Chemical Industry Insider Now Shapes E.P.A. Policy

Public Health Fears after Abrupt Shift in Evaluating Risks of TOXIC Substances.

Wendy Cleland-Hamnett in Falls Church, Va. Last month, she retired as the top official overseeing pesticides and toxic chemicals at the E.P.A. "I had become irrelevant," she said about changes there under the Trump administration.

NEW YORK TIMES
ERIC LIPTON REPORTING
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WASHINGTON — For years, the Environmental Protection Agency has struggled to prevent an ingredient once used in stain-resistant carpets and nonstick pans from contaminating drinking water.

The chemical, perfluorooctanoic acid, or PFOA, has been linked to kidney cancer, birth defects, immune system disorders and other serious health problems.

So scientists and administrators in the E.P.A.'s Office of Water were alarmed in late May when a top Trump administration appointee insisted upon the rewriting of a rule to make it harder to track the health consequences of the chemical, and therefore regulate it.

The revision was among more than a dozen demanded by the appointee, Nancy B. Beck, after she joined the E.P.A.'s toxic chemical unit in May as a top deputy. For the previous five years, she had been an executive at the American Chemistry Council, the chemical industry's main trade association.

The changes directed by Dr. Beck may result in an "underestimation of the potential risks to human health and the environment" caused by PFOA and other so-called legacy chemicals no longer sold on the market, the Office of Water's top official warned in a confidential internal memo obtained by The New York Times.

The E.P.A.'s abrupt new direction on legacy chemicals is part of a broad initiative by the Trump administration to change the way the federal government evaluates health and environmental risks associated with hazardous chemicals, making it more aligned with the industry's wishes.

It is a cause with far-reaching consequences for consumers and chemical companies, as the E.P.A. regulates some 80,000 different chemicals, many of them highly toxic and used in workplaces, homes and everyday products. If chemicals are deemed less risky, they are less likely to be subjected to heavy oversight and restrictions.

The effort is not new, nor is the decades-long debate over how best to identify and assess risks, but the industry has not benefited from such highly placed champions in government since the Reagan administration. The cause was taken up by Dr. Beck and others in the administration of President George W. Bush, with some success, and met with resistance during the Obama administration. Now it has been aggressively revived under President Trump by an array of industry-backed political appointees and others.

Dr. Beck, who has a doctorate in environmental health, comes from a camp — firmly backed by the chemical industry — that says the government too often directs burdensome rules at what she has called "phantom risks."

Other scientists and administrators at the E.P.A., including Wendy Cleland-Hamnett, until last month the agency's top official overseeing pesticides and toxic chemicals, say the dangers are real and the pushback is often a tactic for deflecting accountability — and shoring up industry profits at the expense of public safety.

Since Mr. Trump's election, Dr. Beck's approach has been unabashedly ascendant, according to interviews with more than two dozen current and former E.P.A. and White House officials, confidential E.P.A. documents, and materials obtained through open-record requests.

In March, Scott Pruitt, the E.P.A. chief, overrode the recommendation of Ms. Hamnett and agency scientists to ban the commercial use of the pesticide chlorpyrifos, blamed for developmental disabilities in children.

The E.P.A.'s new leadership also pressed agency scientists to re-evaluate a plan to ban certain uses of two dangerous chemicals that have caused dozens of deaths or severe health problems: methylene chloride, which is found in paint strippers, and trichloroethylene, which removes grease from metals and is used in dry cleaning.

"It was extremely disturbing to me," Ms. Hamnett said of the order she received to reverse the proposed pesticide ban. "The industry met with E.P.A. political appointees. And then I was asked to change the agency's stand."

The E.P.A. and Dr. Beck declined repeated requests to comment that included detailed lists of questions.

"No matter how much information we give you, you would never write a fair piece," Liz Bowman, a spokeswoman for the E.P.A., said in an email. "The only thing inappropriate and biased is your continued fixation on writing elitist clickbait trying to attack qualified professionals committed to serving their country."

Before joining the E.P.A., Ms. Bowman was a spokeswoman for the American Chemistry Council.

The conflict over how to define risk in federal regulations comes just as the E.P.A. was supposed to be fixing its backlogged and beleaguered chemical regulation program. Last year, after a decade of delays, Congress passed bipartisan legislation that would push the E.P.A. to determine whether dozens of chemicals were so dangerous that they should be banned or restricted.

The chemical safety law was passed after Congress and the chemical industry reached a consensus that toxic chemical threats — or at least the fear of them — were so severe that they undermined consumer confidence in products on the market.

But now the chemical industry and many of the companies that use their compounds are praising the Trump administration's changed direction, saying new chemicals are getting faster regulatory reviews and existing chemicals will benefit from a less dogmatic approach to determining risk.

"U.S. businesses, jobs and competitiveness depend on a functioning new chemicals program," Calvin M. Dooley, a former congressman who is president of the American Chemistry Council, said in a statement. It was issued in June after Dr. Beck, his recent employee, pushed through many industry-friendly changes in her new role at the E.P.A., including the change in tracking legacy chemicals such as PFOA.

Anne Womack Kolton, a vice president at the council, said on Wednesday that Dr. Beck's appointment was a positive development.

"We, along with many others, are glad that individuals who support credible science and thorough analysis as the basis for policymaking have agreed to serve," she said in an email. "Consistency, transparency and high quality science in the regulatory process are in everyone's interests."

