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From: Bloomberg BNA
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Subject: Aug. 30 -- Daily Environment Report - Afternoon Briefing

Daily Environment Report

Afternoon Briefing - Your Preview of Today's News

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Flooded Houston Facing Threat From Air, Too, With Toxic Gas Releases

Posted August 30, 2017, 6:21 A.M. ET

By Adam Allington

Houston residents face a less obvious threat from the air as they deal with historic flooding: The Hurricane Harvey-caused shutdown of the region's massive petrochemical industry released more than 2 million pounds of harmful pollutants into the air as of Aug. 29, according to initial reports to Texas regulators.

"I think it's one of those unseen events that perhaps doesn't get recognized in all of the chaos and devastation of the storm," said Elena Craft, a senior scientist with the Environmental Defense Fund in Austin. "Two million pounds is roughly 40 percent of what the entire Houston region released in 2016. A lot of the concern stems from not knowing what you're breathing."

With 4.5 million residents, Houston is the fourth most-populated U.S. city. Over the weekend and on Monday, residents of industrial fence-line communities were reporting strong gas and chemical-like smells coming from the nearby plants and refineries.

Harvey prompted emergency shutdown of Houston-area refineries include Exxon-Mobil's sprawling Baytown complex, as well as refineries with Chevron-Phillips, Petrobas, Royal Dutch Shell, and Motiva Enterprises' Port Arthur facility—the nation's largest crude oil refinery.

While necessary from a safety perspective, the process of shutting down the plants produced significant amounts of air pollution.

Sudden shutdowns and startups can release chemical plumes including carbon monoxide, benzene and sulfur dioxide, because the filtration systems are not calibrated to run at lower temperatures. It's analogous to the initial puff of exhaust from a car tailpipe when the engine is first started.

In a mandatory filling with the Texas Commission on Environmental Quality (TCEQ), Chevron Phillips reported that it expects to exceed permitted limits for several hazardous pollutants, such as

1,3-butadiene, benzene and ethylene, during shutdown procedures.

Enforcement During Natural Disasters

Houston has been the site of several major flood events in recent years and chemical companies are still on the hook to minimize emissions, even during emergency shutdowns. If they don't they are subject to penalties and corrective action.

"They [fines] do have teeth," said Matt Kuryla, an environmental lawyer at Baker Botts LLP focusing on air quality.

Kuryla said the TCEQ holds a meeting every two weeks in which it has the power to assess fairly heavy fines for emissions events, up to $1 million.

"Under the rules that govern episodic emissions, companies are required to keep detailed records of the amount of chemicals released, and the steps taken to mitigate and correct the unauthorized emission," said Kuryla.

Kuryla noted that startups and shutdowns can be done under ideal circumstances without causing significant pollution. In those cases, excess hydrocarbons are usually taken care of through burning, or "flaring." It may smell to people living downwind, but it's not toxic, he said.

Questions of Policing Permits

According to the TCEQ's 2016 enforcement report, regulatory efforts in the state resulted in 1,404 administrative orders issued with over $8.9 million to be paid as penalties.

But Craft said those TCEQ penalties accounted for less than 3 percent of illegal air pollution released last year during industrial malfunctions in Texas.

The Environmental Integrity Project, a Washington, D.C.-based advocacy group made up of former EPA officials, recently took the EPA to court, alleging the federal agency isn't properly policing Texas air pollution permits, which they argue are too lax and complicated.

Hurricane Waivers?

The EPA has discretion to grant waivers during a natural disaster, but even for something as extreme as Hurricane Harvey, air pollution waivers might be more difficult to come by.

"This is an area of air pollution that is well known and heavily regulated," said Richard Alonso, a parnter in the environmental group at Sidley Austin LLP based in Washington D.C.

Alsonso said EPA learned a lot from Hurricane Katrina in 2005. No one questions whether refineries and chemical plants need to be shut down during natural disasters, but the question regulators will be increasingly faced with going forward is—how much do they need to pollute the environment to do so?

"The shutdown and restart emissions are regulated by the state and these should be minimized as much as possible," said Alonso. "It is not the Wild Wild West."

Looming Landfill Issues

More likely, he said, are waivers for specific environmental rules that would slow the cleanup and recovery process.

EPA Administrator Scott Pruitt already exercised his authority under the Clean Air Act last week to waive certain fuel requirements to address shortages resulting from Hurricane Harvey.

The next looming environmental issue could be four to five weeks down the road, said Alonso.

"They're going to have landfill issues," he said. "Once the cleanup starts, they will fill up quickly, and a lot of this is really nasty construction debris, things like asbestos, insulation, et cetera— the kind of stuff that normally wouldn't be simply tossed away."

