

A R T I C L E S

Environmental Deconfliction 2019: The National Defense Authorization Act for FY 2019

by Rachel Jacobson and
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Summary

As in prior years, the National Defense Authorization Act for Fiscal Year 2019 contains a variety of provisions setting U.S. Department of Defense priorities for energy, environmental, and natural resource issues. These include measures that touch on climate change and infrastructure investment, and that thus represent some degree of consensus on these often politicized topics. In this Article, the second in an annual series, the authors canvass how the Act addresses a host of issues in the areas of climate resiliency, energy management, hazardous substances, and environmental and natural resource management, and its implications for practitioners in these areas.

On August 13, 2018, at a ceremony at Fort Drum, New York, President Donald Trump signed into law the National Defense Authorization Act (NDAA) for Fiscal Year 2019.¹ Named for Sen. John S. McCain (R-Ariz.), who died 12 days after the bill bearing his name became law, the NDAA authorizes a total national defense budget of \$717 billion, including \$616.9 billion for the base Pentagon budget and \$21.9 billion for the U.S. Department of Energy's (DOE's) nuclear weapons programs. The NDAA also authorizes \$69 billion to fund U.S. war efforts, called overseas contingency operations. The 2019 NDAA was the product of a rapid bipartisan effort—the final version passed the U.S. House of Representatives on July 26 and the U.S. Senate on August 1. The last time that the NDAA was signed into law before the beginning of the fiscal year on October 1 was in 1997.²

The policy decisions the U.S. Congress makes through the NDAA—the substantial funds it authorizes and the direction it gives to the U.S. Department of Defense (DOD)—have worldwide ramifications.

The bill's global impact extends beyond traditional conceptions of defense and security. As the single largest energy consumer in the world, with industrial-scale operations at military bases, and with millions of acres of habitat under its purview, DOD's environmental and energy portfolio (and budget) dwarfs that of several federal agencies and has major implications for national energy, environmental, and natural resources policy.³ In fact, as we wrote in connection with the 2018 NDAA, the NDAA may be one of the most significant pieces of energy and environmental legislation most people have never heard of.⁴

The 2019 NDAA is no exception. Its almost 800 pages contain more than three dozen provisions setting DOD's priorities for energy, environmental, and natural resource issues. And it does so during a period of general legislative ossification. While political debates about climate change continue and plans for infrastructure investment move slowly, the NDAA takes significant steps in both areas—improving the resilience of DOD installations to meet climate change risks, preparing for a warming Arctic, authorizing DOD to invest directly in community infrastructure, and many others. It also authorizes millions of dollars to study the effects of fire-suppression chemicals called per-

1. John S. McCain National Defense Authorization Act for Fiscal Year 2019, H.R. 5515, 115th Cong. (2018), <https://www.congress.gov/bill/115th-congress/house-bill/5515/text>; Rachel Jacobson & Matthew F. Ferraro, *Top 5 NDAA Provisions on Energy and the Environment*, LAW360, Aug. 9, 2018, <https://www.law360.com/articles/1071770/top-5-ndaa-provisions-on-energy-and-the-environment>.
2. Frederico Bartels, *The Earliest Signing of the NDAA in 40 Years Is a Giant Step in Rebuilding the Military*, HERITAGE FOUND., Aug. 14, 2018, <https://www.heritage.org/defense/commentary/the-earliest-signing-the-ndaa-40-years-giant-step-rebuilding-the-military>.
3. STEVEN COHEN ET AL., SUSTAINABILITY POLICY 54 (2015).
4. Rachel Jacobson et al., *Congress' Overlooked Environmental Legislation*, LAW360, June 11, 2018, <https://www.law360.com/aerospace/articles/1052324>.

and polyfluoroalkyl substances (PFAS) that may pose a substantial litigation risk for DOD, corporate manufacturers, and others.⁵ Considering that all of this legislative activity falls under the umbrella of national security, the NDAA's energy and environmental policy choices do not map clearly onto familiar political labels.

In this Article, the second in a yearly series,⁶ we provide an overview of the 2019 NDAA's major provisions as they relate to energy, the environment, and natural resources. Those provisions can generally be grouped into four broad categories: (1) climate resiliency; (2) energy management; (3) hazardous substances; and (4) environment and natural resources management.

The 2019 NDAA yields many insights discussed in greater detail in this Article. Among the provisions analyzed—in addition to an update on reports that were required by the 2018 NDAA—the most significant are as follows:

Climate Resiliency

- *Wildfires.* In light of the recent devastating wildfires and a growing awareness that year-round fire seasons are the new normal, the NDAA declares that wildfires endanger national security and requires DOD to submit a report on the wildfire suppression capabilities of the military services. It also authorizes the transfer of aircraft from the U.S. Coast Guard to the state of California that will be retrofitted to dump fire retardant.
- *Disaster response.* DOD is frequently called upon to respond to natural disasters such as severe storm events. The NDAA directs a report to Congress on the use and availability of military installations for disaster response and requires DOD to create a database of the military's emergency response capabilities.
- *Preparing DOD installations for a changing climate.* The NDAA takes several steps to prepare military installations for the impacts of rising sea levels and other climate-related threats. It requires mitigation plans for new military construction in floodplains, authorizes nearly \$200 million for energy resilience and conservation programs, and authorizes funds for the maintenance of roads around military bases threatened by recurrent flooding.

- *Preparing for a warming Arctic Ocean.* National security threats are growing in the north as the Arctic Ocean warms and sea ice recedes. Accordingly, the NDAA authorizes the procurement of additional icebreaker vessels, requires the Secretary of Defense to submit an updated Arctic strategy, and provides millions of dollars to replace a conventional munitions maintenance facility in Alaska that has deteriorated due to permafrost thaw.

Energy Management

- *Energy security and energy resilience policies.* Last year's NDAA incorporated concepts of “energy security” and “energy resilience” into federal law. The 2019 NDAA further ingrains those concepts into law, reorienting a large portion of DOD energy policy toward those goals. At the same time, it also scales back DOD responsibilities for the development of alternative fuels, directing DOD to focus instead on “operational energy activities” that “promote the readiness of the armed forces” for military missions.
- *Energy resources on military installations.* For the first time, the NDAA allows military installations that generate energy through geothermal resources to retain 50% of the sale proceeds of that energy to support on-base energy or resilience projects that are coordinated with local authorities. These benefits may incentivize military bases to develop geothermal electric resources.
- *Wind farms.* The NDAA requires a study of the impact of wind farms on weather radars and military operations, and proposes options for mitigating the impact of wind farms on weather radars and operations.

Hazardous Substances

- *PFAS.* This law goes further than previous defense bills in funding health studies and remediating the effects of once-commonly used fire suppression chemicals called PFAS—specifically perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS). The NDAA authorizes \$10 million for a health study to be conducted by the Centers for Disease Control and Prevention's (CDC's) Agency for Toxic Substances and Disease Registry (ATSDR), and directs the Secretary of Defense to submit to Congress assessments on remediating PFAS contamination in drinking water and on the human health implications of PFAS exposure. And it authorizes the

5. See Annie Snider, *Inside a Corporate Giant's Fight to Thwart a Massive Pollution Tab*, POLITICO, Nov. 23, 2018, <https://www.politico.com/story/2018/11/23/political-chemicals-cleanup-3m-1012445>.

6. See Rachel Jacobson et al., *Environmental Deconfliction: The National Defense Authorization Act for Fiscal Year 2018 and Its Implications for Energy, Environment, and Natural Resources*, 18 ENERGY L. REP. 223 (2018).

military services to take measures to prevent PFAS chemicals from entering local water supplies.

- *Open burn pits.* The use of open burn pits to dispose of trash in Iraq and Afghanistan has led to widespread claims of illness among veterans and dozens of lawsuits. The NDAA requires DOD to study the feasibility of phasing out the use of burn pits and directs a major effort to educate veterans about a registry run by the U.S. government to gather information on the long-term health effects of the burn pits.

Environment and Natural Resource Management

- *Environmental cleanup.* The law authorizes funds to help clean up Agent Orange remnants in Vietnam, authorizes billions of dollars for DOE for the cleanup of nuclear weapons activities in the United States, and directs a review of defense environmental cleanup activities, among other actions.
- *Environmental conservation.* The NDAA clarifies that the Readiness and Environmental Protection Integration (REPI) program, which promotes public-private partnerships in conserving natural habitats near military bases, includes National Guard facilities. It also authorizes the withdrawal of parts of U.S. Marine Corps bases in California and Arizona from the public lands, essentially restricting how they can be sold or developed for mineral or geothermal leasing.
- *Installation management.* The law establishes policy for the environmental management and restoration of facilities controlled by DOD. Among other provisions, the NDAA directs DOD to prioritize the development of metrics that include an analysis of “full-spectrum” environmental impacts when determining what facilities to demolish on military installations.
- *Species management.* Federal law requires DOD to obtain permission from the National Marine Fisheries Service (NMFS) for the incidental take of marine mammals during military operations. Such authorizations are given for five-year intervals. The NDAA extends the length of time that the military can be authorized for incidental takes from five years to seven years if certain conditions are met.

I. Overview of Authorization and Appropriations Processes

Under the U.S. Constitution, Congress alone has the authority to appropriate money from the U.S. Treasury to fund the federal government.⁷ Congress exercises this authority through a two-step authorization-appropriations

process based on House and Senate rules. First, Congress enacts an *authorization* measure that authorizes the appropriation of funds for specific purposes. Second, Congress must enact an *appropriations* law (budget bill) to provide funds for the authorized agency, program, or activity.⁸ Both bills must be signed by the president to become law.

The House Armed Services Committee (HASC) and the Senate Armed Services Committee (SASC) have jurisdiction over the NDAA, which authorizes the appropriations of funds for DOD, nuclear weapons programs of DOE, and defense elements of the U.S. Intelligence Community. The NDAA also “establishes defense policies and restrictions, and addresses organizational administrative matters related to the DoD.”⁹ The HASC and SASC work in parallel. Each committee holds hearings and writes its own national defense authorizing legislation, both of which are then reconciled by a conference committee. Once both houses of Congress approve the reconciled bill, it is presented to the president for his signature.