The Trump administration's shift, the industry has acknowledged, could have financial benefits. Otherwise, the industry may lose "millions of dollars and years of research invested in a chemical," the American Chemistry Council and other groups wrote in a legal brief defending the changes Dr. Beck had engineered.

But consumer advocates and many longtime scientists, managers and administrators at the E.P.A. are alarmed by the administration's priorities and worry that the new law's anticipated crackdown on hazardous chemicals could be compromised.

"You are never going to have 100 percent certainty on anything," Ms. Hamnett said. "But when you have a chemical that evidence points to is causing fatalities, you err more on the side of taking some action, as opposed to 'Let's wait and spend some more time and try to get the science entirely certain,' which it hardly ever gets to be."

The divergent approaches and yearslong face-off between Ms. Hamnett and Dr. Beck parallel the story of the chemical industry's quest to keep the E.P.A.'s enforcement arm at bay.

The two women, one a lawyer from New Jersey, the other a scientist from Long Island, have dedicated their lives to the issue of hazardous chemicals. Each's expertise is respected by her peers, but their perspectives couldn't be more dissimilar.

Ms. Hamnett, 63, spent her entire 38-year career at the E.P.A., joining the agency directly from law school as a believer in consumer and environmental protections. Dr. Beck, 51, did a fellowship at the E.P.A., but has spent most of her 29-year career elsewhere: in a testing lab at Estée Lauder, as a toxicologist in the Washington State Health Department, as a regulatory analyst in the White House and most recently with the chemical industry's trade group.

Before Mr. Trump's election, Ms. Hamnett would have been regarded as the hands-down victor in their professional tug of war. Her decision to retire in September amounted to a surrender of sorts, a powerful acknowledgment of the two women's reversed fortunes under the Trump administration.

"I had become irrelevant," Ms. Hamnett said.

Her farewell party in late August was held in the wood-paneled Map Room on the first floor of the E.P.A. headquarters, the same room where Mr. Trump had signed an executive order backed by big business that called for the agency to dismantle environmental protections.

Dr. Beck was among those who spoke. She thanked Ms. Hamnett for her decades of service. "I don't know what I am going to do without her," she said, according to multiple people who attended the event.

Ms. Hamnett, in an interview, said she had little trouble envisioning the future under the new leadership. "It's time for me to go," she said. "I have done what I could do."

Dr. Beck

Dr. Beck (pictured above) testifying at a Senate hearing in March. She joined the E.P.A. in May after working as an executive at the American Chemistry Council, the chemical industry's main trade association.

Why Has the E.P.A. Shifted on Toxic Chemicals? An Industry Insider Helps Call the Shots

A scientist who worked for the chemical industry now shapes policy on hazardous chemicals. Within the E.P.A., there is fear that public health is at risk. (Above, a signing ceremony for new rules on toxic chemicals.)

A bridge over the Delaware River in Trenton, N.J., says, "Trenton Makes, the World Takes." The Roebling Steel Company plant brought prosperity to the region, but also contaminated soil and groundwater with hazardous chemicals.

'Unreasonable Risk of Injury'

Industrial waste, including highly toxic PCBs, led to fish kills in the Hudson River. Chemicals from flame retardants were detected in livestock in Michigan, contaminating food across the state. And residents in Niagara Falls, N.Y., first started to notice a black, oily liquid in their basements, early hints of one of the worst environmental disasters in United States history: Love Canal.

President Gerald R. Ford signed the Toxic Substances Control Act in October 1976, giving the E.P.A. the authority to ban or restrict chemicals it deemed dangerous. It was hailed as a public health breakthrough.

"For the first time, the law empowers the federal government to control and even to stop production or use of chemical substances that may present an unreasonable risk of injury to health or environment," a federal report said.

A few years later, after graduating from George Washington University Law School in 1979, Ms. Hamnett landed at the E.P.A. She arrived fully embracing its enhanced mission.

She had grown up in Trenton, where the words "Trenton Makes, the World Takes" are affixed in neon to the side of a railroad bridge spanning the Delaware River.

Her childhood memories included passing by the 200-acre Roebling Steel Company plant — named after the designer of the Brooklyn Bridge. At its peak, the plant was Trenton's largest employer, and it helped spread prosperity to the region.

But the company was also a chronic polluter. For decades, it dumped arsenic, chromium, lead and other hazardous chemicals, contaminating soil and groundwater. Ultimately, the pollution was so pervasive that the E.P.A. declared the property a Superfund cleanup site.

It was this legacy, as well as the congressional directive to the E.P.A. to protect the public from harm, that Ms. Hamnett said guided her.

During the Bush administration, she was drawn into a contentious debate involving lead paint that highlighted her resolve — and that of her opponents.

Few environmental hazards are as well understood as the dangers of lead in paint. Since it was first used in homes in the United States, more than a century ago, it has poisoned children. Even after it was banned in the late 1970s, it remained a threat, particularly when renovations took place in the tens of millions of homes with lead-based paint.

The E.P.A. set out to establish standards governing home renovations, and Ms. Hamnett came to the discussions with a strong perspective.

"What is the effect of exposure likely to be?" she recalled asking. "If it is likely to be a severe effect and result in a significant number of people exposed, if so, I am going to err on the side of safety."