Refineries' Toxic Gas | Harvey Damage | EPA Economic Reviews

Posted August 30, 2017, 7:01 A.M. ET

By Chuck McCutcheon

Houston's hazardous air pollution has spiked as Hurricane Harvey shuts down refineries and petrochemical complexes.

Emergency shutdowns released more than 2 million pounds of harmful pollutants into the air, according to initial reports to Texas regulators.

Affected Houston-areas refineries include ExxonMobil's sprawling Baytown complex, as well as refineries run by Chevron-Phillips, Petrobas, Royal Dutch Shell. It also includes the shutdown of Motiva Enterprises' Port Arthur facility—the nation's largest crude oil refinery.

While the shutdowns may be necessary from a safety perspective, shutting down boilers and other equipment can produce significant amounts of air pollution. Chevron Phillips reported to Texas' Commission on Environmental Quality that the company expects to exceed permitted limits for several hazardous pollutants, such as 1,3-butadiene, benzene, and ethylene, during shutdown procedures.

Energy-Incident Response Headaches

Harvey also is taxing the various government responses to damaged energy infrastructure.

A 14-inch pipeline in La Porte, Texas, spewed a toxic gas for several hours—just one of the infrastructure incidents challenging regulators as Harvey dumps record-breaking rain on the state. The Texas Commission on Environmental Quality is monitoring oil, gas, and other facilities reporting spills and giving technical guidance to wastewater operators in flood-impacted areas. And the Pipeline and Hazardous Materials Safety Administration is working with pipeline operators to give them better views of the integrity of their facilities.

Model Lacks Clarity: EPA Advisers

Economic modeling can be confusing—even to EPA's Science Advisory Board.

Its members told the EPA that the agency model for evaluating broad economic costs and benefits

of air pollution regulations isn't clear enough to help the public. The analysis is intended to help utilities, industries, and policymakers determine the effects of federal regulations on factors like energy prices and employment.

Board members who met Aug. 29 to discuss their draft report on EPA's draft economy-wide model asked for clarifications and transparency on the model's shortcomings.

What Else?

• "Garbage juice:" North Carolina lawmakers schedule a Wednesday veto-override vote to allow landfill operators to spray leachate and wastewater into the air to manage solid waste.

• Wisconsin's top environmental regulator is joining EPA's regional leadership team in Kansas.

• Duke Energy could add 700 megawatts of solar-power capacity to Florida's grid by 2021 and stop billing customers for a halted nuclear project under a plan filed with state regulators.

• Post-Harvey, federal and state leaders should pause to make sure money being spent will help prevent future damage, analysts say.

Today's Events

• Noon | Women in Green forum | How women impact the environmental industry

• 2 p.m. | EPA webinar | How drought and other environmental concerns affect global water quantity and quality

• 3 p.m. | World Resources Institute report | Helping Asia's poorest people access water pollution information

Quote of the Day

"This is a tremendously costly endeavor, and that's why we haven't done it already." — Peter Wilcoxen, head of an EPA Science Advisory Board panel, on finishing a draft report on modeling the economic impacts of regulation.

From Our Inbox

• A list of Harvey resources compiled by the Association of Air Pollution Control Agencies.

• Governments and business may face more lawsuits for failing to prevent damage from floods, heat waves, and other climate change risks, a commentary published in Nature says.

• A Massachusetts company using ammonia in its refrigeration system is now complying with federal laws, EPA announces.

All About: EPA Gasoline Waivers

The EPA is temporarily relaxing various environmental regulations to pave the way for more gasoline availability in crisis-struck Gulf states. That's because gasoline is needed to offset shortages tied to oil refinery shutdowns and flooding, the agency and governors in Texas and Louisiana say.

But the move is leaving biofuel producers confused.

Administrator Scott Pruitt in recent days gave the go-ahead to gas stations in parts of Texas and Louisiana to sell fuel that breaks environmental rules on smog prevention. Those rules involve arcane regulations on the Reid Vapor Pressure (RVP) of gas—which is used to measure ozone threats—and a type of refinement that limits pollutant emissions.

Pruitt, however, isn't allowing sales of gasoline containing 15 percent ethanol (E15), which is banned from sale in the summer months over RVP concerns. That issue has drawn the most attention to the RVP metric in recent years.

"The waivers issued don't do anything to allow expanded E15 blending," Renewable Fuels Association Executive Vice President Geoff Cooper said in a statement. Cooper said the waiver will allow sales of gasoline without any ethanol, a move that he said "seems odd."

The renewable fuel standard requires biofuel blending into gasoline, and now most gasoline sold nationwide contains 10 percent ethanol.

Pruitt also lifted gasoline requirements for 13 Atlanta-area counties. An agency spokesperson said EPA "is ready to act expeditiously" if extreme and unusual supply problems occur elsewhere.

Around the Web

WashPost | Flooding has killed more than 1,000 people in Sierra Leone and South Asia.