The House and Senate approved the conference version of the 2019 NDAA on July 26 and August 1, 2018, respectively. It was presented to the president on August 3, 2018, and signed into law 10 days later.¹⁰ The reconciled bill authorizes about \$717 billion in total, which includes a base defense budget of \$639 billion for DOD and the national security programs of DOE. The NDAA also authorizes \$69 billion for overseas contingency operations.¹¹

As the authorization bill itself does not appropriate funding, DOD, along with other federal agencies, must rely on congressional passage of a spending bill to spend the money needed to implement authorized programs. In past years, congressional inability to pass a budget has meant that federal government spending was limited to the same levels as previously enacted under a “continuing resolution.”

However, on September 28, 2018, President Trump signed into law a \$670 billion defense spending bill, a so-called minibus appropriations measure that was part of a larger package of more than \$850 billion to fund the Education, Health and Human Services, and Labor Departments. The enactment of the appropriations bill before the start of the fiscal year meant that DOD did not have to

8. See BILL HENIFF JR., CONGRESSIONAL RESEARCH SERVICE, OVERVIEW OF THE AUTHORIZATION-APPROPRIATIONS PROCESS I (2012).

9. CONGRESSIONAL RESEARCH SERVICE, DEFENSE PRIMER: THE NDAA PROCESS I (2016).

10. Seung Min Kim, *Trump to Make New York Trip to Sign Defense Bill Named for John McCain*, WASH. POST, Aug. 7, 2018, https://www.washingtonpost.com/politics/trump-to-make-new-york-trip-to-sign-defense-bill-named-for-john-mccain/2018/08/07/12bb1d56-9a8f-11e8-b55e-5002300ef004_story.html; Congress.gov, *Actions Overview H.R.5515—115th Congress (2017-2018)*, <https://www.congress.gov/bills/115th-congress/house-bill/5515/actions> (last visited Jan. 2, 2019).

11. Press Release, U.S. Senate Committee on Armed Services, John S. McCain National Defense Authorization Act for Fiscal Year 2019 (July 23, 2018), <https://www.armed-services.senate.gov/imo/media/doc/FY19%20NDAA%20Conference%20Summary1.pdf>.

7. U.S. CONST. art. I, §9, cl. 7.

operate under a temporary funding measure for the first time in almost a decade.¹²

It was a significant achievement, made all the more remarkable given the legislative gridlock, irregular order, and acerbic partisan discourse that has come to characterize contemporary Washington. The NDAA is a complex law that makes grand policy statements in potentially contentious areas, like DOD's energy posture, the impacts of climate change, environmental cleanup, resource management, climate resiliency, and the health issues that can arise from legacy military practices. Like any complicated bill, it advances several goals at once, including satisfying myriad political interests, manifesting national strategies, and ensuring that the United States maintains the most powerful military in the world.

II. Climate Resiliency

A. Wildfires

The wildfires that have charred the western United States in 2018 have been extraordinarily destructive. As of this writing, about 8.5 million acres, an area larger than Maryland, have burned across the country.¹³ In California, from January 1, 2018, through December 2, 2018, 6,228 wildfires charred 876,225 acres of land.¹⁴ And “[s]ix of California's 10 most destructive wildfires on record have hit in just the past three years.”¹⁵ Human activity—from starting fires, to living close to wilderness, to forest management practices, to climate change that leads to rising average temperatures and drier forests—contributes to increased wildfire risk and to more fires that burn hotter and longer.¹⁶ The NDAA takes several important steps both to study and to transfer military assets to support fire suppression.¹⁷

I. Section 337—Report on Wildfire Suppression Capabilities of Active and Reserve Components

The NDAA takes the newsworthy step of expressing the sense of Congress that “wildfires endanger national

security.”¹⁸ It directs the Secretary of Defense to submit to Congress within three months of enactment “a report on the wildfire suppression capabilities within the active and reserve components of the Armed Forces, including the Modular Airborne Fire Fighting System Program, and interagency cooperation with the U.S. Forest Service and the Department of the Interior.”¹⁹

Pursuant to the NDAA, on November 14, 2018, the Assistant Secretary of Defense for homeland defense and global security transmitted the report on the military's wildfire suppression capabilities, entitled “Wildfire Suppression Capabilities of Active and Reserve Components,” to the SASC.²⁰ This report—and the one required by §1083 of the 2019 NDAA—are not available online but were provided for review by congressional staff.²¹

The report on wildfire suppression capabilities reviewed the federal government's role in wildland firefighting, interagency cooperation, and the Modular Airborne Fire Fighting System (MAFFS) program, which are portable fire-retardant delivery systems that can be inserted into military C-130 aircraft. The U.S. Department of Agriculture (through the Forest Service) “owns” the MAFFS equipment and supplies the fire retardant, while DOD provides the aircraft, flight crews, and maintenance and support personnel to fly fire suppression missions.²² The report observed that active military components “do not include units dedicated primarily to wildland fire suppression or to assisting civil authorities with wildland fire suppression” but active personnel “stand ready” to assist civil authorities when properly requested or directed.²³ Reserve components similarly do not include units dedicated primarily to wildland fire suppression.

The report notes that DOD C-130H and J aircraft modified to operate with MAFFS may be made available to support wildland fire suppression in accordance with a 2010 interagency agreement. That aircraft is stationed at the following locations:

- The Air National Guard (ANG) 146th Airlift Wing at Channel Islands
- ANG Station Oxnard, California
- The ANG 152d Airlift Wing at Reno ANG Base, Nevada
- The ANG 153rd Airlift Wing at Cheyenne ANG Base, Wyoming
- The Air Force Reserve (302d Airlift Wing at Peterson Air Force Base (AFB), Colorado)

12. See Claudia Grisales, *Trump Signs Defense Spending Bill With Largest Troop Pay Raise in 10 Years*, STARS & STRIPES, Sept. 28, 2018, <https://www.military.com/daily-news/2018/09/28/trump-signs-defense-spending-bill-largest-troop-pay-raise-10-years.html>. Because it funds additional agencies—including the atomic energy defense activities under DOE—the 2019 NDAA authorizes larger spending priorities than its appropriations counterpart legislation. See *id.*

13. Umair Irfan, *California's Wildfires Are Hardly "Natural"—Humans Made Them Worse at Every Step*, VOX, Nov. 19, 2018, <https://www.vox.com/2018/8/7/17661096/california-wildfires-2018-camp-woolsey-climate-change>.

14. Cal Fire, *Incident Information*, http://cdfdata.fire.ca.gov/incidents/incidents_stats (last modified Jan. 24, 2018).

15. Irfan, *supra* note 13.

16. *Id.*

17. See Rachel Jacobson & Matthew F. Ferraro, *War Against Wildfires a New Priority for House Armed Services Committee?*, THE HILL, Nov. 29, 2018, <https://thehill.com/opinion/national-security/418827-war-against-wildfires-a-new-priority-for-house-armed-services>.

18. 2019 NDAA §337(a).

19. *Id.* §337(b).

20. See Executive and Other Communications (Senate—November 13, 2018), U.S. OFFICIAL NEWS, Nov. 14, 2018.

21. We express our sincere appreciation to Wilmer Hale senior research and reference specialist Konrad Riecke and paralegal Towana J. Emamali for researching, reviewing, and summarizing these reports.

22. DOD, REPORT TO CONGRESS: WILDFIRE SUPPRESSION CAPABILITIES OF ACTIVE AND RESERVE COMPONENTS 4 (2018).

23. *Id.*

The report further explains that the governors of states with MAFFS-equipped C-130 airlift wings may order those aircraft and crews to assist with state wildland suppression missions if they are called up to active duty.²⁴

This report—written quickly at the NDAA’s direction—provides further evidence that Congress recognizes that wildfire suppression requires a whole-of-government approach, and that the military continues to play an important role to support these efforts.

2. Section 1083—Modification of Authority to Transfer Aircraft to Other Departments for Wildfire Suppression Purposes

To help battle the furious wildfires raging in California, the NDAA authorized the transfer of seven HC-130H aircraft from the Coast Guard to the state of California to be converted to firefighting air tankers.²⁵ Once converted, the air tankers will be capable of dropping at least 3,000 gallons of fire retardant on fires.²⁶

The transfer was originally part of 2013 legislation, and the 2019 NDAA increases the authorization for the program from \$130 million to \$150 million. The 2013 legislation had directed that the seven aircraft be modified into air tankers and transferred to the Forest Service, but the new law directs that they be transferred directly to California instead. Since 2013, at least two HC-130Hs “have come close to completing the modifications” to be firefighting air tankers, “but none of them have had retardant delivery systems installed, due primarily to delays in Air Force contracting,” according to a press report.²⁷

A bipartisan group of California’s congressional delegation wrote to Secretary of Defense James Mattis and Secretary of the Air Force Heather Wilson in August 2018 to urge DOD “to comply with the law as expeditiously as possible,” and asked that DOD provide Congress “with regular updates as the planes are being modified and transferred to the State of California.” They added: “These firefighting aircraft are absolutely vital to California’s efforts to combat the increasingly deadly wildfires that threaten our constituents.”²⁸

B. Disaster Response

DOD “plays a critical role in the national response to emergency events,” in the words of a former DOD official, providing critical support to civil authorities battling

wildfires, hurricanes, and other natural disasters.²⁹ For example, to help address the flooding and damage caused by Hurricane Florence in September 2018, the U.S. Army, Army Reserve, and National Guard committed to the response efforts more than 13,000 soldiers, 90 rotary-wing aircraft, 30 watercraft, and 3,000 vehicles from bases in Georgia, Kentucky, and New York designed for use in high water, in addition to medical, housing, and water purification resources.³⁰

I. Section 1072—Report on Use and Availability of Military Installations for Disaster Response

Against this backdrop, the NDAA directs the Secretary of Defense to produce a report to Congress on the use and availability of military installations for disaster response. The law directs the Secretary to submit that report to Congress promptly—no later than 90 days after the enactment of the NDAA. In it, DOD must identify, among other things, “each military installation that has been made available to the Department of Homeland Security for disaster response for the past 10 fiscal years,” “military installations assessed to be available in support of fast response to disasters,” and a description of the infrastructure, equipment, and personnel to be available for disaster response from these installations.³¹

Issued in November 2018, the report explains that from 2008 through 2018, the Department of Homeland Security (DHS) requested the use of 51 DOD installations in 22 states, four territories, and Washington, D.C., to stage disaster relief commodities (like water, meals, and blankets), supplies, equipment, and Federal Emergency Management Agency (FEMA) responders. Some bases were also used for the purpose of operating a FEMA joint field office, disaster recovery center, or public assistance processing center.³² The report stated that while almost any DOD installation may be made available to DHS for use in response to a disaster, “for planning purposes, DOD and FEMA have identified DOD installations that may be requested to support a major disaster response in each FEMA region.” It listed over 30 installations included because of their proximity to disaster areas, major transportation modes, and other features. They are as follows:³³

24. *Id.* at 5.