While the evidence was solid that lead caused learning disabilities and other problems for children, it was less definitive on whether it was also a factor in adult diseases.

To Ms. Hamnett and her colleagues, the results of multiple studies were compelling enough to establish an apparent link to cardiovascular disease in adults. They concluded in a report in 2006 that there was "stronger evidence for a relationship between lead exposure and blood pressure for adults," citing it as a factor for aggressive safety requirements.

The home renovation industry filed protests over the "inappropriate and costly" rule with the Bush administration and Congress. Taking up its cause was a White House official with a reputation for assessing risk much differently: Dr. Beck.

Throwing 'Sand in the Gears'

As the Bush administration took office, John D. Graham, who ran the White House office overseeing regulations, unveiled a plan to ease the government's burden on business by reining in "the regulatory state."

To that end, Mr. Graham hired scientists to review major federal regulations and make recommendations about their worthiness, something the E.P.A. itself had done over the years.

Dr. Beck, Mr. Graham said, was an excellent addition to his staff.

She had grown up in Oyster Bay, N.Y., an affluent suburb on Long Island, earned an undergraduate microbiology degree in 1988 from Cornell and a doctorate from the University of Washington a decade later. Her dissertation, which examined how the sedative phenobarbital impacts the metabolism of the liver, started with words still relevant to her today: "Each day the human body is confronted with many potentially toxic substances in the form of food items, medicinal products and environmental agents."

She started her career at Estée Lauder, where she helped develop preservatives used to extend the shelf life of cosmetics, and also designed laboratory tests to determine if products caused adverse reactions when applied to skin.

When Mr. Graham hired her, she had been working as a science fellow at the E.P.A.'s center for environmental reviews. He described her as having "street smarts and thick skin," someone who did not need the limelight to be effective.

"Dr. Beck is easy to underestimate," Mr. Graham said in an email.

When the proposed lead paint rule came along in 2006, Dr. Beck, in her White House role, pressed Ms. Hamnett and others in the E.P.A. to revise the language to diminish the link to cardiovascular disease in adults, Ms. Hamnett recalled, before letting the rule go into effect.

That was one marker in Dr. Beck's journey to redefine the way the government evaluates risk. Though they repeatedly found themselves on opposite sides, Ms. Hamnett said that, in a way, she admired Dr. Beck's effort during those years.

She described Dr. Beck as a voracious reader of scientific studies and agency reports, diving deep into footnotes and scientific data with a rigor matched by few colleagues. She combed through thousands of comments submitted on proposed rules. And she had a habit of reading the Federal Register, the daily diary of new federal rules.

All of it made Dr. Beck an intimidating and confident adversary, Ms. Hamnett recalled. "She's very smart and very well informed," she said.

But there was a destructive side to that confidence, others said. In particular, Dr. Beck was seen as an enemy of scientists and risk assessors at the E.P.A., willing to challenge the validity of their studies and impose her own judgment, said Robert M. Sussman, a lawyer who represented chemical industry clients during the Bush administration and later became an E.P.A. lawyer and policy adviser under the Obama administration.

"Her goal was to throw sand in the gears to stop things from going forward," said Mr. Sussman, who now is counsel to Safer Chemicals, Healthy Families, a coalition of consumer and environmental groups.

Jack Housenger, a biologist who served as the director of the E.P.A.'s pesticide program, had a more positive recollection. He said Dr. Beck asked reasonable questions about his findings related to a wood preservative used in playgrounds and outdoor decks that was being pulled from the market.

"She wanted us to present the uncertainties and ranges of risk," said Mr. Housenger, who retired this year. "She was trying to understand the methodology."

Paul Noe, a lawyer who worked with Dr. Beck during the Bush administration, also said her critics got her wrong.

"What you really want to do as a government is to set priorities," he said. "If you don't have a realistic way of distinguishing significant risks from insignificant ones, you are just going to get bogged down and waste significant resources, and that can impede public health and safety."

One of the harshest criticisms of Dr. Beck's tenure in the Bush White House came in 2007 from the nonpartisan National Academy of Sciences, which examined a draft policy she helped write proposing much stricter controls over the way the government evaluates risks.

"The committee agrees that there is room for improvement in risk assessment practices in the federal government," the review said, but it described Dr. Beck's suggestions as "oversimplified" and

"fundamentally flawed." It recommended her proposal be withdrawn.

Dr. Beck was so aggressive in second-guessing E.P.A. scientists that she became central to a special investigation by the House Committee on Science and Technology.

The committee obtained copies of her detailed emails to agency officials and accused her of slowing progress in confirming drinking-water health threats presented by chemicals like perchlorate, used in rocket fuel. "Suppression of Environmental Science by the Bush Administration's Office of Management and Budget," the committee wrote in 2009, before describing Dr. Beck's actions.

The opposition became so intense that Dr. Beck's efforts started to get shut down.

First, the new risk assessment policy she had proposed was formally withdrawn. Then, after Mr. Obama took office in 2009, Mr. Sussman recalled going to the White House along with Lisa P. Jackson, the new E.P.A. administrator, to ask for a commitment to curb Dr. Beck's power.

"We told them that we need the White House out of the E.P.A. science program," Mr. Sussman said. "We demanded that. And we got it."

