Fighting Chemicals with Chemicals: The Role and Regulation of Dispersants in Oil Spill Response

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For most Americans, and many American environmental lawyers, the tragic Deepwater Horizon oil spill of 2010 provided the first close-up look at the role that oil dispersants and surfactant chemicals (dispersants) play in modern-day oil spill response efforts. While dispersants have been used for decades, dispersants played a particularly pivotal, if controversial role, in the Gulf spill response, ostensibly helping to reduce the onshore impact of the release. Dispersants were a workhorse of the recovery effort, and in turn, arguably might be credited with limiting the land impacts of the largest spill in history. For some, however, the central role that chemical dispersants played in the Gulf cleanup effort is more a cause for question than credit. This article reviews the historic use and regulation of oil dispersants in oil spill cleanup operations and recent calls to impose new restrictions on dispersant use in the wake of the Gulf spill.

Dispersants are not a "direct cleanup method for oil spills" as they do not remove the oil from the environment. U.S. Environmental Protection Agency, *Use of Chemical Dispersants for Marine Oil Spills*, EPA/600/R-93/195 (Nov. 1993), at 1-2 (EPA 1993). Instead, they are one of several "control" methods to be considered based on factors, such as oil type, weather, quantity, and potential consequences of coastal impact. *Id.* at 10. Chemical dispersants break down spilled oil into very small droplets that mix vertically and horizontally in the water column, allowing microscopic organisms to act to degrade oil within the droplets and, thereby, presumably reduce the risk of adverse impacts to coastal resources. Used effectively, oil dispersants can reduce the coastal impact from a spill, hasten the post-spill recovery process for affected waters and shores, and reduce the need to resort to other, more damaging response methods.

Dispersants have been a critical oil spill response tool for decades, with use in over sixty documented spills worldwide, and twenty-five spills in or near U.S. waters. Incident News, National Oceanic and Atmospheric Administration (NOAA), Office of Response and Restoration, www.incidentnews.gov/ (last visited July 17, 2011) (searching reported incidents in which dispersants were evaluated and used). Even so, their use has not been without controversy. One of the first documented uses of dispersing agents occurred in 1967 during the response to the *Torrey Canyon* tanker spill off the English Coast. DOT, EPA, *The Exxon Valdez Oil Spill: A Report to the President*, Doc. No. OSWER-89-VALDZ, (May 1989) [herinafter Exxon Valdez Report], App. D-23. This early effort proved catastrophic, however, as the chemicals used in the effort—little more than industrial degreasing agents developed for cleaning tanks—resulted in an "ecological disaster" in which extensive mortalities of animals and algae occurred immediately, and the natural recovery was severely slowed and still incomplete in some areas ten years later. *Id.* at D-28.

Three years after the Torrey Canyon fiasco, Congress applied a "trust but verify" approach to dispersants in the 1970 Amendments to the Clean Water Act (CWA). 33 U.S.C. §§ 1251–1387, ELR STAT. FWPCA §§ 101-607 (1970). In addition to requiring development of a National Contingency Plan (NCP) to address the risk of future releases of oil and other hazardous substances, the new law directed the U.S. Environmental Protection Agency (EPA) to work with states to (1) identify "dispersants and other chemicals" for use in NCP response efforts, (2) identify the waters in which such dispersants and chemicals could be used, and (3) determine the quantities of such dispersant or chemical that could be used safely in such waters. In 1975, EPA promulgated regulations establishing the first data requirements, review standards, and listing procedures for substances proposed for inclusion on the dispersant list. EPA, *National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule*, 40 Fed. Reg. 6281, 6298 (Feb. 10, 1975) (codified at 40 C.F.R. § 300.115) (NCP).