Popular Science | Where will all the Harvey floodwater go?

NYT | Making, selling, or importing plastic bags in Kenya can now land you up to four years in jail.

Harvard Business Review | How the insurance industry can influence climate-change planning.

—With assistance from Brian Dabbs.

Harvey Makes Second Landfall as Gulf Coast Relentlessly Battered

Posted August 30, 2017, 8:16 A.M. ET

By Brian K. Sullivan and Kelly Gilblom

On the morning of Aug. 30, disaster analyst Chuck Watson had pegged $42 billion as a reasonable estimate for the cost of destruction Tropical Storm Harvey would leave in its wake. By the end of the day, he'd added another $10 billion.

Harvey's initial blast along the Texas coast as a Category 4 hurricane was bad enough, sending gasoline prices surging and crude futures plunging as refineries shut. Now the storm has returned, making landfall a second time in southwestern Louisiana, which was devastated by Hurricane Katrina in 2005.

The storm has brought torrential rain and the collapse of levees, dams, and drains. That combination has analysts raising damage estimates by the hour and could easily push the catastrophe above the rank of Superstorm Sandy, the second-costliest weather disaster in U.S.

history.

"We're on the verge of having cascading failures," said Watson, a Savannah, Georgia-based disaster modeler with Enki Research. "It is conceivable that we could get into the $60 to $80 billion range without that much effort."

Louisiana, including New Orleans, is familiar with apocalyptic storms. Hurricane Katrina killed at least 1,800 and caused $160 billion in damage. Sandy, which slammed into New York and New Jersey in 2012, claimed 147 lives along its path from the Caribbean, including 72 in the U.S. The damage was about $70.2 billion, according to the U.S. National Centers for Environmental Information in Asheville, North Carolina.

The death toll from Harvey had reached at least 18 on Aug. 30, according to the Austin American-Statesman newspaper. The New York Times cited Texas authorities as saying they believed Harvey caused at least 30 deaths.

A nighttime curfew, from 10 p.m. to 5 a.m., was imposed in Houston the night of Aug. 29 as the storm's center drifted back toward the Gulf of Mexico. The storm made landfall between Port Aransas and Port O'Connor in Texas on Aug. 25, stalled out further inland over the weekend and is now trekking eastward. It is expected to reach the Lower Mississippi Valley by Aug. 31.

The storm will be followed by tornadoes from Louisiana to Arkansas. East Texas could get another 10 inches (25 centimeters) of rain throughout the week.

"Harvey aligned perfectly to bring intense rain bands over Houston," said James Done, a project scientist and meteorologist at the National Center for Atmospheric Research in Boulder, Colorado. As it drifted along the coast on Aug. 28-29, it also "perfectly aligned for Houston to get the peak rainfall."

Harvey also created a situation where Gulf of Mexico waters have kept drumming hard up against the coastline, preventing rain water from running off into the sea and backing everything up for miles around.

The ferocious arrival was tempered by high-pressure systems across the U.S., including a large one that pushed temperatures in California beyond 100 degrees Fahrenheit (38 Celsius), said Phil Klotzbach, a hurricane researcher at Colorado State University. Harvey became "a pebble in a stagnant stream."

Predictions were that some areas east of Houston would witness 50 inches or more of rain by the time Harvey moved off into the central U.S. As of 3 a.m. local time Aug. 30, the gauge at Mont Belvieu, east of the city, showed 51.88 inches had fallen since the start of the storm. That may be the most in recorded history for a tropical cyclone in the contiguous U.S., breaking a mark also set in Texas back in 1978.

The record for all 50 states in such a storm was set in 1950 in Hawaii—52 inches.

Harvey's deluge was made all the worse because the ground was already saturated by heavy rainfall earlier in the season. "We have had roughly a year's worth of rain in the last three months," said Wendy Wong, a National Weather Service meteorologist in Dickinson, Texas, a city that was evacuated.

Watson said disaster models just aren't calibrated for a thing like Harvey. For instance, a typical scenario will assume infrastructure such as dams, levees and drainage systems will fail when stress rates reach 80 to 90 percent. "We are seeing failures at 60 percent," he said.

The pressure on the Addicks and Barker reservoirs west of Houston spurred the Army Corps of Engineers to release water, which flooded neighborhoods that had been dry before. Now such deliberate flooding should be more calculated, Watson said.

"We're starting to get into the apocalyptic—this is what we don't want to have happen," he said.

The Army Corps didn't immediately respond to a request for comment, but said earlier on Aug. 29 that no decision had been made to increase discharge rates and that dam releases were expected to occur for several months.

Watson's other concern is how slowly water is draining away from Houston. Done said the reason may be that Harvey's surge is keeping up pressure on bays, inlets and the mouths of rivers, preventing runoff.