Continuing the Fight

During Mr. Obama's first term, Dr. Beck left the White House for the American Chemistry Council, whose members include Dow, DuPont and dozens of other major manufacturers and chemical companies.

E.P.A. records show her challenging the agency's scientific conclusions related to arsenic (used to manufacture semiconductors), tert-Butanol (used in perfumes and as an octane booster in gasoline), and 1-bromopropane (used in dry cleaning).

Her point was often the same: Did the scientists producing work that federal regulators relied on adequately justify all of the conclusions about any risks?

"Scientists today are more prolific than ever," she said in a November 2014 presentation, later adding that "unfortunately, many of the scientific studies we read about in the news were not quite ready for prime time."

But at the same time, the industry was confronting a much larger existential problem.

E.P.A. and government-funded academic researchers were raising serious health questions about the safety of a range of chemicals, including flame retardants in furniture and plastics in water bottles and children's toys. Consumer confidence in the industry was eroding.

As the trade association's senior regulatory scientist, she was perfectly positioned to continue her second-guessing of the E.P.A.'s science.

Now her detailed criticisms of the agency came on trade association letterhead and in presentations at agency meetings and events.

"If the same person says the same thing three times, does this create a weight of evidence?" Dr. Beck said in a presentation in 2013, essentially mocking the scientific standards at the agency.

Some state legislatures, frustrated by the E.P.A.'s slow response and facing a consumer backlash, moved to increase their own authority to investigate and act on the problems — threatening the chemical industry with an unwieldy patchwork of state rules and regulations.

Dr. Beck and other chemical industry representatives were dispatched to the E.P.A. and Congress to press for changes to the federal regulatory system that would standardize testing of the most worrisome existing chemicals and improve and accelerate the evaluation of new ones.

The resulting law, passed last year with Democratic and Republican support, gave both sides something they wanted. The chemical industry got pre-emption from most new state regulations, and environmentalists got assurances that new chemicals would be evaluated on health and safety risks alone, not financial considerations.

It was the most significant overhaul of the Toxic Substances Control Act since its enactment in the 1970s, and once again Ms. Hamnett was prepared to help shepherd it into place. The task was shaping up to be what she considered her final, crowning act at the E.P.A.

Ms. Hamnett was invited to the Eisenhower Executive Office Building, a part of the White House complex, to be present as Mr. Obama signed the bill into law. She was so excited that she arrived early and sneaked up to the stage to look at the papers Mr. Obama would be signing.

President Barack Obama signing a chemical safety bill in June last year.

Turning the Tables

They gathered in early June around a long conference table at the E.P.A. headquarters, the sunlight shining in from Constitution Avenue. In the crowd were Dr. Beck, Ms. Hamnett and other top agency officials charged with regulating toxic chemicals, as well as environmentalists worried about last-minute changes to rules being pushed by the chemical industry.

Olga Naidenko, an immunologist specializing in children's health, said she was struck by the head-spinning scene. Dr. Beck, who had spent years trying to influence Ms. Hamnett and others to issue rules friendly to the chemical industry, was now sitting at the conference table as a government decision maker.

"I am running the show. I am now in the chair. And it is mine," Dr. Naidenko said, describing her impressions of Dr. Beck at the gathering.

The Obama-era leadership at the E.P.A., in its last weeks, had published drafts of two critical rules needed to start the new chemical program. The rules detailed how the agency would choose the most risky chemicals to be tested or evaluated and how the hazards should be judged.

It would be up to Mr. Pruitt, the new E.P.A. chief, and his team to complete the process in time for a June deadline, set in the legislation.

Dr. Naidenko, a staff scientist at the Environmental Working Group, was there to plead with the agency to ignore a request from the American Chemistry Council to make more than a dozen last-minute changes, some pushed by Dr. Beck while she was at the council.

Dr. Beck did not seem convinced, recalled Dr. Naidenko and one of her colleagues, Melanie Benesh, a lawyer with the same organization.

"Tell me why you are concerned. What is it about?" Ms. Benesh and Ms. Hamnett each said they recalled Dr. Beck saying.

In fact, behind the scenes, the deed was already done.

Before Dr. Beck's arrival, representatives from the E.P.A.'s major divisions had agreed on final wording for the rules that would be sent to the White House for approval. But they were told to wait until May 1, when Dr. Beck began her job as the acting assistant administrator for chemical safety.

Dr. Beck then spent her first weeks on the job pressing agency staff to rewrite the standards to reflect, in some cases, word for word, the chemical industry's proposed changes, three staff members involved in the effort said. They asked not to be named for fear of losing their jobs.

Dr. Beck had unusual authority to make it happen.

When she was hired by the Trump administration, she was granted the status of "administratively determined" position. It is an unusual classification that means she was not hired based on a competitive process — as civil servants are — and she was also not identified as a political appointee. There are only about a dozen such posts at the E.P.A., among the 15,800 agency employees, and the jobs are typically reserved for technical experts, not managers with the authority to give orders.

Crucially, the special status meant that Dr. Beck did not have to abide by the ethics agreement Mr. Trump adopted in January, which bars political appointees in his administration from participating for two years "in any particular matter involving specific parties that is directly and substantially related to my former employer or former clients, including regulations and contracts."