25. 2019 NDAA §1083(a)-(f).

26. Bill Gabbert, *Legislation to Transfer 7 Coast Guard HC-130H’s to CAL FIRE Lands on President’s Desk*, FIRE AVIATION, Aug. 4, 2018, <https://fireaviation.com/2018/08/04/legislation-to-transfer-7-coast-guard-hc-130hs-to-cal-fire-lands-on-presidents-desk/>.

27. *Id.*

28. Press Release, Office of Sen. Dianne Feinstein, Members of Congress to DOD: Speed Up Conversion of Fire Tankers (Aug. 15, 2018) (en-closing letter), <https://www.feinstein.senate.gov/public/index.cfm/press-releases?ID=F5980600-0EBA-4B8D-8EAC-5EAD36F3C656>.

29. Claudette Roulo, *DoD Plays Key Role in Disaster Response, Official Says*, DOD, Aug. 27, 2014 (quoting Todd M. Rosenblum, former Acting Assistant Secretary of Defense for Homeland Defense and Americas’ Security Affairs), <https://dod.defense.gov/News/Article/Article/603137/dod-plays-key-role-in-disaster-response-official-says/>.

30. *U.S. Army Continues Hurricane Florence Response Efforts*, U.S. ARMY, Sept. 16, 2018, https://www.army.mil/article/211198/us_army_continues_hurricane_florence_response_efforts.

31. 2019 NDAA §1072(a).

32. DOD, REPORT TO CONGRESS: USE AND AVAILABILITY OF MILITARY INSTALLATIONS FOR DISASTER RESPONSE 3 (2018).

33. *Id.* at 5.

Fort Rucker, Alabama	Dover AFB, Delaware
Maxwell AFB, Alabama	Elgin AFB, Florida
Eielson AFB, Alaska	Homestead AFB, Florida
Joint Base Elmendorf-Richardson, Alaska	MacDill AFB, Florida
Davis-Monthan AFB, Arizona	Naval Air Station Jacksonville, Florida
Luke AFB, Arizona	Naval Air Station Pensacola, Florida
Camp Pendleton, California	Patrick AFB, Florida
Edwards AFB, California	Fort Benning, Georgia
Naval Air Station Lemoore, California	Fort Stewart, Georgia
Naval Base—San Diego, California	Marine Corps Logistics Base Albany, Georgia
Naval Base—Ventura City, California	Marine Corps Base Kane'ohe Bay, Hawaii
Travis AFB, California	Pearl Harbor-Hickam, Hawaii
Vandenberg AFB, California	Wheeler Army Airfield, Hawaii
Buckley AFB, Colorado	
Fort Carson, Colorado	Mountain Home AFB, Idaho
Peterson AFB, Colorado	

By requiring this report, Congress indicated its determination to marshal all elements of national power to confront the seemingly increasing threat of natural disasters.

2. Section 1084—Improvement of Database on Emergency Response Capabilities

Since 2006, federal law has instructed the Secretary of Defense to maintain a “database of emergency response capabilities” that includes information on the types of emergency response capabilities that each state’s National Guard and DOD “may be able to provide in response to a domestic natural or manmade disaster.”³⁴

The 2019 NDAA amends the law to require DOD to establish the database not later than one year after the date of enactment. It also requires the database include information on the emergency response capabilities of the National Guard of each U.S. territory, and information on the cyber capabilities of certain National Guard and reserve units that DOD has identified as critical for response to domestic natural or man-made disasters. Finally, the provision clarifies that DOD may use an existing database or system to fulfill the requirement to establish a database if it will expedite satisfaction of the requirements and do so at no additional cost beyond creating a new database.³⁵

C. Preparing DOD Installations for a Changing Climate

The NDAA for 2018 expressed a sense of Congress that “climate change is a direct threat to the national security of the United States,” including DOD’s “mission resiliency”; and it directed DOD to prepare a report that, among other things, listed the 10 most vulnerable military installations within each service based on “effects of rising sea tides, increased flooding, drought, desertification, wildfires, thawing permafrost,” as well as “any other categories the Secretary determines necessary.”³⁶

In a similar vein, the 2019 NDAA “set[s] to work changing the rule on how DOD manages its installations to improve climate resilience.”³⁷

I. Section 2805—Updates and Modifications to Department of Defense Form 1391, Unified Facilities Criteria, and Military Installation Master Plans

First, §2805 sets new floodplain requirements on military construction. DOD uses a form, “DD Form 13910,” to submit requirements and justifications to Congress in support of funding requests for military construction.³⁸ The NDAA now requires that DD Form 13910 include a disclosure of whether a proposed construction project falls within or partially within a 100-year floodplain. If it does, DOD must include a mitigation plan and design the construction to assume an additional two feet above the base flood elevation, and three feet for mission-critical facilities.³⁹ This was originally a bipartisan stand-alone bill introduced by Sens. Jack Reed (D-R.I.), Jerry Moran (R-Kan.), and Brian Schatz (D-Haw.).⁴⁰

Second, §2805 requires incorporating changing environmental conditions into the Unified Facilities Criteria (UFC), which sets military construction design requirements.⁴¹ The law directs the Secretary of Defense to amend the UFC within 30 days of the NDAA’s enactment to incorporate into military construction designs climate change “projections from reliable and authorized sources,”

36. Rachel Jacobson et al., *Environmental Deconfliction: The National Defense Authorization Act for Fiscal Year 2018 and Its Implications for Energy, Environment, and Natural Resources*, 18-7 PRATT’S ENERGY L. REP. 223, 236 (2018) (quoting the 2018 NDAA).

37. John Conger, *U.S. Congress Addresses Climate Change and Security in the Latest Defense Bill*, CENTER FOR CLIMATE & SECURITY, Aug. 13, 2018, <https://climateandsecurity.org/2018/08/13/u-s-congress-addresses-climate-change-and-security-in-the-latest-defense-bill/>.

38. See U.S. Army Corps of Engineers, *DD1391 Processor System*, <https://www.hnc.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/482078/dd1391-processor-system/> (last visited Jan. 2, 2019).

39. 2019 NDAA §2805(a), (b).

40. Conger, *supra* note 37.

41. Whole Building Design Guide, *Unified Facilities Criteria (UFC)*, <https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc> (last visited Jan. 2, 2019).

34. 10 U.S.C. §113 note.

35. 2019 NDAA §1084(a).

including “the U.S. Global Change Research Office and National Climate Assessment.”⁴²

Third, §2805 requires DOD to consider “energy and climate resiliency efforts” in major military installation master plans.⁴³ (Master plans govern how a base is designed and where new construction will occur.)

Fourth, §2805 inserts into the U.S. Code a formal definition of “military installation resilience.” In short, the term is defined as “the capability of a military installation to avoid, prepare for, minimize the effect of, adapt to, and recover from extreme weather events, or from anticipated or unanticipated changes in environmental conditions” that may “adversely affect the military installation” or other necessary resources.⁴⁴

Finally, the NDAA grants the authority to spend DOD Office of Economic Adjustment (OEA) funds to address “threats to military installation resilience.”⁴⁵ OEA supports state and local governments’ responses to regional economic impacts from defense programs, such as base closures, base restructuring or realignment, compatible land and air needs, and other military-related activities that affect the economy of a region.

2. Section 2403—Authorization of Appropriations, Defense Agencies

DOD runs a program called the Energy Resilience and Conservation Investment Program that is specifically intended to fund military construction projects that “save energy and water, reduce DOD’s energy costs, improve energy resilience/security, and contribute mission assurance.”⁴⁶

Section 2403 authorizes more than \$193 million for the Energy Resilience and Conservation Investment Program—more than \$40 million more than the Administration requested. Clearly, Congress believes that funding projects to save energy and water and shrink DOD’s energy costs—while improving energy resilience and security—are important priorities.⁴⁷

3. Section 2865—Defense Access Roads Relating to Closures Due to Sea-Level Fluctuation and Flooding

Federal law already authorizes the Secretary of Defense to provide for the construction and maintenance of roads leading in and out of military and defense sites and to

“sources of raw materials” when the Secretary certifies that such roads are important to the national defense.⁴⁸ The NDAA expands that authority, making funds available to pay for the cost of mitigating the risks of recurrent flooding and sea-level fluctuations and for repairing damage caused to infrastructure by the same threats.⁴⁹

While the law does not state to which military bases this provision is aimed, among the installations likely to benefit from this provision is Naval Station Norfolk, Virginia, the home of the U.S. Navy’s Atlantic fleet. The base has struggled to cope with rising sea levels, and sections of the main road to and from the base are impassable due to flooding several times a year, according to reports, leaving some residents to consult with tidal charts before leaving for work or parking their cars overnight.⁵⁰

4. Section 2861—Defense Community Infrastructure Pilot Program

Section 2861 grants the Secretary of Defense permissive authority to make grants, enter into cooperative agreements, and supplement funds to assist state and local governments in addressing deficiencies in community infrastructure. The provision requires that the state or local government contribute not less than 30% of the funding for the community infrastructure project. The authority expires on September 30, 2023.⁵¹ While this provision is not directly related to climate or environmental issues, according to a former DOD official, “it certainly could be used to bolster the climate resilience of communities surrounding military bases, which in turn would improve the ability of those bases to deal with climate impacts.”⁵²

D. Preparing for a Warming Arctic Ocean

The NDAA signals increased congressional attention to the security challenges posed by a warming Arctic Ocean. With rapidly melting Arctic sea ice, and increases in trans-Arctic maritime traffic, the NDAA directs DOD to address this growing area of geopolitical competition in a number of ways.

