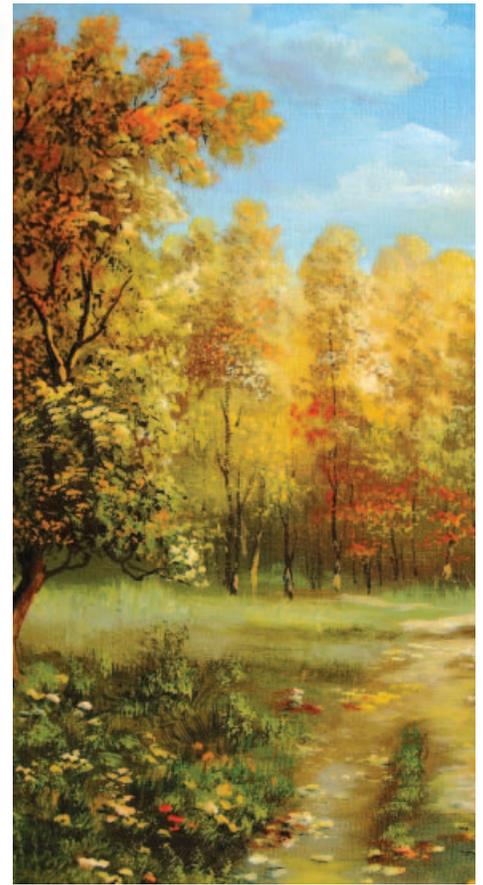
Technology and Farming.

"I recently flew a drone over a farm in Gloucester County, that helps the farmers to survey their fields, so they can apply pesticides and insecticides in a targeted manner. The drone's resolution is good enough to let farmers inspect a single row of crops. Additionally, high-tech tractors and combines enable farmers to calculate and record their yield as they're harvesting it, and they can even trade futures from the cab. We also seeing tech applications in urban agriculture, where LED lights and computer-driven programs allow hydroponic [a water base instead of soil] and aeroponic [roots are dangled in the air and are precision misted] growth in a climate-controlled atmosphere."



"Most people don't realize that a great number of Green Acres tracts have utilities or pipelines on them," says Christine Roy, partner in the law firm of Rutter & Roy, LLP. "Many of these were built during the 1950s, when the properties were not preserved."

Growing Grapes. "New Jersey has four micro-regions designated as best-suited for grape growing, with each designated as an official American Viticultural Area, or AVA. The Central Delaware Valley AVA is in the central part of the state, along the Delaware River, just north of Philadelphia; the Warren Hills AVA is located entirely in



continued on page 56

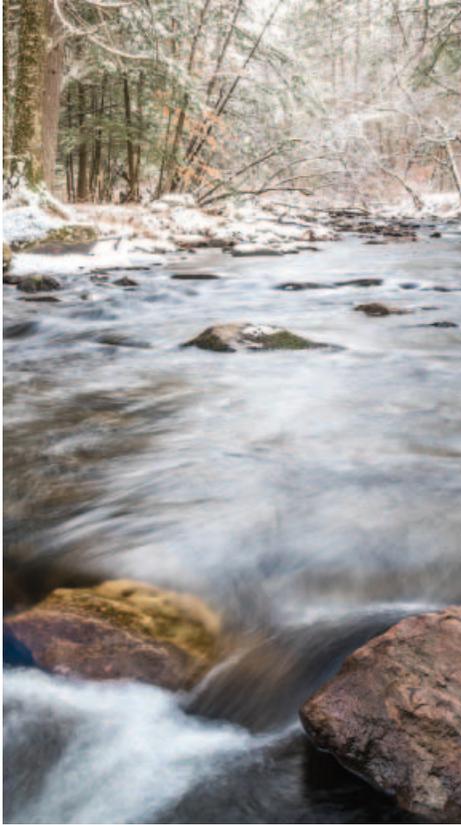
NOTE

AD

P/U P. 00 ZZZ. 00

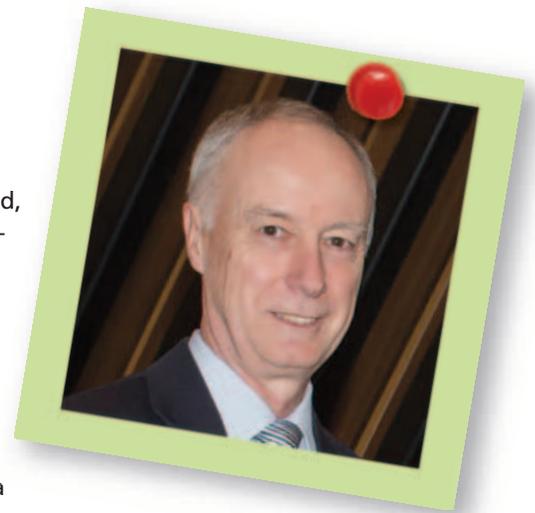
PRINTER PLACED THAT AD

continued from page 54



Warren county; the Outer Coastal Plain AVA includes all of Cumberland, Cape May, Atlantic and Ocean counties; and the recently designated Cape May Peninsula AVA, includes part of Cape May and Cumberland counties. New Jersey's wine grapes are recognized internationally for their quality and are winning in international and other competitions; it's a tremendous growth area and wine growers are looking for more acreage."