Her written offer of employment, obtained through a Freedom of Information Act request, also made it clear that Dr. Beck's appointment was junior enough not to require Senate confirmation, which would have almost certainly delayed her arrival at the agency and prevented her from making changes to the rules ahead of the June deadline.

None of these arrangements raised concerns with the E.P.A.'s acting general counsel, Kevin S. Minoli, who issued a ruling on her unusual employment status. Mr. Minoli saw Dr. Beck's background as a benefit, according to a memo he wrote that was reviewed by The Times.

"You have extensive prior experience with the regulated industry's perspective and are already familiar with (and may well have authored) A.C.C. comments now under consideration," he wrote, referring to the American Chemistry Council.

He added that Dr. Beck's "unique expertise, knowledge and prior experience will ensure that the agency is able to consider all perspectives, including that of the regulated industry's major trade association."

Getting Her Way

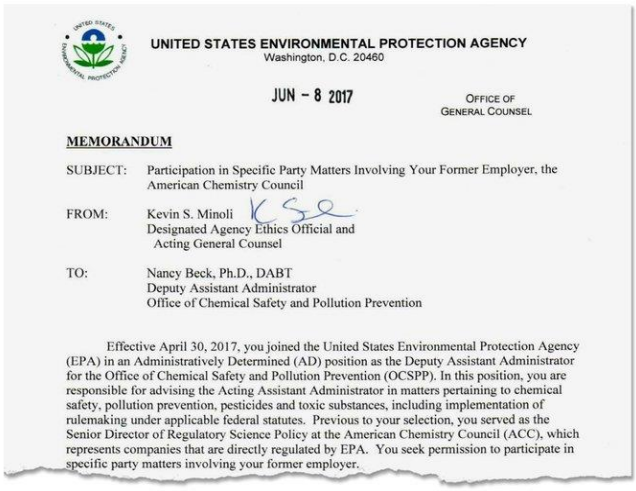
In the weeks leading up to the June deadline, Dr. Beck made clear what changes she wanted.

The conversations were polite, and Dr. Beck listened to counterarguments that Ms. Hamnett and her team made, Ms. Hamnett said. But in most cases, Dr. Beck did not back down, demanding a variety of revisions, particularly related to how the agency defined risks.

It all had a familiar ring. Ms. Hamnett and the others had fielded many of the same demands from the American Chemistry Council and from Dr. Beck herself when she worked there. Ms. Hamnett took detailed notes in spiral notepads, excerpts from which she showed The Times.

One area of contention was Dr. Beck's insistence that the E.P.A. adopt precise definitions of terms and phrases used in imposing rules and regulations, such as "best available science" and "weight of the evidence."

In a letter, an E.P.A. official addressed Dr. Beck's ability to be involved in matters affecting her former employer.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Washington, D.C. 20460

JUN – 8 2017

OFFICE OF GENERAL COUNSEL

MEMORANDUM

SUBJECT: Participation in Specific Party Matters Involving Your Former Employer, the American Chemistry Council

FROM: Kevin S. Minoli
Designated Agency Ethics Official and
Acting General Counsel

TO: Nancy Beck, Ph.D., DABT
Deputy Assistant Administrator
Office of Chemical Safety and Pollution Prevention

Effective April 30, 2017, you joined the United States Environmental Protection Agency (EPA) in an Administratively Determined (AD) position as the Deputy Assistant Administrator for the Office of Chemical Safety and Pollution Prevention (OCSPP). In this position, you are responsible for advising the Acting Assistant Administrator in matters pertaining to chemical safety, pollution prevention, pesticides and toxic substances, including implementation of rulemaking under applicable federal statutes. Previous to your selection, you served as the Senior Director of Regulatory Science Policy at the American Chemistry Council (ACC), which represents companies that are directly regulated by EPA. You seek permission to participate in specific party matters involving your former employer.

Others at the E.P.A., however, were stunned at the free pass given to Dr. Beck.

"It was a clear demonstration this administration has been captured by the industry," said Elizabeth Southerland, who served as the director of science and technology in the Office of Water until her retirement in July.

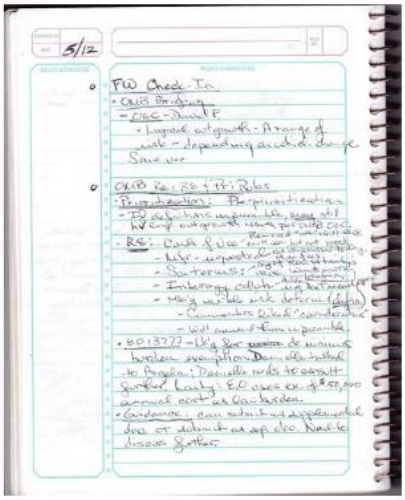
The agency had repeatedly rejected the idea, most recently in January, in part because the definitions were seen as a disguise for opponents to raise legal challenges.

"These terms have and will continue to evolve with changing scientific methods and innovation," the agency said in a Jan. 17 statement in the Federal Register, three days before Mr. Trump was sworn in. "Codifying specific definitions for these phrases in this rule may inhibit the flexibility

and responsiveness of the agency to quickly adapt to and implement changing science."

Another area of dispute involved the "all uses" standard for evaluating health threats posed by chemicals. Under that standard, the E.P.A. would consider any possible use of a chemical when determining how to regulate it; Dr. Beck, like the chemical industry, wanted the E.P.A. to limit the evaluations to specific intended uses.