I. Section 1071—Report on an Updated Arctic Strategy

The NDAA requires the Secretary of Defense to submit to Congress by June 1, 2019, an updated Arctic strategy to improve and enhance joint operations. This new report requires a comprehensive assessment of interagency and

42. 2019 NDAA §2805(c).

43. *Id.* §2805(d).

44. *Id.* §2805(e).

45. *Id.* §2805(f).

46. U.S. Army Corps of Engineers, *Energy Division—Energy Resilience & Conservation Investment Program*, <https://www.hnc.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/490653/energy-division-energy-resilience-conservation-investment-program-validation/> (last visited Jan. 2, 2019).

47. 2019 NDAA §2403 (authorizing appropriations for defense agencies’ military construction at the levels identified in §4601).

48. 23 U.S.C. §210(a)(1).

49. 2019 NDAA §2865(a), (b).

50. Nicholas Kusnetz, *Rising Seas Are Flooding Norfolk Naval Base, and There’s No Plan to Fix It*, INSIDECLIMATE NEWS, Oct. 25, 2017, <https://insideclimatenews.org/news/10252017/military-norfolk-naval-base-flooding-climate-change-sea-level-global-warming-virginia>.

51. 2019 NDAA §2861 (amending 10 U.S.C. §2391).

52. Conger, *supra* note 37.

interdepartmental approaches to the warming region. It must contain a “description of United States national security interests in the Arctic region,” an “assessment of the threats and security challenges posed by adversaries operating in the Arctic region, including descriptions of such adversaries’ intents and investments in Arctic capabilities,” and descriptions of the roles and missions of each military service, of their training capabilities, and of their strategies for sea, air, and ground operations, among other items.⁵³ Similarly, the law requires a report to Congress by March 1, 2019, outlining a new, whole-of-government strategy to respond to China’s increased Arctic activities.⁵⁴

2. Section 151—Procurement Authority for Additional Icebreaker Vessels

Section 151 authorizes DOD to procure for the Coast Guard six new icebreakers—maritime vessels specially equipped to traverse the Arctic Sea. It indicates the intent of Congress that the first such icebreaker be operable no later than fiscal year 2023 and that the rest enter service within a decade.⁵⁵

To put these numbers in context, in August 2018, the *Navy Times* reported that the Coast Guard had in its fleet only one heavy icebreaker, *The Polar Star*, and two Coast Guard cutters capable of accessing the polar regions. By contrast, Russia operates 46 breakers, with 11 under construction and four more planned, and China—which does not even border the Arctic Ocean—has three.⁵⁶ The six-fold increase in the number of ice breakers in the American fleet is striking evidence that Congress recognizes that warming ocean trends are inevitable and require significant investments in specialized military equipment to protect U.S. national security interests in an area of increased international competition.

3. Section 4601—Military Construction

The NDAA also provides \$15.5 million to replace a conventional munitions maintenance facility for the F-35 fighter jet currently located at Eielson AFB, which is southeast of Fairbanks, Alaska. According to a report by the Center for Climate and Security, “the existing facility suffered extensive damage from settlement caused by permafrost thaw.” Now, DOD must “perform an assessment of all structures in permafrost regions to anticipate future building losses and to evaluate the adequacy of construction standards in these regions given anticipated warming.”⁵⁷

III. Energy Management

A. Energy Security and Energy Resilience Policies

Title III, Subtitle B of the NDAA is entitled “Energy and Environment,” and it contains a number of provisions relating to DOD energy policies. As the largest government consumer of energy in the United States, with petroleum-based liquid fuels still composing approximately two-thirds of DOD’s consumption,⁵⁸ DOD has long recognized the need for and been a leader in pursuing renewable energy sources and energy-efficiency programs.⁵⁹ These sections of the 2019 NDAA—discussed below and elsewhere in this Article—address these and similar issues.

I. Section 312—Further Improvements to Energy Security and Resilience

The 2018 NDAA introduced into federal law new definitions of “energy resilience” and “energy security.” The inclusion of these definitions signaled a strategic focus on anticipating and mitigating disruptions in DOD energy supplies. Energy resilience is “the ability to avoid, prepare for, minimize, adapt to, and recover from . . . energy disruptions . . . to provide for mission assurance and readiness.” “Energy security” is “having assured access to reliable supplies of energy.”⁶⁰ The 2018 law relied on these concepts when imposing new congressional reporting requirements on threats to military activities from climate change and from food system vulnerabilities.

The 2019 NDAA makes significant further policy relating to energy security and energy resilience. Taken in total, the 2018 and 2019 NDAs have reoriented a large portion of DOD energy policy toward these twin goals.

First, the 2019 NDAA directs the Secretary of Defense to “establish metrics and standards for the assessment of energy resilience.” It also requires the Secretary of each military department “to perform mission assurance and readiness assessments of energy power systems for critical assets and supporting infrastructure.”⁶¹

Second, federal law already requires the Secretary of Defense to submit an annual DOD energy management report related to installations, energy management, energy resilience, and assurance.⁶² The 2019 NDAA directs the Secretary to include in the annual report—starting in fiscal year 2018 and continuing every fiscal year thereafter—“the energy security and resilience goals” of DOD and “the amount of critical energy load, together

53. 2019 NDAA §1071(b).

54. *Id.* §1261(b)(2)(v).

55. *Id.* §151(b).

56. Carl Prine, *Is the Coast Guard’s Icebreaker Project Doomed?*, NAVY TIMES, Aug. 3, 2018, <https://www.navytimes.com/news/your-navy/2018/08/04/is-the-coast-guards-icebreaker-project-doomed/>.

57. Conger, *supra* note 37.

58. *Military’s Shift Toward Renewable Energy*, ARMED WITH SCI., Aug. 12, 2015, <http://science.dodlive.mil/2015/08/12/militarys-shift-toward-renewable-energy/>.

59. COHEN ET AL., *supra* note 3, at 54.

60. Jacobson et al., *supra* note 36, at 229-30 (quoting the 2018 NDAA). The 2019 NDAA makes a small change to the definition of “energy resilience,” removing a reference to the ability to “task critical assets” as a goal of energy resilience. See 2019 NDAA §312(f) (modifying 10 U.S.C. §101(e)(6)).

61. 2019 NDAA §312(a) (modifying 10 U.S.C. §2911(b)).

62. 10 U.S.C. §2925(a).

with the level of availability and reliability by fiscal year the Department of Defense deems necessary to achieve energy security and resilience.⁶³

Third, specifically as it relates to government contracting, the NDAA now requires the energy management report to include a list of the energy-resilience projects planned and awarded by DOD.⁶⁴

Fourth, long-standing federal law related to contracts for energy or fuel for military installations⁶⁵ has allowed Secretaries of military departments to enter into power purchase agreements for up to 30 years for the provision and operation of energy production facilities on real property under the Secretary's jurisdiction or on private property. This long-standing authority was used aggressively during the Barack Obama Administration to procure long-term renewable energy for military bases to help meet each military department's goal of one gigawatt of renewable energy by 2025.⁶⁶ The NDAA amends this law and directs Secretaries of military departments relying on long-term contracting authorities to "ensure energy security and resilience are prioritized and included in the provision and operation of energy production facilities."⁶⁷

Fifth, federal law already allows the Secretary of a military department to convey a utility system, or part of a utility system, under the military's jurisdiction "to a municipal, private, regional, district, or cooperative utility company or other entity."⁶⁸ The 2019 NDAA now requires the conveyee to manage and operate the utility system in a manner "consistent with energy resilience and cybersecurity requirements and associated metrics."⁶⁹ This is an example of how DOD's energy and resiliency goals will have a direct influence on domestic policy, even at the local utility level.

Sixth, federal law had allowed the Secretary of Defense to authorize any military installation to accept "any financial incentive, goods, or services generally available from a gas or electric utility, to adopt technologies and practices that the Secretary determines are in the interests of the energy performance goals for" DOD. The 2019 NDAA amended that language by inserting after "generally available from": "a State or local government [gas or electric utility]." This change means that a military installation will be able to benefit from performance incentives from energy-efficiency investments on military bases, much like a homeowner who receives an incentive from the state or local government to install solar panels on his or her roof.⁷⁰

Seventh, federal law allows DOD to use the money it saves from energy cost savings. Section 312 revises how that money will be used. Under the new version of the law, one-half of the amount of savings must be used for the implementation of additional energy resilience, mission assurance, weather damage repair and prevention, energy conservation, and energy security measures, "including energy resilience and energy conservation construction projects" at DOD installations.⁷¹

Finally, under the REPI program, the Secretary of Defense or the Secretary of a military department may enter into an agreement with certain entities to limit encroachments and other constraints on military property or military installations. It may do so if limiting development or other incompatible uses of such nearby property would promote the military mission or preserve the environmental habitat on the property.⁷² This section of the 2019 NDAA introduces into the REPI program the concept of preserving "military installation resilience" as the basis of entering into REPI agreements.⁷³ As discussed above, "military installation resilience" is a term of art that the NDAA generally defines as the capability of a military installation to avoid, prepare for, minimize, adapt to, and recover from "extreme weather events" or from "changes in environmental conditions."⁷⁴

2. Section 314—Operational Energy Policy

Until passage of the 2019 NDAA, federal law directed the Assistant Secretary of Defense for Energy, Installations, and Environment, in consultation with the heads of military departments and the Assistant Secretary of Defense for Research and Engineering, to "lead the alternative fuel activities" of DOD, make recommendations regarding the development of alternative fuels, and prescribe policy to streamline the investments in alternative fuel activities across DOD. While the law did not mandate the use of alternative fuels, it certainly recognized as worthy the establishment of an alternative fuels program that would carefully consider and analyze their use.