It could also be evidence that the pipes and drainage systems are failing, Watson said. That, of course, would increase the ultimate financial pain of the storm. The Army Corps said in a statement that the dams are operating "as expected."

'Precarious Situation'

Now, New Orleans and the rest of coastal Louisiana are feeling the brunt of Harvey's soaking rains, threatening yet another major U.S. refining center. The hurricane center said 3 to 6 inches could fall across eastern Louisiana, including New Orleans. Mississippi, Arkansas and Alabama could soon get as much as 10 inches. Storm surge warnings, which means there is a danger of facing a life-threatening inundation of water, are in effect for much of the Gulf Coast.

The storm shut an estimated 3.9 million barrels a day of refining capacity due to flooding and port closures, according to Goldman Sachs Group Inc. analysts including Damien Courvalin. Buffalo Gas Plant at Stanton, Texas, reduced sale of natural gas liquids by 58 percent as fractionator plants in Houston were closed, while Targa Resources Corp. said damage to its facilities is minimal so far.

The infrastructure in New Orleans, "can barely keep up," Done said. "New Orleans is in a very precarious situation."

The forecast calls for the storm to continue into the central U.S., and it's expected to become a tropical depression by tonight. And even then, Houston won't be free from threats.

Rainfall over the state will eventually need to make its way into the Gulf, which means several more pulses of water could be coming the city's way, Watson said.

"There is another train that is heading toward Houston," Watson said. "Behind every one of these dollar signs is a family that doesn't have a house anymore."

--With assistance from Sebastian Tong, Ann Koh and Serene Cheong.

As Dicamba Dust Settles, Scientists and Industry Spar

Posted August 30, 2017, 7:30 A.M. ET

By Tiffany Stecker

Arkansan soybean farmers are wrapping up a summer of harvesting bumper crops alongside the crippling devastation of their neighbors' fields. The same herbicide is causing both optimism and bitterness in the region, and discussions over its future use is dividing farmers, scientists, and industry.

Dicamba, a weedkiller first registered in 1967, has undergone a makeover to fight weeds immune to most herbicides. BASF Corp., Monsanto Co., and DuPont this year stocked new versions of dicamba, designed for use with Monsanto's soybeans and cotton that are genetically-engineered to withstand the new herbicides. But the herbicide spread easily to neighboring farms, falling on vulnerable crops.

This summer was one the best growing seasons in years for Arkansans in terms of controlling insidious weeds that creep into fields. It also was a year of unusual harm to nearly a third of the state's soybean crops, marked by curled leaves, stunted growth, poor yields, and J-shaped pods that have been tied to new formulations of the herbicide.

What was a blockbuster year for many growers cost others millions of dollars, pitting farmer against farmer and scientists against the herbicide's manufacturers.

State university scientists believe the new formulations can't be managed to control the damage. They easily evaporate, or "volatilize," and can spread potentially thousands of feet over a couple of days into a neighbor's field.

"As a weed scientist, I can't tell you how to fix this problem," Jason Norsworthy, an extension scientist with the University of Arkansas told a group of farmers and industry representatives Aug. 17.

The manufacturers are loathe to blame volatility, saying the herbicides were studied extensively before their launch earlier this year. The damage, they say, could be due to errors in applying the herbicide, poorly written instructions, and generally weak control of physical drift—the travel of liquid droplets of dicamba via wind or weather patterns.

To avoid a repeat of the disaster next year, Arkansas' Plant Board convened a task force of growers and trade association representatives to craft recommendations on the spraying of dicamba.

On Aug. 24, the task force agreed to develop preliminary recommendations for the Plant Board to send to the governor. The panel suggested that the Plant Board impose an April 15 cut-off date for spraying the chemical and thereby prevent spraying in the hot summer months. The cut-off date also effectively would bar use of the herbicide for many farmers, given that most of the soybean planting happens in May.

The task force will incorporate the recommendations in a formal report due in the next three weeks. If implemented by the Arkansas Plant Board, the recommendations will drive hundreds of farmers' decisions next year. A compromise between those who have gained from the new dicamba and those who have suffered won't be easy. Farmers in Arkansas have been clamoring for solutions to their weed problems for years, and are feeling the pressure of declining grain prices that can

threaten the viability of their farm operations in just one season.

Grasping for Solutions

"It's something that we desperately need to control the weeds," Justin Blackburn, a 33-year old, eighth generation soybean and corn grower in Northeastern Arkansas, told Bloomberg BNA. "We're grasping for anything that works."

Hundreds of thousands of soybean acres, plus trees, vegetables crops, and flowering plants that feed honeybees, have shriveled this year as the new product for killing weeds came on the market. Soybeans are particularly sensitive to dicamba. The only crops that are safe are Monsanto Xtend seeds that are genetically engineered to withstand the herbicide. About 35 percent of the soybeans planted this year in the state are Xtend crops.