Fifteen years later, spurred to action by the *Exxon Valdez* spill, Congress passed the Oil Pollution Act of 1990 (OPA), 33 U.S.C. §§ 2701-2761, ELR STAT. OPA §§ 1001-7001 (1990), to address perceived faults in the existing oil spill response framework. Unlike the 2010 Gulf spill response effort, dispersants were not a significant factor in the *Exxon Valdez* response, in part because appropriate dispersants and application equipment had not been kept readily available in sufficient quantity as part of the contingency plan. Exxon Valdez Report, *supra* note 3, at 17. OPA increased federal authority and flexibility in responding to spills and imposed additional responsibilities on companies and federal, state, and local governmental authorities to work together to develop contingency plans for responding to worst-case oil spills

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and other chemical releases. Contingency plans were to address the use of dispersants. *See, e.g.*, OPA at § 1011 (Consultation on Removal Actions), § 4202 (National Planning and Response System). EPA updated its dispersant regulations in 1994 to reflect this increased federal authority and related contingency planning obligations, but made no material changes to the regulatory review and listing process for dispersant chemicals. National Oil and Hazardous Substances Pollution Contingency Plan, 59 Fed. Reg. 47,384, 47,407 (Sept. 15, 1994).

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Today, the dispersant review and listing process remains relatively similar to the process first established thirty-five years ago. Manufacturers submit data on the composition, chemistry, physical properties, efficacy, and acute toxicology of proposed dispersants as a precondition to EPA adding dispersant products to a centralized schedule of potential spill-response chemicals. 40 C.F.R. § 300.900-920 (1982); *Id.* § 300 Appendix. EPA reviews this data to assess the efficacy of the product in different kinds of oil and to characterize the toxicity of the product. If the proposed product meets EPA's minimum efficacy threshold for the proposed types of use conditions and the manufacturer has submitted the required supporting data, EPA will add the product to its NCP Dispersant Schedule, along with information disclosing its relative efficacy under various test conditions and general estimates of its acute toxicity derived from standardized tests using shrimp and small fish. *Id.* § 300.920(a); EPA NCP Product Schedule Notebook (8/23/2010).

Once a product is listed on the NCP Dispersant Schedule, Regional Response Teams (RRTs) composed of federal, state, and local officials within established regional boundaries can "preauthorize" the use of specific scheduled dispersants in the event of a release by incorporating dispersant use scenarios into Regional Contingency Plans (RCPs) and Area Contingency Plans (ACPs) that, in the event of a release, allow federal On-Scene-Coordinators (OSCs) to select and use certain response tools without further consultation. Exec. Order No. 12777, 56 Fed. Reg. 54,757 (1991) (designating thirteen preexisting RRTs to serve as the initial Area Committees for the purpose of NCP planning). If site conditions do not match the conditions anticipated in a product's preauthorization, OSCs can still select a scheduled product for use but must first consult with relevant federal, regional, and state officials. 40 C.F.R. § 300.910(b). If, in the judgment of the OSC, the use of a specific product is necessary to prevent or substantially reduce a hazard to human life, an OSC can even select products not listed on the NCP Product Schedule. *Id.* § 300.910(d). In short, preauthorization is an important step in the process of providing future responders with options in the case of an emergency. At the end of the day, however, it is the government official serving as the OSC and the other federal, state, and local officials involved with regional and local planning that make the real-time determinations and risk-benefit balancing calculations regarding what products will be used when.

Deepwater Horizon/Macondo Well Blowout

On April 20, 2010, operators of the Deepwater Horizon drilling rig lost control of a well being drilled for British Petroleum (BP) on the Outer Continental Shelf Mississippi Canyon Block 262 in the Gulf of Mexico, 40 miles off the coastline of Louisiana. The blowout of the Macondo well led to an explosion and fire on the rig, killing eleven workers and ultimately sinking the platform on April 22, 2010. In the aftermath, some 5 million barrels of oil were discharged to U.S. waters over eighty-five days before the well was successfully contained. The disaster far eclipsed the *Exxon Valdez* incident as the worst oil spill in history in U.S. waters to date.

Following the well blowout, the administration launched a unified federal response effort consistent with the NCP. 40 C.F.R. § 300, Subpart D. The NCP requires that the federal government direct the response through a federal OSC, and vests the federal OSC with authority over the incident command structure and final decision-making power in the event of a conflict between different stakeholders.