Section 314 alters the law to essentially eliminate the alternative fuels program by striking references to "alternative fuel" and replacing them with references to "operational energy activities" that "promote the readiness of the armed forces for their military missions" and "improve warfighting capability through energy security and energy resilience," among other activities.⁷⁵ The intent of §314 is to "provide a comprehensive operational energy policy and promote the development and acquisition of equipment that enhances energy security and energy resilience," according to the bill's conference report.⁷⁶ The intent

63. 2019 NDAA §312(b) (modifying 10 U.S.C. §2911(c)).

64. *Id.* §312(c) (modifying 10 U.S.C. §2925(a)).

65. 10 U.S.C. §2922(a).

66. See generally Timothy Gardner, *U.S. Military Marches Forward on Green Energy, Despite Trump*, REUTERS, Mar. 1, 2017, <https://www.reuters.com/article/us-usa-military-green-energy-insight/u-s-military-marches-forward-on-green-energy-despite-trump-idUSKBN1683BL>.

67. 2019 NDAA §312(d) (modifying 10 U.S.C. §2922(a)).

68. 10 U.S.C. §2688(a).

69. 2019 NDAA §312(e) (modifying 10 U.S.C. §2688).

70. *Id.* §312(g) (modifying 10 U.S.C. §2913(c)) (emphasis added).

71. *Id.* §312(h) (modifying 10 U.S.C. §2912(b)(1)).

72. See 10 U.S.C. §2684a(a).

73. 2019 NDAA §312(i) (modifying 10 U.S.C. §2684a(a)(2)(B)).

74. *Id.* §2805(e).

75. *Id.* §314 (modifying 10 U.S.C. §2926).

76. H.R. CONF. REP. NO. 115-874, at 832 (2018), <https://www.congress.gov/115/crpt/hrpt874/CRPT-115hrpt874.pdf>.

appears to be to place less emphasis on alternative fuels in developing DOD energy policy, and to rely instead on the more elastic concept of energy security and resilience, which is a broad theme of the new law and the NDAA that preceded it, passed in 2018.

B. Energy Resources on Military Installations

I. Section 313—Use of Proceeds From Sales of Electrical Energy Derived From Geothermal Resources for Projects at Military Installations Where Resources Are Located

There exists on some military bases energy resources and facilities, such as geothermal energy and solar power systems, that produce electrical energy that the base then sells to a utility company.⁷⁷ Traditionally, federal law has required that proceeds from those sales be credited not to the base itself where the energy originated, but to the military department overseeing the base.⁷⁸

But due to a provision in the NDAA backed by Reps. Kevin McCarthy (R-Cal.) and Paul Cook (R-Cal.), if the alternative energy that the military base uses to produce the electric energy is a *geothermal energy resource*, the military installation will be able to retain 50% of the sale proceeds to support “energy or water security projects directly coordinated with local area energy or groundwater governing authorities, for the military installation in which the geothermal energy resource is located.”⁷⁹

Press reports indicate that this provision was inserted specifically to benefit Naval Air Weapons Station China Lake in California, which uses geothermal resources on base to produce electricity that it sells to Southern California Edison.⁸⁰ Now, under the NDAA, the proceeds from these sales will support energy or water infrastructure projects on the base as coordinated with local authorities. Further, those proceeds will go directly to the base and not be “appropriated” by Congress, meaning they will not be subject to sequestration or continuing resolution acts in the normal course of federal funding. In essence, the revenue itself represents a renewable resource that will benefit the bases from which the energy is derived and sold, as well as the surrounding communities.

These benefits may incentivize other military bases to develop geothermal electric resources where possible that can generate a stable stream of revenue for the construction of energy- and water-related infrastructure projects.

2. Section 320—Production and Use of Natural Gas at Fort Knox, Kentucky

After an ice storm in 2009 knocked out power to the Army’s Fort Knox in Kentucky for five days, the fort overhauled its energy program. Since 2015, it has used its own natural gas resources to power itself. It was the first military installation to become independent of the power grid. Fort Knox’s homegrown energy program is expected to save the Army about \$8 million annually, according to a new report.⁸¹

Section 320 of the NDAA, which was championed by Kentucky’s congressional delegation, allows DOD to continue producing natural gas at Fort Knox. While the U.S. Department of the Interior (DOI) is typically responsible for energy development on all federal lands, this section transfers such authority to the Secretary of the Army to provide for the production, treatment, management, and use of natural gas located under Fort Knox, but with adherence to Bureau of Land Management regulations. It codifies “an exception for already successfully developed facilities which benefit Fort Knox and the surrounding communities,” Sen. Rand Paul (R-Ky.) said in a statement.⁸²

The Secretary of the Army’s authority can be applied to Fort Knox’s 26 natural gas wells. Also, in a break with the federal royalty regime, the law allows the state of Kentucky to receive royalties for the natural gas that are capped at \$49,000 per year.⁸³

C. Wind Farms and Petroleum Reserves

I. Section 318—Joint Study on the Impact of Wind Farms on Weather Radars and Military Operations

Section 318 requires the Secretary of Defense to enter into an agreement with the National Oceanic and Atmospheric Administration (NOAA) to conduct a study on the impact of wind farms (onshore or offshore) on weather radars and military operations. The study, due to Congress one year after the law was signed, will focus on options for mitigating the impact of wind farms on weather radars and operations. Such mitigation options include software and hardware upgrades to the wind farms, which NOAA

77. See *Military’s Shift Toward Renewable Energy*, *supra* note 58.

78. 10 U.S.C. §2916.

79. 2019 NDAA §313 (modifying 10 U.S.C. §2916(b)).

80. Jack Barnwell, *NDAA Includes Provision to Benefit China Lake Water, Energy Security*, DAILY INDEP., Aug. 3, 2018, <http://www.ridgecrestca.com/news/20180803/ndaa-includes-provision-to-benefit-china-lake-water-energy-security>.

81. *Fort Knox Goes Off the Grid to Test Historic Backup Power System*, WDRB, Oct. 24, 2018, <http://www.wdrb.com/story/39353089/fort-knox-goes-off-the-grid-to-test-historic-backup-power-system>; *Legislation Makes Fort Knox’s Energy Program Permanent*, NEWS-ENTERPRISE, July 29, 2018, http://www.thenewsenquirer.com/news/local/legislation-makes-fort-knox-s-energy-program-permanent/article_075dac8f-1cea-59ef-8cc2-2486debe81b7.html.

82. Press Release, Office of Sen. Rand Paul, Sen. Rand Paul Introduces Amendment to NDAA Allowing Continuation of Natural Gas Production at Fort Knox, <https://www.paul.senate.gov/news/sen-rand-paul-introduces-amendment-ndaa-allowing-continuation-natural-gas-production-fort-knox>.

83. 2019 NDAA §320(b).

and the National Weather Service have already researched and analyzed.⁸⁴

2. Section 3401—Authorization of Appropriations

The NDAA authorizes the Secretary of Energy to appropriate \$10 million for fiscal year 2019 for operation and maintenance of the Naval Petroleum Reserves, a stockpile of crude oil established to help protect the U.S. economy from severe petroleum supply interruptions.⁸⁵

IV. Hazardous Substances

A. Funding PFAS Study

1. Section 315—Funding of Study and Assessment of Health Implications of Per- and Polyfluoroalkyl Substances Contamination in Drinking Water by Agency for Toxic Substances and Disease Registry

PFAS—PFOA and PFOS—were once ubiquitous in commercial products and were used frequently by the military, especially in a foam commonly deployed to extinguish fires. Studies suggest that exposure may be injurious to human health among certain sensitive populations, including by potentially causing birth defects, certain cancers, and liver and thyroid damage.⁸⁶ Assessing safe PFAS exposure levels has attracted considerable attention from the environmental community and other concerned parties, including members of Congress, some states, and the public at large. While the PFOA and PFOS chemicals have largely been phased out of consumer products, they have more recently been detected in groundwater near facilities where fire retardant usage was common. In December 2016, DOD identified 393 DOD installations with known or suspected areas of PFOA/PFOS release.⁸⁷

The 2018 NDAA provided \$7 million for a study of the human health effects of PFOA and PFOS in drinking water and groundwater to be conducted by the CDC and the ATSDR, and it authorized the Navy and Air Force to perform environmental remediation related to PFOA and PFOS, providing more than \$72 million combined for groundwater remediation related to PFOA and PFOS.⁸⁸

84. *Id.* §318; Dan Cohen, *Wind Farm Study Would Assess Mitigation Options for Weather Radar, DOD Operations*, ASS'N DEF. COMMUNITIES, Aug. 6, 2018, <https://www.defensecommunities.org/blog/congress-dod/wind-farm-study-would-assess-mitigation-options-for-weather-radar-dod-operations/>.

85. 2019 NDAA §3401; DOE, Office of Fossil Energy, *Naval Petroleum Reserves*, <https://www.energy.gov/fe/services/petroleum-reserves/naval-petroleum-reserves> (last visited Jan. 2, 2019).

86. ATSDR, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, TOXICOLOGICAL PROFILE FOR PERFLUOROALKYLS (2018).

87. See Jacobson et al., *supra* note 36, at 227-28.

88. *Id.* at 228.