"We've got some serious issues we've got to address," Wes Ward, the state's Agriculture Secretary, told Bloomberg BNA. "We're hoping that this task force…can try to nail this down a little better."

In preparing its recommendations, the 19-person panel must consider conflicting information from university researchers and the manufacturers of the new herbicide.

Manufacturers hailed new formulations as a cure for stubborn weeds that suffocate crop yields. The aptly-named pigweed—also called palmer amaranth—began to resist applications of the widely-used weedkiller glyphosate after the turn of the 21st century. Weeds also have developed resistance to another class of herbicides called protoporphyrinogen oxidase (PPO) inhibitors. Resistant weeds can cut yields by up to 91 percent in corn and up to 79 percent in soybean, according to Purdue University Extension.

The new products were made to be less prone to evaporate and spread to neighboring fields than the dicamba of the past. But starting in late May, complaints began to mount. Dozens of calls to the Plant Board turned to hundreds. To date, 950 complaints have been filed.

The State Plant Board voted to ban spraying of dicamba in crops on June 23. As of Aug. 10, an estimated 900,000 acres of Arkansas soybean fields have been allegedly damaged by dicamba, according to state extension scientists, about one-third of the total soybean damage for the nation as a whole.

Ground Zero

Dicamba works by mimicking plant hormones that make weeds grow abnormally and eventually die.

More than 2,200 reports of dicama injury, affecting more than 3 million acres of soybeans, are being investigated nationwide, according to the University of Missouri's Integrated Pest Management program. Northeastern Arkansas is ground zero for the damage.

In Mississippi County, a sprawling horizon of soybean and cotton fields one hour northwest of Memphis, Tenn., 240 dicamba misuse complaints were filed this year—one quarter of all of the complaints in the state.

David Wildy, a task force member who pushed for an April 15 cutoff date for spraying the chemical, is one of the most vocal critics of the new formulations. A silver-haired grower of soybeans, corn, and other crops from Manila, in the northeastern part of Arkansas, he's earned awards for his high

production, management style, and outreach to the agricultural community.

Earlier this season, Wildy estimated his loss from soybean damage to be a little shy of $1 million, injury that is not covered by federal crop insurance or private insurance unless a neighbor admits to spraying dicamba and agrees to cover the loss with liability insurance.

"This technology is driving a wedge between farmers," he told Bloomberg BNA.

Arkansas was the only state of 34 not to approve XtendiMax for use, despite allowing farmers to plant Extend seeds that can withstand applications of dicamba. The Plant Board denied XtendiMax's approval because university scientists were not able to do independent tests, particularly under local conditions, Arkansas Agriculture Department spokeswoman Adriane Barnes told Bloomberg BNA in an email. This dampened their confidence in the product.

In A Pickle

Monsanto's vice president of global strategy Scott Partridge said the refusal to approve the use of Xtendimax drove farmers to use older versions of dicamba not suitable for use with the company's genetically-modified seeds. It's no surprise that Arkansas has fared the worst in the dicamba crisis, Partridge told Bloomberg BNA.

"I can understand why Arkansas is scrambling," he said. "I think they got themselves into a bit of a pickle."

Some states that have seen little to no problems with dicamba, a pattern BASF attributes to more in-person training. Arkansas Agriculture Secretary Ward told Bloomberg BNA that his state relied on the protocol for Mississippi, which did not require face-to-face training.

On a press call Aug. 17, BASF pointed to the in-person training in states like Alabama, North Carolina, and Georgia as a likely reason for fewer complaints in those states.

"We do recognize differences in agriculture around the country, but we shouldn't be quick to discount the value of in-person and face-to-face training," Scott Kay, vice president of U.S. Crops forBASF, said. "We do believe that's an important contributor to their reduced numbers of alleged complaints coming from those states."

But Norsworthy said those differences could be attributed to different agricultural systems, like smaller fields and forests interspersed with farmland.

In that county, a farmer was shot and killed after a dispute with a dicamba-spraying neighbor last year. At the time, Xtend seeds were legal, but the Environmental Protection Agency had not yet approved the new versions of dicamba, leading to widespread "off-label" use. It is illegal to use older versions of dicamba on the genetically-engineered plants.

This year was supposed to be different. The EPA approved the new formulations last November, more than a year after the Agriculture Department allowed for Monsanto's Xtend seeds to go on the market. But this year's calls to the Arkansas Plant Board have far outpaced last year's 33 complaints, 23 of which were confirmed to be dicamba injury.

Record Soybean Crop

The crisis won't lead to a national soybean shortage. On the contrary, the U.S. is set to break its soybean record this year, and Arkansas is expected to produce 400,000 more acres than in 2016, with a slight increase in yields per acre, according to USDA. Monsanto Chief Technology Officer Robb Fraley said Aug. 29 that the company is planning to supply enough Xtend seeds for up to half of the U.S. soybean acreage for next year's growing season.