"There is no way we can look at thousands of uses," Dr. Beck told Ms. Hamnett in one meeting in mid-May, according to Ms. Hamnett and her notes. "We can't chase the last molecule."



Ms. Hamnett's notes from meetings where changes in toxic chemical rules were discussed at the request of Dr. Beck, who had a history of second-guessing the E.P.A.'s scientists.

As the June deadline under the new law approached, Dr. Beck took control of the rewriting herself, a highly unusual step at the E.P.A., where expert Civil Service employees traditionally hold the rule-writing pen.

Ms. Hamnett said she did not try to stop Dr. Beck given she had the support of the agency's new leadership.

Mr. Noe, the lawyer who worked with Dr. Beck during the Bush administration, was not involved in the rewriting of the new rules. But he said it was wrong to interpret Dr. Beck's actions as pro-industry; instead, he said, she was a defender of rigorous science.

"Anyone who would question Nancy's ability or integrity does not know her at all and just has a political ax to grind," he said.

Ms. Hamnett's handwritten notes, however, record increasingly urgent objections from across the agency, including from the Waste and Chemical Enforcement Division, the Office of Water and the Office of General Counsel.

"Everyone was furious," said Ms. Southerland, the official from the Office of Water. "Nancy was just rewriting the rule herself. And it was a huge change. Everybody was stunned such a substantial change would be made literally in the last week."

The general counsel's objections to the substance of the changes were among the most alarming.

Laurel Celeste, an agency lawyer, questioned whether the last-minute changes would leave the agency's rule-making open to legal challenges. Her objections were outlined in a memo reviewed by The Times that was marked "confidential attorney client communication. Do not release under FOIA," referring to the Freedom of Information Act.

Federal law requires rules to be a "logical outgrowth" of the administrative record. But Dr. Beck had demanded changes that the staff had rejected, meaning that the rule contained items that "differ so greatly from the proposal that they cannot be considered to be the 'logical outgrowth' of the proposal and the comments," Ms. Celeste said.

Her memo, sent by email on May 30 to Dr. Beck and more than two dozen agency scientists and staff members, also raised concerns about the preamble, an important piece of any regulation that must accurately reflect its contents.

"We are also concerned that, as currently drafted, the preamble lacks an adequate rationale for a number of final rule provisions that have changed significantly from the proposal," Ms. Celeste wrote.

The objections were strongly worded, but they fell short of an important legal threshold — the formal filing of a "nonconcurrence" memo — that would have triggered further review of Dr. Beck's actions. Several E.P.A. staff members said in interviews that they had been told by Mr. Pruitt's top deputies to air their concerns in so-called concur-with-comment memos, which put objections on the record but allowed the process to move forward.

The rules, with Dr. Beck's changes, were sent to the White House and approved by the June deadline. Mr. Pruitt assembled the team in late June for a brief ceremony to celebrate the completion of the work.

"Everybody here worked very, very hard," Ms. Hamnett said, as Mr. Pruitt signed his name, according to a video of the ceremony posted by the E.P.A.

'Not One of My Best Days'

Environmentalists were dismayed, but Ms. Hamnett emerged from the whirlwind process with some confidence that all was not lost.

While she disagreed with a number of Dr. Beck's changes, she trusted that the E.P.A. staff would maintain its commitment to honor Congress's intent in the 2016 legislation. That would translate into a rigorous crackdown on the most dangerous chemicals, regardless of the changes.

But her confidence in the E.P.A.'s resolve was fragile, and it had been shaken by other actions, including the order Ms. Hamnett received to reverse course on banning the pesticide chlorpyrifos.

The order came before Dr. Beck's arrival at the agency, but Ms. Hamnett saw the industry's fingerprints all over it. Mr. Pruitt's chief of staff, Ryan Jackson, instructed Ms. Hamnett to ignore the recommendation of agency scientists, she said.

The scientists had called for a ban based on research suggesting the pesticide might cause developmental disabilities in children.

Farm workers in a field picking berries. Chlorpyrifos, a pesticide blamed for developmental disabilities in children, is still widely used in agriculture. In March, Mr. Pruitt overrode agency scientists' recommendation to ban it.

To keep the pesticide on the market, under E.P.A. guidelines, the agency needed to have a "reasonable certainty" that no harm was being caused.

"The science and the law tell us this is the way to go," Ms. Hamnett said of a ban.

But the reaction from her superiors was not about the science or the law, she said. Instead, they queried her about Dow Chemical, the pesticide's largest manufacturer, which had been lobbying against a ban.

The clash is recorded in Ms. Hamnett notebook as well as in emails among Mr. Pruitt's top political aides, which were obtained by The Times.

"They are trying to strong arm us," Mr. Jackson wrote after meeting with Ms. Hamnett, who presented him with a draft petition to ban the pesticide.

Mr. Jackson, Ms. Hamnett's notebook shows, then asked her to come up with alternatives to a ban. He asserted, her notes show, that he did not want to be "forced into a box" by the petition.

Ms. Hamnett recorded Mr. Jackson's reaction to a pesticide ban in her notebook.