The 2019 NDAA goes even further. First, it authorizes increased funding to \$10 million total for the PFOA/PFOS health study.⁸⁹ Second, it directs the Secretary of Defense to submit to Congress an “assessment and remediation plan” six months after the administrator of the U.S. Environmental Protection Agency (EPA) establishes a maximum contaminant level for PFAS contamination in drinking water.⁹⁰ The DOD report is to contain a plan to assess any contamination at DOD installations and surrounding communities that may have occurred from PFAS usage by DOD; identify remediation actions DOD plans to undertake; provide an estimate of the cost of such remediation; and provide an assessment of past expenditures by local water authorities to address contamination before EPA established a maximum containment level, and an estimated cost to reimburse those communities for such expenditures.⁹¹

Third, the 2019 NDAA directs the Secretary of Defense to conduct an assessment of the human health implications of PFAS exposure. This report shall contain a “meta-analysis” that considers the current scientific evidence linking the health effects of PFAS to Armed Forces members who were exposed to PFAS at military installations; an estimate of the number of Armed Forces members who may have been exposed to PFAS during their service; the development of a process to facilitate the transfer of health information on impacted individuals between DOD and the U.S. Department of Veterans Affairs (VA); and a description of the amount of funding that would be required to administer a potential registry of individuals who may have been exposed to PFAS while serving in the Armed Forces.

Finally, the NDAA continues to authorize the services to address chemicals like PFAS and prevent them from entering local water supplies. Clearly, Congress is responding to pressure to take action against PFAS without waiting for the results of the mandated studies or the formal establishment by EPA of a maximum contaminant level for drinking water.

B. Open Burn Pits

During the wars in Iraq and Afghanistan, soldiers used open burn pits to dispose of trash. These burn pits allegedly exposed tens of thousands of veterans to toxic smoke, resulting in dozens of lawsuits against a government contractor who operated the pits at the government’s direction. Plaintiffs have alleged the burn pits burned everything from tires to batteries to medical waste, giving rise to gastrointestinal illnesses, neurological problems, respiratory problems, cancers, and other health issues in more than

89. 2019 NDAA §315(a).

90. EPA uses a multistep process for establishing maximum contaminant levels for drinking water culminating in a rulemaking. A rulemaking process for PFAS, which, as of November 2018 had not begun, could take years if and when it is initiated.

91. 2019 NDAA §315(b).

800 servicemembers.⁹² The VA concedes that “[s]moke from these pits contained substances that may have short- and long-term health effects, especially for those who were exposed for long periods or those more prone to illness such as individuals with pre-existing asthma or other lung or heart conditions.”⁹³

I. Section 355—Study on Phasing Out Open Burn Pits

Considering these ongoing health and liability issues, §355 requires the Secretary of Defense to report to Congress within 180 days of the NDAA’s enactment on the feasibility of phasing out DOD’s use of open burn pits.⁹⁴

2. Section 1050—Airborne Hazards and Open Burn Pit Registry

In response to reports from veterans of respiratory symptoms and other health conditions that they believe are related to burn pits, the VA created the Airborne Hazards and Open Burn Pit Registry for Veterans and Servicemembers to help study the long-term health effects of burn-pit exposure. Participation in the registry is voluntary, and its “enrollment questionnaire can be used to identify health concerns, guide discussions with a health care provider and document deployment-related exposures,” according to the VA.⁹⁵

The NDAA seeks to strengthen this registry by requiring the Secretary of Defense to carry out an annual education campaign to inform individuals who may be eligible to enroll in it. “Each such campaign shall include at least one electronic method and one physical mailing method to provide such information,” the law says.⁹⁶

C. Core Sampling for Hazardous Substances

I. Section 319—Core Sampling at Joint Base San Antonio, Texas

The NDAA requires the Secretary of the Air Force to conduct a core sampling study along the proposed route of a wastewater treatment pipeline on Air Force real property on Joint Base San Antonio “to determine if any regulated

or hazardous substances are present in the soil along the proposed route.” The report, which was championed by Sen. Ted Cruz (R-Tex.) and Rep. Henry Cuellar (D-Tex.), is due no later than 15 months after the law’s enactment.⁹⁷

V. Environment and Natural Resources Management

A. Environmental Cleanup

I. Section 1052—Authority to Transfer Funds for Bien Hoa Dioxin Cleanup

During the Vietnam War, the U.S. military sprayed an herbicide mixture known as Agent Orange across Vietnam. Agent Orange contained a chemical called dioxin, a highly toxic and persistent organic pollutant linked to cancers, diabetes, birth defects, and other disabilities that persists in parts of Vietnam and continues to affect Vietnamese people and American veterans who were exposed to these chemicals.⁹⁸

The largest remaining dioxin-contaminated hot spot in Vietnam is at Bien Hoa Airbase near Ho Chi Minh City, a former U.S. AFB that witnessed four major herbicide spills from December 1969 to March 1970.⁹⁹ The NDAA authorizes the Secretary of Defense to transfer up to \$15 million in each of fiscal years 2019 through 2027 to the Secretary of State to support a partially U.S. government-funded cleanup of dioxin at the Bien Hoa Airbase.

The cleanup is notable for a few reasons. First, it is rare for the U.S. government to fund environmental cleanup in a foreign country that was the site of U.S. military activities. This provision represents a remarkable exception. Second, the effort to assist Vietnam with the cleanup of dioxin is both a sign of and a contributor to the growing Vietnamese-American rapprochement that has seen in recent years a presidential visit to Vietnam,¹⁰⁰ the visit of a U.S. aircraft carrier for the first time in the decades since the war, and growing military ties between the two nations, driven in part by Chinese revanchism in the South China Sea.¹⁰¹ Third, it should not escape notice that the

92. Leo Shane III, *As Burn Pit Problems Linger, Advocates Worry VA and DoD Are Moving Too Slow*, MIL. TIMES, June 7, 2018, <https://www.militarytimes.com/veterans/2018/06/07/as-burn-pit-problems-linger-advocates-worry-va-and-dod-are-moving-too-slow/>; see also In re KBR, Inc., 893 F.3d 241 (4th Cir. 2018); Denise Lavoie, *Veterans Ask Court to Reinstate Lawsuits Over Burn Pits in Iraq, Afghanistan*, MIL. TIMES, May 9, 2018, <https://www.militarytimes.com/veterans/2018/05/09/veterans-ask-court-to-reinstate-lawsuits-over-burn-pits-in-iraq-afghanistan/>.

93. Doré Mobley, *Burn Pit Exposure? Sign Up Now in VA Registry*, VA, Oct. 30, 2014, <https://www.va.gov/health/newsfeatures/2014/october/burn-pit-exposure-signup-now-in-va-registry.asp>.

94. 2019 NDAA §355.

95. Mobley, *supra* note 93.

96. 2019 NDAA §1050(a).

97. *Id.* §319; Press Release, Office of Sen. Ted Cruz, Sen. Cruz: NDAA Fortifies Texas’ Position as a Pillar of America’s Defense (Aug. 13, 2018), https://www.cruz.senate.gov/?p=press_release&id=4032.

98. Aspen Institute, *What Is Agent Orange?*, <https://www.aspeninstitute.org/programs/agent-orange-in-vietnam-program/what-is-agent-orange/> (last visited Jan. 2, 2019).

99. *Biên Hoà Airbase Dioxin Remediation to Start*, VIET NAM NEWS, Jan. 24, 2018, <https://vietnamnews.vn/society/421773/bien-hoa-airbase-dioxin-remediation-to-start.html#3iHvvvAsuPp5Kvll.99>.

100. Daniel Malloy, *U.S. Helping Defuse Vietnam’s Dioxin Hot Spots Blamed on Agent Orange*, WASH. POST, Apr. 8, 2016, https://www.washingtonpost.com/world/asia_pacific/us-helping-defuse-vietnams-dioxin-hot-spots-blamed-on-agent-orange/2016/04/07/3be16152-fb65-11e5-80e4-c381214de1a3_story.html.

101. Jon D. Simkins, *Carl Vinson First Carrier to Visit Vietnam Since War*, NAVY TIMES, Mar. 5, 2018, <https://www.navytimes.com/news/your-navy/2018/03/05/carl-vinson-first-carrier-to-visit-vietnam-since-war/>.

dioxin cleanup provision is included in the defense policy bill named for the late Senator McCain, a former Vietnam War prisoner of war, who has long advocated for normalized and improved relations with the country.¹⁰²

2. Section 3102—Defense Environmental Cleanup

The NDAA authorizes the appropriation of \$5.6 billion to the DOE for fiscal year 2019 for defense environmental cleanup activities at DOE nuclear sites, roughly in line with the Administration's request.¹⁰³ This funding source "is the largest funding tranche for DOE's Office of Environmental Management, which oversees cleanup of legacy nuclear-weapons activities at 16 sites around the nation."¹⁰⁴

3. Section 3118—Hanford Waste Tank Cleanup Program

DOE's Hanford Site in southeast Washington State is home to 56 million gallons of chemical and radioactive waste stored in underground tanks, the result of more than four decades of plutonium production. The Office of River Protection (ORP) within DOE is responsible for the retrieval, treatment, and disposal of this waste in a safe, efficient manner. This river protection project "is the largest and most complex environmental remediation project in the nation," according to the ORP.¹⁰⁵ Under federal law, the ORP was set to terminate on September 30, 2019.¹⁰⁶ The NDAA extends the ORP until September 30, 2024.¹⁰⁷

4. Section 3115—Notification Regarding Air Release of Radioactive or Hazardous Material at Hanford Nuclear Reservation

The NDAA requires the DOE Assistant Secretary of Energy for Environmental Management to promptly notify and provide a briefing to the congressional defense committees after releases of radioactive material or hazardous material above statutory or regulatory limits from the Hanford, Washington, nuclear production complex.¹⁰⁸

102. Press Release, Office of Sen. John S. McCain, Restoration of Diplomatic Relations With Vietnam (July 11, 1995), <https://www.mccain.senate.gov/public/index.cfm/1995/7/post-a7591ed4-a6be-42c1-b052-9608391f21ef>.