The Deepwater Horizon spill, however, proved not to be an ordinary spill, and on April 29, 2010, the Coast Guard classified the disaster as a "spill of national significance." This classification applies to "a spill which due to its severity, size, location, actual or potential impact on the public health and welfare or the environment, or the necessary response effort, is so complex that it requires extraordinary coordination of federal, state, local, and responsible party resources to contain and clean up the discharge." *Id.* § 300.5. A spill of national significance triggers the appointment of a National Incident Commander, who takes on the role of the Federal OSC to provide national-level coordination of the spill response. *Id.* § 300.323. The Deepwater Horizon spill is the first time in history that a spill of national significance was declared and a National Incident Commander named.

Dispersants in the Spill Response

Beginning in the first week after the rig explosion, the first-acting federal OSC, a Coast Guard captain from the nearest port, approved the use of dispersants for surface application, consistent with the preauthorized oil spill contingency plans established for the Gulf. *See* National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling (National Commission) Staff Working Paper No. 4 at 6. In the words of Coast Guard officials, "[the] goal [was] to fight this oil spill as far away from the coastline as possible." National Commission Final Report: Deep Water,

The Gulf Oil Disaster and the Future of Offshore Drilling (Commission Report) at 143. Faced with a "tradeoff of bad choices," the Coast Guard authorized 14,654 gallons of dispersant use to the water surface during the initial week in an effort to prevent oil from reaching the shore. *Id.* at 144.

Once the release was designated a spill of national significance, the newly appointed National Incident Commander, Coast Guard Commandant Thad Allen, took charge of response decision making, including, in consultation with EPA, decisions relative to dispersant use. As the estimated flow rate from the well increased, so did the response effort's reliance on dispersants. In early May, the Coast Guard began testing the subsea application of dispersants directly to oil escaping from the well. This was a novel use of dispersants, as prior scenarios had all involved surface application, and EPA initially balked at the idea. After several weeks of testing, however, EPA ultimately signed off on the use of subsea applications, and, from May 15 to the capping of the well in mid-July, dispersants were applied both to the surface spills and subsea discharge of oil from the damaged wellhead. From the time of the rig explosion on April 20, 2010, through July 15, 2010, when the well was successfully capped, a total of 1.84 million gallons of dispersants were applied to the spill. Of that total, 1.07 million gallons were used on the surface, and 771,000 gallons were applied directly to the subsea oil discharge.

From early on in the response effort, criticism over the response strategy was a constant theme, at times rivaling the attention to the leaking oil itself. Dispersants were one of many targets. In early May, the *New York Times* characterized the government's dispersant strategy as "a huge experiment." Environmental activist groups questioned not only the use of dispersants, but the specific choice of one dispersant product over another. Residents and workers questioned whether the oil spill response chemicals might pose even greater risks than the oil itself (a concern that subsequent federal testing appeared to refute). Few stakeholders took comfort in the fact that the use of oil spill dispersants in general, and the specific products being applied in particular, had been anticipated and preauthorized by state and federal officials long before the spill occurred.

The National Commission identified a number of reasons for the controversy over the use of dispersants in the Gulf. First, the sheer volume of dispersants used—1.84 million total gallons—was unprecedented. Further, a large portion of that volume, specifically 771,000 gallons—about 42 percent of the total amount of dispersants used—were applied at the wellhead, directly to the subsea discharge that was occurring more than 5,000 feet below the sea surface. This was also unprecedented; dispersants had never been applied in this fashion before. Third, and closely linked to these other two issues, rather than comforting the public about the safety of the substances being used, the fact that dispersant use had been preauthorized by federal, state, and regional officials (with few restrictions as to amount, duration, or location of use) appeared to fuel a public perception that dispersants were being applied with little to no federal oversight and little appreciation for the site-specific risks. National Commission Staff Working Paper No. 4 at 1-2.

Whether concerns regarding lax federal oversight early in the response efforts had merit, it appears public and political pressures influenced the federal dispersant oversight strategy as the response continued. From early May through July, EPA released many directives, letters, and press statements mandating new safety and environmental testing of dispersants and seeking to restrict their overall use in the cleanup. *See, e.g.*, EPA's dispersants website at www.epa.gov/bpspill/dispersants.html. EPA Administrator Lisa Jackson testified in favor of expanding EPA's regulatory authority over dispersants, invoking the need for "critical transparency and openness protections that right now EPA cannot provide by law." Elana Schor, *EPA Chief Calls for More Authority over Dispersants*, N.Y. Times, July 15, 2010. Later, EPA pressured dispersants manufacturers to release publicly formulas for proprietary chemicals, information protected as confidential business information. Admiral Allen allegedly acknowledged to reporters in August 2010 that "there was obviously some political nullification of the use of dispersants." Craig Pittman, *Federal Government, States Nearing Agreement on Oil Cleanup Strategy*, St. Petersburg Times, Aug. 17, 2010.