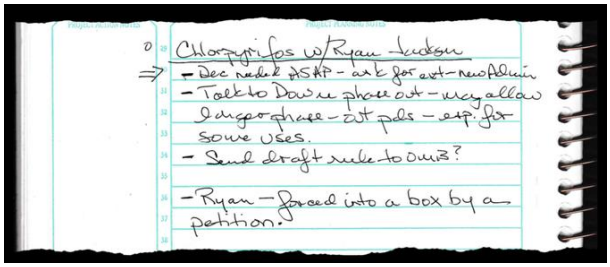
"I scared them," Mr. Jackson wrote in an email to a colleague about his demands on Ms. Hamnett and her team.

As a possible compromise, Ms. Hamnett's team had been talking to Dow about perhaps phasing out the pesticide instead of imposing an immediate ban. But Dow, after Mr. Trump's election, was suddenly in no mood to compromise, Ms. Hamnett recalled. Dow did not respond to requests for comment.

She now knew, she said, that the effort to ban the pesticide had been lost, something Mr. Jackson's emails celebrated.

"They know where this is headed," Mr. Jackson wrote.

Just over a week later, Ms. Hamnett submitted a draft order that would deny the request for a ban.



"It was hard, very hard," she said, worrying that the pesticide would continue to harm children of farmworkers. "That was not one of my best days."

The episode is one reason she worries the E.P.A. will defer to the chemical industry as it begins to evaluate toxic chemicals under the standards created by the new law. She became particularly concerned because of a more recent exchange with Dr. Beck over methylene chloride, which is used in paint removers.

After more than a decade of research, the agency had concluded in January that methylene chloride was so hazardous that its use in paint removers should be banned.

Methylene chloride has been blamed in dozens of deaths, including that of a 21-year-old Tennessee man in April, who was overwhelmed by fumes as he was refinishing a bathtub.

"How is it possible that you can go to a home improvement store and buy a paint remover that can kill you?" Ms. Hamnett asked. "How can we let this happen?"

Furniture-refinishing companies and chemical manufacturers have urged the E.P.A. to focus on steps like strengthening warning labels, complaining that there are few reasonably priced alternatives.

Ms. Hamnett said Dr. Beck raised the possibility that people were not following the directions on the labels. She also suggested that only a small number of users had been injured. "Is it 1 percent?" Ms. Hamnett recalled Dr. Beck asking.

Ms. Hamnett said she was devastated by the line of questioning.

After years of successfully fending off Dr. Beck and her industry allies, the balance of power at the agency had shifted toward the industry.

She had long planned to wrap up her work at the agency soon, as her husband, David, had retired three years ago. On Sept. 1, Ms. Hamnett turned in her badge and joined him.

Mr. Pruitt has selected a replacement for Ms. Hamnett: Michael L. Dourson, a toxicologist who has spent the last two decades as a consultant helping businesses fight E.P.A. restrictions on the use of potentially toxic compounds. He is already at work at the agency in a temporary post while he awaits Senate confirmation.

The American Chemistry Council, and its members, are among the top private-sector sponsors of Mr. Dourson's research. Last year, he collaborated on a paper that was funded by the trade group. His fellow author was Dr. Beck.

The E.P.A.'s Top 10 Toxic Threats, and Industry's Pushback

The Environmental Protection Agency has published a list of 10 toxic threats it will evaluate first under a law passed last year intended to crack down on hazardous chemicals. They are among 90 chemicals identified by the agency that may harm children, damage nerve tissue, cause cancer, contaminate the environment, accumulate in the bloodstream or show up in consumer products. As the review begins, industry and other interest groups are urging the E.P.A. to limit any restrictions.

Asbestos

Where you may find it: Asbestos has not been manufactured in the United States since 2002, but imports surged last year, and it is still used in certain vehicle braking systems, asphalt roof coatings and gaskets. Asbestos is also commonly used by chlorine manufacturers.

How it could hurt you: Asbestos is associated with lung cancer and mesothelioma, a rare form of cancer that is found in the thin lining of the lung, heart, chest and abdomen.

Industry intervention: The trade group representing the chlorine industry, the American Chemistry Council, argues that "the few remaining uses for asbestos are tightly controlled," and that banning it would not do much to protect health.

1-Bromopropane

Where you may find it: 1-bromopropane is used as a refrigerant, a lubricant, a degreaser and a solvent in spray adhesives and dry cleaning. Its use in agricultural chemical manufacturing and foam-cushion manufacturing has also been reported.

How it could hurt you: Exposure can cause dizziness, headaches, slurred speech, confusion, muscle twitching, difficulty walking and loss of consciousness. Studies on animals suggest that exposure is also associated with reduced blood cell counts along with toxicity to the liver and the reproductive and nervous systems.

Industry intervention: The Alkylphenols & Ethoxylates Research Council, which represents companies that manufacture the chemical, argue that the E.P.A. should not consider health threats that occur when people do not follow warning labels.

Carbon Tetrachloride

Where you may find it: Carbon tetrachloride, a clear liquid with a sweet smell, was once used in refrigeration fluids, aerosol propellants, pesticides, cleaning fluids, spot removers and degreasing agents. Most of those uses have been banned, but it is still has industrial applications, such as manufacturing petrochemicals.

How it could hurt you: It can cause injuries to the liver and kidneys and, at high levels, can result in fatal damage to the brain and nervous system.

Industry intervention: Halogenated Solvents Industry Alliance argues that worker exposures are already regulated by Labor Department safety rules and that "occupational conditions of use do not pose an unreasonable risk."