But that gain comes at a significant cost, Wildy said. Sycamore trees are wilting. Tomato plants are wiped out. Wildy needs and wants the technology. But if this is the price of progress, he says, it's not worth it. Non-agricultural plants—from ornamental trees to flowers that feed honeybees—have been affected too.

"When the general public gets involved, to me that's very serious," he said, referring to the broader number of groups affected.

Wildy planted about 300 of his 3,300 soybean acres with Xtend seeds this year. He said he will plant more next year as a protective measure if the state Plant Board allows continued use. Farmers pay about $8 more per acre for dicamba-resistant beans than for LibertyLink seeds, Bayer AG's technology that matches glufosinate-tolerant crops to a new version of the herbicide glufosinate—another result of farmers' clamor for tools to beat weeds.

Arkansas farmer Blackburn tends to 1,700 acres with his brother in Greene County. Last year, he was hit with a wave of dicamba that damaged his soybeans. This year, he went on the defense. The brothers planted every acre of their soybeans to be dicamba-resistant. It was an extra expense, he said, but worth it. It worked wonderfully until late June, when the state imposed its ban.

That bothers Blackburn. This new technology has brought benefits to farmers, and smearing the formulations with a broad brush means a step backwards.

"We followed all of the regulations, all of the guidelines," he said. "They're sort of making it out to be that everybody who sprays this stuff is an outlaw, is a criminal."

Still, Blackburn thinks the product is "flawed" because it's been so easy for farmers to misuse.

An April 15 cutoff wouldn't work for Blackburn, who spends that month planting corn and begins sowing soybeans in May.

'This Is A Product That Is Broken'

The task force meetings on Aug. 17 and Aug. 24 were held at the Winthrop Rockefeller Institute, atop the fog-covered Petit Jean Mountain north of Little Rock. Named after the state's Republican governor who pushed for civil rights and prison reform in his state, the resort-like stone lodge serves as a neutral outpost to discuss the region's most pressing matters, from rural healthcare to agricultural trade with Cuba.

The dicamba matter may be the most contentious issue addressed there yet. Norsworthy gave an hour-long presentation to the audience of about 50 at the Aug. 17 meeting, summarizing a number of his field studies on the new dicamba formulations.

In one experiment that was replicated by scientists at the University of Tennessee, Norsworthy covered certain soybeans with buckets in a field where he sprayed XtendiMax (Monsanto's dicamba herbicide) and Engenia (BASF's new formulation). He removed the buckets 30 minutes after spraying, and soon after, the plants exhibited the telltale signs of dicamba damage. Had it been drift,

the weedkiller would have moved away from the areas in minutes, Norsworthy said.

In another trial, Norsworthy sprayed two 3.5 acre plots with Engenia and XtendiMax each, with wind traveling 2.9 miles per hour. Though applied well below the label instruction limit of 15 miles per hour, the herbicide traveled more than 300 feet. With field sizes in the thousands of acres, a real life situation could see dicamba travel well beyond the state's quarter-mile buffer zone, he said.

His conclusion: When it comes to volatility, there's no buffer big enough, no nozzle spray fine enough, no wait period long enough, to control the movement. Drift can be controlled by the type of nozzle, by the boom height, and by refraining from spraying at times of high wind speed and at certain times of the day.

The distinction between drift and volatility is important. Regulations and label instructions on its use can control physical drift. Volatility is uncontrollable, Norsworthy said.

"This is a product that is broken," he told the task force Aug. 17.

Those findings bristled the handful of manufacturer representatives present, who had just a few minutes to defend their new herbicides. The presentation, they said, would taint farmers' opinions of the product and bring on hasty recommendations to restrict a necessary tool for clearing weeds.

"I wasn't happy with the process," Dan Westburg, a BASF technical services manager with a doctorate in weed science, told Bloomberg BNA at the meeting.

Companies worked hard to suppress this in their new formulations. Monsanto's proprietary VaporGrip technology was developed specifically to reduce volatility by preventing the formation of dicamba acid in a solution.

Perry Galloway, a farmer in Northeastern Arkansas and proponent of the technology, agreed that a presentation from only the extension scientists was "biased."

'Dicamba Is Heavier Than Air'

The companies brought their concerns to the Arkansas Plant Board. A week later at the second task force meeting, Monsanto deployed three scientists to defend their data. BASF had one presentation.

Monsanto has conducted extensive volatility studies since 2009, company scientists said at the Aug. 24 meeting. Those studies, mostly done in closed enclosures called humidomes, show that dicamba concentration in the air drops dramatically in the first day, meaning it can't volatilize and travel far.