103. 2019 NDAA §3102 (authorizing appropriations identified in §4701).

104. *Senate NDAA Covers DOE Request for Defense Environmental Cleanup*, EXCHANGE MONITOR, June 7, 2018, <https://www.exchangemonitor.com/senate-ndaa-covers-doe-request-defense-environmental-cleanup/>.

105. DOE, ORP, *Home Page*, <https://www.hanford.gov/c.cfm/Front/index.cfm/ORP> (last visited Jan. 2, 2019).

106. 50 U.S.C. §2622(e).

107. 2019 NDAA §3118.

108. *Id.* §3115 (modifying Subtitle C of Title XLIV of the Atomic Energy Defense Act, 50 U.S.C. §§2621 et seq.).

5. Section 3116—Amendments to the Atomic Energy Act of 1954

The NDAA makes several amendments to the Atomic Energy Act of 1954, which is "the fundamental U.S. law on both the civilian and the military uses of nuclear materials."¹⁰⁹

First, the NDAA addresses the sharing of information about so-called special nuclear material, which encompasses substances like plutonium and uranium. Federal law tightly controls the sharing of such information.¹¹⁰ It also makes it unlawful to engage in the development or production of such material outside the United States absent special circumstances or upon authorization of the Secretary of Energy after a determination that such activity will not be inimical to the interests of the United States.¹¹¹

Under federal law, the Atomic Energy Commission (AEC) is authorized to delegate various functions to the general manager "or other officers" of the commission.¹¹² But the NDAA clarifies that the AEC may not delegate authority relating to special nuclear material "with respect to enrichment and reprocessing of special nuclear material or with respect to transfers to any covered foreign country."¹¹³ A "covered foreign country" in this context includes adversaries Russia and China, along with other countries.¹¹⁴

Next, the NDAA establishes civil penalties for violations of "any provision" of the section of the Atomic Energy Act that prohibits the unauthorized handling of any special nuclear material.¹¹⁵

Finally, federal law requires the Secretary of Energy to submit a report to Congress on applications for authorizations of the transfer of U.S. civil nuclear technology to any foreign country.¹¹⁶ The NDAA slightly amends the requirements for that report by requiring the Secretary of Energy to identify any commission officer to which the authorization to grant licenses for the transfer of special nuclear material was delegated.¹¹⁷

109. U.S. Nuclear Regulatory Commission, *Governing Legislation*, <https://www.nrc.gov/about-nrc/governing-laws.html> (last updated May 21, 2018); 42 U.S.C. §§2011-2021, 2022-2286i, 2296a to 2296g-4.

110. U.S. Nuclear Regulatory Commission, *Special Nuclear Material*, <https://www.nrc.gov/materials/sp-nucmaterials.html> (last updated Mar. 28, 2017).

111. 42 U.S.C. §2077(b).

112. *Id.* §2201(n).

113. 2019 NDAA §3116(a).

114. Technically, a "covered foreign country" is a defined term in the NDAA, which means a "nuclear-weapons state" as defined by Article IX(3) of the Treaty on the Non-Proliferation of Nuclear Weapons. Under that treaty, a nuclear-weapon state is "one which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January, 1967." Those states are the United States (which detonated a nuclear weapon in 1945), Russia (1949), the United Kingdom (1953), France (1960), and China (1964). See Amanda Macias, *Nine Nations Have Nuclear Weapons: Here Is How Many Each Country Has*, INDEPENDENT (U.K.), Jan. 22, 2016, <https://www.independent.co.uk/news/world/nine-nations-have-nuclear-weapons-here-is-how-many-each-country-has-a6827916.html>.

115. 2019 NDAA §3116(b); see also H.R. CONF. REP. NO. 115-874, *supra* note 76, at 1119.

116. 42 U.S.C. §2077a(e).

117. 2019 NDAA §3116(c).

6. Section 3133—Review of Defense Environmental Cleanup Activities

The NDAA directs the Secretary of Energy to enter into an arrangement with the National Academies of Sciences, Engineering, and Medicine to conduct a review of the defense environmental cleanup activities of the Office of Environmental Management of DOE. The review will include an assessment of project management practices and recommendations to enhance the effectiveness and efficiency of the office's work, among others.¹¹⁸

B. Environmental Conservation and Species Management

1. Section 2827—Clarification to Include National Guard Installations in Readiness and Environmental Protection Integration Program

The REPI program works with the military services, private conservation groups, and state and local governments to help remove or avoid land use conflicts near military installations and address environmental restrictions that could inhibit military activities. As part of its efforts, REPI works to acquire easements to preserve land and natural habitats near military installations and ranges through private and public partnerships.¹¹⁹

Section 2827 of the 2019 NDAA clarifies that state-owned National Guard installations qualify as military installations under the federal statute that supports REPI private-public partnerships.¹²⁰

2. Section 2842—Authority for Transfer of Administrative Jurisdiction Over Certain Lands, Marine Corps Air Ground Combat Center Twentynine Palms, California, and Marine Corps Air Station Yuma, Arizona

Federal law allows certain, designated land to be “withdrawn” from appropriation under the public land laws.¹²¹ To withdraw public lands is to withhold them from settlement, sale, location, or entry for the purpose of limiting activities on that land.¹²² Section 2842 of the NDAA authorizes the Secretary of the Navy to transfer to the Secretary of the Interior, approximately 2,105 acres of non-contiguous parcels of land located in Marine Corps Air Ground Combat Center Twentynine Palms, California. (Altogether, that is land roughly two-and-a-half times the

size of New York City's Central Park.) Once the transfer is completed, the land will continue to be used for the Marine Corps base, but will be converted to public land “withdrawn” from appropriation under the public land laws. Similarly, this section also allows the Secretary of the Interior to transfer certain parcels of land at Marine Corps Air Station Yuma, Arizona, to the Secretary of the Navy. Such parcels will be withdrawn from disposition under all laws relating to mineral interests and to mineral and geothermal leasing.¹²³

What is the significance of these withdrawals? First, the Twentynine Palms Marine Corps installation, which in total is roughly the size of Rhode Island, had been largely previously withdrawn from appropriation. But within the massive base, there were a number of non-contiguous land parcels that were held by others, either by private parties or by the state. This NDAA provision formally consolidates all of those disparate parcels (often referred to as “in-holdings”) and withdraws them from appropriation. Second, the NDAA expands the Marine Corps installation in Yuma, Arizona, and subjects the new land to the withdrawal statute, meaning that third parties will not be able to exercise any legal rights to the land or its extractive resources.

3. Section 316—Extension of Authorized Periods of Permitted Incidental Takings of Marine Mammals in the Course of Specified Activities by Department of Defense

Pursuant to the Marine Mammal Protection Act (MMPA) of 1972,¹²⁴ DOD must obtain permission from NMFS, an agency under the auspices of NOAA, for the incidental take of marine mammals during military operations. Such authorizations are given by NMFS for five-year intervals, after which the military may seek new five-year authorizations for future incidental takes. The NDAA amends the MMPA by extending the length of time that the military can be authorized for incidental takes of marine mammals from five years to seven years upon a finding that such takes will have a negligible impact on any marine mammal species. The seven-year extension is a reduction from the version of the NDAA that passed the House, which had called for extending the authorization period to a decade. Environmental groups have expressed disappointment that the take authorization period was extended at all.¹²⁵

118. *Id.* §3133(a), (b).

119. See Jacobson et al., *supra* note 36, at 238-39.

120. 2019 NDAA §2827(a), (b) (expressing sense of Congress and amending 10 U.S.C. §2684a).

121. See §2941 of the 2014 NDAA (Pub. L. No. 113-66, 127 Stat. 672).

122. See generally 43 U.S.C.S. §1702(j).

123. 2019 NDAA §2842(a), (b).

124. 16 U.S.C. §§1361-1383b, 1401-1406, 1411-1421h, ELR STAT. MMPA §§2-410.

125. See, e.g., Courtney Columbus, *Policy Bill With Marine Mammal Rider on Its Way to President*, E&E NEWS, Aug. 1, 2018.

C. *Environmental and Land Management*

I. Section 317—Department of Defense Environmental Restoration Programs

Section 317 expresses the findings and sense of Congress on DOD environmental restoration programs. Specifically, the section expresses Congress' concern that 39,500 sites identified for environmental restoration "have had significant impacts on state and local governments that have had to bear the increased costs of environmental degradation, notably groundwater contamination, and local populations that have had to live with the consequences of contaminated drinking water, including increased health concerns and decreasing property values." It expresses the sense of Congress that DOD and the Armed Forces "should seek to reduce the financial burden on state and local government who are bearing significant costs of cleanup stemming from defense related activities," expedite cleanup where contamination is having direct impacts on civilian access to clean drinking water, and continue to engage with local communities to allay concerns about the safety of drinking water.¹²⁶ Finally, DOD should "seek opportunities to accelerate environmental restoration efforts" while "seeking opportunities for partnerships and other cooperative approaches."¹²⁷

2. Section 353—Scope of Authority for Restoration of Land Due to Mishap

Federal agencies—including DOD—own significant tracts of land in the United States. Sometimes that land is damaged by vessels, aircraft, or vehicles belonging to DOD or to other government agencies. Federal law grapples with who may restore land that is damaged due to such "mishaps."¹²⁸ Current law establishes that when land managed by a federal agency that is *not* DOD—typically DOI—is damaged because of a military vehicle, "the Secretary of Defense may, with the consent of the Federal agency, restore the land." Likewise, when DOD land is damaged by a vehicle that is managed by a federal agency that is *not* DOD, the other federal agency "may, with the consent of the Department of Defense, restore the land."