1,4-Dioxane

Where you may find it: 1,4-dioxane is a flammable liquid with a variety of industrial applications, such as the manufacture of adhesives and sealants and other chemicals. It is used in paint strippers, dyes, greases, varnishes and waxes, and it can be found in antifreeze, aircraft de-icing fluids, deodorants, shampoos and cosmetics.

How it could hurt you: The E.P.A. says that the chemical is "likely to be carcinogenic to humans" and that it may cause kidney and liver damage. It is now often found at low levels in drinking water supplies.

Industry intervention: The American Cleaning Institute argues that while many consumer products may have small amounts of 1,4-dioxane, they are "extraordinarily low levels" and should be ignored.

Cyclic Aliphatic Bromide Cluster

Where you may find it: Cyclic aliphatic bromide cluster is a group of chemicals found in flame retardants, plastic additives and certain polystyrene foams used in the construction industry for thermal insulation boards.

How it could hurt you: People may be exposed to the chemicals from products and dust in the home. Animal test results suggest potential reproductive, developmental and neurological effects.

Industry intervention: The American Fuel & Petrochemical Manufacturers argues that the E.P.A. should not consider "potential of an accident or misuse, whether intentional or unintentional," when deciding to restrict these chemicals, as "misuse is not even predictable and should never be included in toxicological risk assessment."

Methylene Chloride

Where you may find it: Methylene chloride is used in pharmaceutical manufacturing and polyurethane foam manufacturing. It is also found in paint strippers, adhesives, metal cleaners and aerosol solvents. Many products are sold at home improvement stores.

How it could hurt you: Exposure can harm the central nervous system, with effects including dizziness, incapacitation and, sometimes, death. It is also linked to liver toxicity, liver cancer and lung cancer. It has been associated with dozens of deaths. The E.P.A., just days before the end of the Obama administration, proposed banning its use as a paint stripper because of these hazards.

Industry intervention: W.M. Barr & Company, the largest national manufacturer of solvents, removers, fuels and cleaning products, asked the E.P.A. to withdraw its proposed rule to ban methylene chloride in paint strippers, arguing that its products do "not present an unreasonable risk."

N-Methylpyrrolidone

Where you may find it: N-Methylpyrrolidone is a solvent used in petrochemical processing. It can be found in plastics, paints, inks, enamels, electronics, industrial and consumer cleaning products and arts and crafts materials.

How it could hurt you: It may pose a particular risk to women who are pregnant or of childbearing age, according to studies on animals that suggest delayed fetal development.

Industry intervention: The NMP Manufacturers Group argues that the chemical "is used in many industry sectors, in varied processes," and that it would be "unworkable for industry and unworkable for EPA" to evaluate them all.

Perchloroethylene

Where you may find it: Perchloroethylene, also known as perc, is a solvent widely used in dry-cleaning chemicals, automotive-care products, cleaning and furniture-care products, lubricants, greases, adhesives, sealants and paints and coatings.

How it could hurt you: High-level inhalation exposure is associated with kidney dysfunction, dizziness, headache, sleepiness and unconsciousness, while long-term inhalation exposure may affect the liver, the kidneys and the immune and reproductive systems. The E.P.A. has classified it as likely to be carcinogenic to humans, as it is associated with bladder cancer, non-Hodgkin lymphoma and multiple myeloma. It is also a drinking-water contaminant.

Industry intervention: The Drycleaning and Laundry Institute and the National Cleaners Association argue that "any future decision to reduce or phase out the use of perc in drycleaning will put an oppressive burden on thousands of cleaners" and that "sadly, in taking any radical regulatory action the EPA will be doing little to reduce the negligible risks associated with the use, while threatening the future viability of thousands of dry cleaners."

Pigment Violet 29

Where you may find it: Pigment Violet 29 is used in watercolors, acrylic paints, automotive paints, inks for printing and packaging, cleaning and washing agents, pharmaceuticals, solar cells, paper, sporting goods and industrial carpeting. It is also approved to be used in food packaging.

How it could hurt you: There are limited health studies, but preliminary work suggests "acute toxicity, eye irritation, skin irritation, skin sensitization," and perhaps reproductive and developmental toxicity.

Industry intervention: Color Pigments Manufacturers Association argues that it "does not pose any known hazard in any reasonably foreseeable use or misuse, and therefore cannot present an unreasonable risk."

Trichloroethylene - TCE

Where you may find it: Trichloroethylene, also known as TCE, is used to make a refrigerant chemical and remove grease from metal parts. It is also a spotting agent for dry cleaning and can be found in consumer products. The E.P.A., in the final days of the Obama administration, proposed a ban on its use in dry-cleaning chemicals, spot removers and aerosol degreasers.

How it could hurt you: It is associated with cancers of the liver, kidneys and blood. Animal studies suggest that it may also be a factor in birth defects, testicular cancer, leukemia, lymphomas and lung tumors. TCE is also a drinking-water contaminant.

Industry intervention: The Halogenated Solvents Industry Alliance, which manufactures the chemical, argues that the E.P.A. has conducted a "very deficient risk assessment." Pointing to one study the E.P.A. has used, the group says that "a single flawed study should not be the basis for the toxicological value that serves as the basis for regulation."