"Volatility does occur, it absolutely occurs, but the amount that occurs will happen very quickly in 24 hours," Ty Witten, North America Crop Protection Systems Lead for Monsanto, told the participants. "Dicamba is heavier than air, it's going to fall over time."

Can dicamba drift? Yes, said Witten, maybe by 40 or 100 feet. But not by half a mile or ten miles, as some have suggested.

Tom Mueller, a professor of weed science at the University of Tennessee Institute of Agriculture, challenges this 24-hour claim from Witten in recent trials. He found that dicamba concentrations in the air can shoot back up the day following an application after dipping overnight.

Mueller has repeated this trial several times. “It always follows the same pattern,” he told Bloomberg BNA.

Mueller attributes the increase in concentrations to higher temperatures the following day rather than in the evening. Heat drives volatility, and researchers link the dicamba problems to a relatively new phenomenon in its use. Older formulations were applied only on corn in the cooler temperatures of early spring, he said, whereas the new versions are being sprayed in 90-degree June weather.

The EPA ultimately will decide the herbicide’s future. The agency gave companies a provisional two-year registration for the herbicides in 2016 and it is investigating the complaints and meeting weekly with Arkansas and other states affected via teleconference.

The underlying causes of the various cases of damage are not yet clear, EPA spokesman Robert Daguillard said, “but EPA is reviewing the available information carefully.”

If the EPA revokes the registration, or imposes greater restrictions, on use of the herbicides, they would not go into effect until the 2019 growing season. That leaves another year of rising tensions in the Heartland.

Maryland Wants to Muck Out Exelon Dam to Save Chesapeake Bay

Posted August 30, 2017, 8:00 A.M. ET

By Leslie A. Pappas

One “big and dirty flush” from a Maryland dam could wipe out decades of efforts to clean up the Chesapeake Bay.

The Conowingo Dam on the Susquehanna River, a hydroelectric power station owned by Chicago-based Exelon Corp., is no longer blocking pollution from contaminating the Chesapeake Bay, and Maryland is pushing a $3.9 million plan to start dredging the backed up muck to protect the estuary.

“The sediment has value, but it doesn’t have value if it’s leaking through the dam into the Chesapeake Bay,” Maryland’s Secretary of the Environment Ben Grumbles told Bloomberg BNA. “Pollution prevention is the key.”

Maryland Aug. 31 is expected to solicit plans to dredge 25,000 cubic yards of the nearly 200 million tons of sediment trapped by the dam as part of a pilot program to reduce pollution. But the program is only the start given that 2 million to 3 million cubic yards of sediment accumulates each year, Roy McGrath, director of the Maryland Environmental Service, told Bloomberg BNA.

While the dredging is only a small step, Grumbles said it’s one piece of a “holistic strategy” to restore and protect the Chesapeake Bay.

Dredging could buy Maryland the time it needs to look at steps to reduce upstream pollution that eventually flows into the bay. But removing the 31 million cubic yards of sediment needed to restore the reservoir to 1996 levels would cost nearly $3 billion, the U.S. Army Corps of Engineers estimated, with another 3 million cubic yards of sediment dredged each year at a cost of $267 million annually.

"We all need to continue pollution prevention efforts upstream," Grumbles said.

Exelon Won't Fund Dredging

Exelon Generation Co. LLC agrees the problem is upstream pollution, and the company has balked at paying for the dredging operation. Exelon has spent about $7.8 million studying the issue since 2010, company spokeswoman Deena O'Brien told Bloomberg BNA in an emailed statement. The company found 70 percent to 80 percent of the sediment that washes into the bay during storms comes from upstream sources, and not from the Conowingo Pond.

Maryland has pushed the power company to contribute more to the dredging solution, even threatening to block the company's bid to renew a license from the Federal Energy Regulatory Commission to operate the dam.

"Exelon Generation believes protecting the vitality of the Chesapeake Bay is a multi-stakeholder, multi-state issue," O'Brien said.

The company "will support" Maryland's plan to solicit dredging bids though it will not play a formal role, she said.

Diminished Dam Could Drive New Standards

The dam has reached "dynamic equilibrium," according to a 2016 report Maryland issued with the U.S. Army Corps of Engineers. Dynamic equilibrium means that over time, the same amount of pollution and sediment flowing into the Conowingo reservoir is also flowing out. That diminished storage capacity means that a million more pounds of phosphorus from the Susquehanna will flow into the bay each year, Grumbles said.

"Some people are fixated on these extreme events," Donald F. Boesch, president of the University of Maryland Center for Environmental Science, which is studying the chemistry of sediment in the bay, told Bloomberg BNA, "but it's the year-to-year pollution that really matters."