The 2019 NDAA amends the law to clarify that the authority to restore damaged land includes "activities and expenditures necessary to complete restoration to meet the regulations of the Federal department or agency with administrative jurisdiction over the affected land." The law notes that those regulations "may be different than the regulations" of DOD.¹²⁹

The root of this change in the law may lie in a long-standing dispute over a U.S. Air Force remotely piloted aircraft that crashed in White Sands National Monument, New Mexico, in February 2014. The National Park Service, a bureau of DOI, manages the monument. The crash site led to the closure of popular hiking trails in the monument until September 2017 as agencies squabbled over who was going to remediate the damage. The Air Force owned the plane and manages the nearby Holloman AFB from which the plane took off. For years, a "bureaucratic tangle," as a DOD official put it, stalled cleanup of the sand and soil that had been contaminated by the plane's spilled jet fuel.¹³⁰

While the bill's conference report did not say so explicitly, it stands to reason that §353 helps to resolve such bureaucratic turf wars by making it clear that the authority to restore land damaged in such a way is expanded "to meet the regulations" of the affected federal department that oversees the land. As the NDAA acknowledges, the standard for remediated land may be different for the National Park Service than DOD because the Park Service mission is related to preservation, and because it must anticipate civilian use for hiking and recreating.

3. Section 359—Prioritization of Environmental Impacts for Facilities Sustainment, Restoration, and Modernization Demolition

The DOD Facilities Sustainment, Restoration, and Modernization (FSRM) program provides funds to keep DOD's facilities "in good working order" through daily maintenance. "In addition, the program provides resources to restore facilities whose age is excessive or have been damaged by fire, accident, or natural disasters," as the Office of the Secretary of Defense describes the program.

Section 359 of the NDAA directs the Secretary of Defense to establish "prioritization metrics for facilities deemed eligible for demolition" within the FSRM process. In a sign of the importance of environmental issues, the NDAA directs that those metrics must include "full spectrum readiness and environmental impacts, including the removal of contamination."

4. Section 360—Sense of Congress Relating to Soo Locks, Sault Sainte Marie, Michigan

Section 360 of the NDAA expresses the sense of Congress regarding the "critical importance to the national security of the United States" of Soo Locks, Sault Sainte Marie,

126. While the text of the NDAA does not say so explicitly, this provision sounds as though it is related to the PFAS cleanup efforts discussed above.

127. 2019 NDAA §317(a), (b).

128. See 10 U.S.C. §2691(e).

129. 2019 NDAA §353.

130. Tara Melton, *White Sands Reopens Trails After RPA Crash Clean Up*, ALAMOGORDO DAILY NEWS, Sept. 7, 2017, <https://www.alamogordonews.com/story/news/local/2017/09/07/white-sands-reopens-trails-after-rpa-crash-clean-up/644312001/>; Steve Ramirez, *Clean Up Promised of Drone Crash Site at White Sands National Monument*, LAS CRUCES SUN-NEWS, Apr. 18, 2016 (quoting Acting Assistant Secretary of Defense Peter J. Potochney), <https://www.military.com/daily-news/2016/04/18/clean-promised-drone-crash-site-white-sands-national-monument.html>.

Michigan. The Soo Locks are the only waterway connection from Lake Superior to the Lower Great Lakes and the St. Lawrence Seaway, and only the Poe Lock is of sufficient size to allow for the passage of the largest cargo vessels that transport well over 90% of all iron ore mined in the United States, according to the NDAA. It noted that a report issued by DHS concluded that an unscheduled six-month outage of the Poe Lock would cause “a dramatic increase in national and regional unemployment,” a 75% drop in Great Lakes steel production, “and nearly all North American appliance, automobile, railcar, and construction, farm, and mining equipment production to cease.”¹³¹

The NDAA states that the Secretary of the Army and relevant federal agencies should expedite a U.S. Army Corps of Engineers study that would assess the benefit-to-cost ratio for building a new lock at the Soo Locks. It states Congress’ preference that this report’s analysis “adequately reflect[] the critical importance of the Soo Locks infrastructure to the national security and economy of the United States,” and that federal agencies “expedite all other necessary reviews, analysis, and approvals needed to speed the required upgrades at the Soo Locks.”¹³²

VI. Notable Provisions Not Adopted

Finally, we note two provisions that were not adopted in the NDAA’s final text.¹³³ First, §315 of the original House bill sought to narrow the conditions under which resources could be used to treat PFAS in drinking water. It listed five conditions that would need to be met to receive assistance, including that local water authorities would have to have requested assistance or developed a plan to treat these chemicals prior to March 1, 2018, and they would have to waive all claims against the United States and the National Guard for treatment expenses incurred before January 1, 2018. The omission of this section suggests that Congress is willing to consider opening the public purse to support PFAS remediation and has not, at least not yet, sought to explicitly shield the government from legal liability related to costs of treatment.

Second, the original House bill contained a provision (originally §314) that would have prohibited listing the greater sage-grouse and the lesser prairie-chicken under the Endangered Species Act (ESA)¹³⁴ for a 10-year period. This section would also provide that the previous such listing of the American burying beetle may not be enforced or reinstated. Such a provision is part of a long-standing effort by opponents of the ESA to modify and weaken it through the NDAA process by attempting to argue that the ESA will impair military readiness. In the 2019 NDAA, such efforts were once again unsuccessful.¹³⁵

131. *Id.* §360(4).

132. *Id.* §360(5), (6).

133. See Jacobson & Ferraro, *supra* note 1.

134. 16 U.S.C. §§1531-1544, ELR STAT. ESA §§2-18.

135. The sage-grouse’s luck may be running out. In December 2018, the Trump Administration announced plans to open nine million acres of western land

VII. Reports Required by the 2018 NDAA

The 2018 NDAA mandates that DOD author a number of reports or studies. For example, as indicated in part above, the 2018 NDAA

- provides \$7 million for study of human health effects of PFAS in drinking water and groundwater, as discussed at greater length above¹³⁶;
- requires DOD to submit an addendum to a June 2017 report on groundwater contamination at DOD’s Industrial Reserve Plant in Bethpage, New York¹³⁷;
- requires DOD to prepare a report on the threat of climate change for DOD installations¹³⁸;
- requires DOD to submit a report to Congress on the national security implications of food system risks, including DOD’s assessment of policies and operational plans to address related national security implications¹³⁹; and
- requires the Secretary of Defense to submit to Congress a report on the hurricane damage affecting DOD assets and installations in 2017.¹⁴⁰

As of this writing, only one of the above reports—the “Addendum to 2017 Annual Report for Radiological Groundwater Impacts at Naval Weapons Industrial Reserve Plant Bethpage, New York”—is publicly available. The Bethpage report is an addendum to a report released in June 2017 that was required by the Water Infrastructure Improvements for the Nation Act of 2016.¹⁴¹ This addendum addresses potential releases by DOD of radium and radioactive material to groundwater near the former Navy-owned, Northrop Grumman-operated Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage and the separate former Northrop Grumman-owned and operated industrial facility adjacent to the former NWIRP Bethpage.¹⁴² According to the addendum, “[s]everal radioactive materials, including radium, were reportedly used by Northrop Grumman in product testing, research, and development, and for making product quality assurance and quality control oriented measures at the NWIRP Bethpage and Northrop Grumman facilities.”¹⁴³

to drilling and mining by stripping protections from the sage-grouse. The Trump Administration proposal, which should be finalized in 2019, would limit the most protected areas of sage-grouse habitat to 1.8 million acres and eliminate a requirement that companies pay into a habitat preservation fund when drilling in restricted areas. See Coral Davenport, *Trump Drilling Plan Threatens 9 Million Acres of Sage Grouse Habitat*, N.Y. TIMES, Dec. 6, 2018, <https://www.nytimes.com/2018/12/06/climate/trump-sage-grouse-oil.html>.

136. Jacobson et al., *supra* note 36, at 228 (analyzing 2018 NDAA §316).

137. *Id.* at 234-35 (analyzing 2018 NDAA §318).

138. *Id.* at 236 (analyzing 2018 NDAA §335).

139. *Id.* at 236-37 (analyzing 2018 NDAA §1075).

140. *Id.* at 238 (analyzing 2018 NDAA §2878).

141. Pub. L. No. 114-322 (2016).

142. ADDENDUM TO 2017 ANNUAL REPORT FOR RADIOLOGICAL GROUNDWATER IMPACTS AT NAVAL WEAPONS INDUSTRIAL RESERVE PLANT BETHPAGE, NEW YORK 1 (2018).

143. *Id.* at 5-1.

However, the addendum finds that “the concentration of radium and other radioactive materials identified in groundwater in the vicinity of NWIRP Bethpage is consistent with naturally occurring levels normally found in the regional aquifer.”¹⁴⁴ It notes that, so far, research in the records for the facilities “did not find evidence of a radium or other radioactive material release that could have an effect on water quality in the NWIRP Bethpage Area,” but the report adds that the Navy is conducting a preliminary assessment and site inspection, which will include on-property groundwater sampling and analysis for radiological materials.¹⁴⁵ When those efforts conclude, the results will be evaluated to determine if further removal or remediation is warranted.¹⁴⁶

VIII. Conclusion

The 2019 NDAA was the most important piece of environmental and energy legislation adopted by Congress in 2018.

Its provisions aim to prepare DOD for the security fallout of a warming Arctic Ocean, reorient energy policy

toward maintaining “energy security” and “energy resilience,” and it directs significant efforts to study and mitigate the risks of exposure to PFAS chemicals. It also seeks to marshal military assets to battle wildfires, directs policy for the management and restoration of DOD land and facilities, and authorizes the appropriation of billions of dollars for radioactive and other environmental cleanups. In the face of significant litigation, the NDAA mandates an analysis of phasing out the use of open burn pits and seeks to gather more information on the health effects of their use from veterans. It seeks to ready the military to assist in future natural disasters, prepares DOD installations for climate change without wading into the political debate over humankind’s role in the change, and it clarifies programs to conserve natural habitats around military installations.

In a period when many doubt Congress’ ability to legislate, the NDAA offers a striking counterexample. For whatever flaws some will find in a massive piece of legislation, it represents a rare breed—a bipartisan, compromise bill that seeks to solve big problems in practical ways. And it was delivered ahead of schedule.

144. *Id.*

145. *Id.*

146. *Id.*