Key Nature/Weather Challenges. "Weather and global warming are the biggest issues. We're seeing later springs and colder winters. Also, the North is seeing a warmer climate, along with more storms. But farmers adjust; production levels are not decreasing, and we continue to have some of the highest-yielding farmland in the nation. We're producing food like cranberries, peaches, corn and blueberries. It's all good, and we have national Top 10 ranking in some crops, like peaches, cranberries,



"Reliable, inexpensive energy sources continue to be crucial for business," says Golder Principal Steve Finn. "We expect to see increased emphasis on renewable energy, such as solar, including solar farms on remediated sites; and possibly offshore wind farms.

asparagus and spinach and blueberries. New Jersey is also in the Top 10 for nursery and sod, which is used in football fields across the country."

Wildlife and Farmers. "Deer are devastating to many farmers, although some may qualify for financial reimbursement assistance for deer fencing. Insects are another issue: the Spotted

continued on page 58

NOTE

AD

P/U P. 00 ZZZ. 00

PRINTER PLACED THAT AD

continued from page 56

Lanternfly [which can ruin grape harvests] has been seen in Pennsylvania—we've set up a hotline for people to report any sightings in New Jersey, so we can spray the nesting areas and the insects directly. We recently eliminated another threat in New Jersey—the Asian long-horned beetle [which can devas-



tate urban forests and street trees] and have controlled the threat from the Gypsy moth [a destructive forest insect]. We are currently concerned about the emerald ash borer [which has been found in Bergen, Burlington, Camden, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Somerset, Sussex and Warren counties and targets Ash trees], but we're working to control it."

The Future. "Farmers and others will continue to evolve, adapting to market and other conditions that will affect what they produce, how to present it and how to sell it. There's a bright future for farmers who monitor the market and make appropriate short-term and long-term decisions. New Jersey also has some built-in advantages: we're in one of the largest consuming markets in the nation, and we've got well-developed logistics and shipping networks. Farmers have to continue to adapt, but we have innovative farmers in New Jersey."



New Jersey Agricultural Fair Ambassador Pier Semanchik

As the 2018 New Jersey Agricultural Fair Ambassador, Pier Semanchik of Great Meadows in Warren County visits the state's agricultural fairs, discusses

continued on page 60

NOTE

AD

P/U P. 00 ZZZ. 00

PRINTER PLACED THAT AD

continued from page 58

the fairs, promotes agritourism to the public and brings people together to support the state's agriculture industry. A Centenary University student in the pre-veterinary program, she was selected from among six contestants by the Agricultural Fair Association of New Jersey.

Semanchik is a member of the Horsin' Around and Country Squires 4-H clubs. She also was the 2016 New Jersey State Equestrian of the Year and has been the Warren County Dairy Ambassador, the Warren County Farmers' Fair Queen, and has participated in rabbit, poultry, dairy, horse,



"A key environmental issue is clean water, so any plans for future development needs to begin with improving water quality and managing the current volume which is in excess of the water treatment plants' capacity," says Hampton-Clarke, Inc. CEO Rose DiMeo.

continued on page 62

NOTE

AD

P/U P. 00 ZZZ. 00

PRINTER PLACED THAT AD

continued from page 60

small animal, horticulture, arts and crafts, and presentations in 4-H. She has also been a participant in the horse bowl, horse judging, hippology and equine presentations.

For more information on New Jersey's agricultural fairs, visit www.njagfairs.com.



**MIT Energy Initiative Study:
The Future of Nuclear Energy**

The MIT Energy Initiative (MITEI) has issued a report on the future of nuclear energy, which currently accounts for only 5 percent of global primary energy production. The report,

"New Jersey has retaken its seat in the Regional Greenhouse Gas Initiative and recommitted to reductions in carbon dioxide emissions pursuant to the RGGI's cap and trade program," says Greenbaum, Rowe, Smith & Davis LLP Environmental Department Chair David B. Farer, Esq.



continued on page 64

NOTE

AD

P/U P. 00 ZZZ. 00

PRINTER PLACED THAT AD

continued from page 62

"The Future of Nuclear Energy in a Carbon-Constrained World," notes that the electricity sector in particular is a prime candidate for deep decarbonization. Global electricity consumption is on track to grow 45 percent by 2040, and the team's analysis shows that the exclusion of nuclear from low-carbon scenarios could cause the average cost of electricity to escalate dramatically.

The study also lays out detailed options for government support of nuclear. For example, the authors recommend that policymakers should avoid premature closures of existing plants, which undermine efforts to reduce emissions and increase the cost of achieving emission reduction targets.

One way to avoid these closures is the implementation of zero-emissions credits—payments made to electricity producers where electricity is generated without greenhouse gas emissions—which the researchers note are currently in place in New York, Illinois, and New

Jersey. The study concludes with an emphasis on the urgent need for both cost-cutting advancements and forward-thinking policymaking to make the future of nuclear energy a reality.

Source: MIT Energy Initiative ■

"Our energy efficiency programs have prevented the release of 2.1 million tons of carbon dioxide into the atmosphere, which equates to removing 400,000 cars from New Jersey's roads each year," says New Jersey Natural Gas Chairman and CEO Laurence M. Downes.



ADVERTISERS' DIRECTORY

Text 00

NOTE

AD

P/U P. 00 ZZZ. 00

PRINTER PLACED THAT AD