That added pollution will make it even harder for Maryland to meet its goals under the Chesapeake Bay watershed cleanup plan, a pollution "diet" that aims to reduce levels of pollutants to certain federal standards by 2025. Maryland is one of six states and the District of Columbia that fall in the 64,000-square-mile watershed and must stay within federally mandated pollution discharge limits known as total maximum daily loads (TMDLs).

When Environmental Protection Agency first laid out those pollution limits in the 2010 Chesapeake Bay TMDL, the agency estimated the Conowingo trapped 55 percent of sediment, 2 percent of nitrogen, and 40 percent of phosphorus.

The EPA is conducting a midpoint assessment of nitrogen, phosphorus, and sediment levels in the bay to develop the next phase of cleanup, and the Conowingo's reduced capacity may force states to meet even more stringent pollution reduction targets.

Dredging's Value Questioned

While Maryland hopes the dredging plan will buy the time necessary to tackle upstream pollution, some researchers and groups involved in the bay cleanup question whether it is worth the cost.

Pollutants such as nitrogen are water soluble and will pass through the dam whether it gets dredged or not.

The 2016 sediment study by the U.S. Army Corps of Engineers concluded that nutrients from upstream "are a bigger threat to water quality than just the sediment," Sarah Gross, an Army Corps spokeswoman, told Bloomberg BNA in an email.

Dredging the Conowingo Dam "would result in only minor water quality improvements" to the Chesapeake Bay and "would be required regularly, if not annually, to achieve any net improvement," Gross said.

The Chesapeake Bay Foundation, an environmental group focused on the bay's health, argues that upstream states such as Pennsylvania and New York must do more to reduce nitrogen, phosphorus, and sediment runoff before it gets into the watershed in the first place.

Joel D. Blomquist, a hydrologist with the U.S. Geological Survey in Baltimore who has monitored sediment for 30 years, said scientists need to learn more about how sediment moves now that the dams have reached a dynamic equilibrium.

"There's legitimate debate around the question of needing to dredge," Blomquist told Bloomberg BNA. "We need to continue to decrease the amount of phosphorus and the amount of fine-grain sediments reaching the Chesapeake Bay," Blomquist said, but "there are multiple strategies to do that."

Xcel to Close Coal-Fired Units at Colorado Power Plant

Posted August 30, 2017, 02:44 P.M. ET

By Tripp Baltz

Xcel Energy Inc. plans to close two of its three coal-burning units at the Comanche Generating Station in Pueblo, Colo., as part of a group stipulation to pursue $2.5 billion in clean energy investments.

The company, in an Aug. 29 filing with the Colorado Public Utilities Commission, said the new generation projects will be identified and selected through a competitive process targeting a mix of utility and independent power producer-owned facilities. Portfolio estimates are up to 1,000 megawatts of wind, up to 700 megawatts of solar and up to 700 megawatts of natural gas, it said.

The filing with the commission was a provision with a coalition of 14 companies and groups to pursue $2.5 billion in clean energy investments in rural Colorado, the company said. The group of 14 includes the city of Boulder, Climax Molybdenum Co., the Colorado Energy Office, the Colorado Solar Energy Industries Association, the Colorado Building and Construction Trades Council and the Colorado Office of Consumer Counsel.

EPA Chemical Analysis Program's Science Focus of Sept. 6 Hearing

Posted August 30, 2017, 10:49 A.M. ET

By Pat Rizzuto

EPA's chemical toxicity program will be at the forefront of a House Science Committee hearing Sept. 6., Bloomberg BNA confirmed.

The House Committee on Science, Space, and Technology, and its Subcommittee on Environment and its Subcommittee on Oversight will all participate in the hearing. It will focus on the Environmental Protection Agency's Integrated Risk Information System (IRIS), which analyzes the human health harms that chemicals may cause and the doses at which those harms could manifest.

The National Academies, Government Accountability Office, American Chemistry Council and others have criticized the IRIS program for years. They have said it takes too long to evaluate chemicals and that the program's rationale for many decisions isn't clear.

The academies, however, praised recent improvements the EPA has made to the IRIS program.

Kenneth Mundt, director of applied epidemiology for the consulting group Ramboll Environ, and former Dow Chemical Co. toxicologist James Bus, now a senior managing scientist at Exponent, will testify. Both scientists and those consulting firms have long worked for or on behalf of various chemical and tobacco companies as well as for trade associations. Bus also has directed four toxicological associations, including the Society of Toxicology.

No witnesses for the Democrats could be immediately confirmed.

Questions about the IRIS program's formaldehyde assessment are likely to arise at the hearing. In May, Mundt published a critique of a study on occupational exposure to formaldehyde. That study was critical in the EPA's IRIS program, National Toxicology Program, and International Agency for Research on Cancer's analyses of formaldehyde's cancer-causing potential and link to leukemia and related cancers. Mundt's analysis concluded the workers study did not support a link between formaldehyde exposure and leukemia.