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In hindsight, public skepticism and political scrutiny of the adequacy, efficacy, and prudence of dispersant strategy was inevitable in a disaster of such unprecedented magnitude and scope. As the National Commission acknowledged in its final report, even under the best of conditions, "[t]he decision to use dispersants involves difficult tradeoffs: If dispersants are effective, less oil will reach shorelines and fragile marsh environments, but more dispersed oil will be spread throughout the water column." Commission Report at 270. Here, however, "[o]fficials had to make decisions about dispersant use without important relevant information or the time to gather such information," making the analysis even more difficult. *Id.*

Public and political concern spurred hearings in both the House and Senate and at least five bills calling for modifications to the spill planning and response process, increased toxicity testing and safety reviews for potential dispersants, and mandatory disclosure of dispersant ingredients. *See, e.g.*, The Safe Dispersants Act, S. 3661, introduced July 28, 2010; the Safe Dispersants Act, H.R. 6119, introduced September 14, 2010;

the Consolidated Land, Energy, and Aquatic Resources Act of 2010, H.R. 3534, introduced September 8, 2009 (passed by House on July 30, 2010; placed on Senate Legislative Calendar August 4, 2010); the Oil Spill Accountability and Environmental Protection Act of 2010, H.R. 5629, introduced June 29, 2010; the Clean Energy Jobs and Oil Company Accountability Act of 2010, S. 3663, introduced July 28, 2010; and the Securing Health for Ocean Resources and Environment Act, S. 3597, introduced July 15, 2010. Yet, even in the wake of an unprecedented spill in U.S. waters, with Democratic majorities in the House and Senate and an administration that had publicly called for greater regulatory authority, the 111th Congress adjourned without passing any long-term oil spill legislation. Once responders successfully stopped the flow of oil from the Macondo well in late summer, competing issues like partisan politics, tax policy, and the economy rapidly downgraded the political urgency of action on dispersants in late 2010.

Prospects for Policy in 2011 and Beyond

Notwithstanding the lack of dispersant legislation during 2010, several trends suggest that dispersant law and policy will continue to receive attention in 2011 and beyond.

First, in January 2011, the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling issued its report to the president, chronicling the events and decisions that led up to the disaster, providing a detailed accounting and assessment of the steps taken during the response, and offering lessons learned for future oil spill prevention and response policy. *See*, Commission Report, www.oilspillcommission.gov/final-report. Summing up the federal government's preparation for and response to the spill, the Commission concluded that the federal government "had not adequately planned for the use of dispersants to address such a large and sustained oil spill, and did not have sufficient research on the long-term effects of dispersants and dispersed oil to guide its decision-making," which forced officials "to make difficult decisions with incomplete information." Under such circumstances, the Commission concluded that governmental officials "made reasonable decisions regarding the use of dispersants at the surface and in the subsea environment." Commission Report at 270–71. To improve federal preparedness for future events, the Commission recommended that both the federal government and industry commit increased funding to research and develop oil spill response technologies and to study the impacts of high-volume and subsea use of dispersants, the long-term fate and effects of dispersants and dispersed oil, and the development of less toxic dispersants. The Commission also recommended that EPA update its dispersant testing protocols and require more comprehensive testing prior to listing or preapproving dispersant products and to modify the preapproval process to address temporal duration, spatial reach, and volume of the spill.

Consistent with these recommendations, Democrats in the House and Senate have introduced new bills to impose additional controls on oil spill dispersants. In January, Rep. Markey (D-MA), introduced H.R. 501, the Implementing the Recommendations of the BP Oil Spill Commission Act of 2011. In April, Senator Frank Lautenberg (D-NJ) reintroduced the Safe Dispersants Act he originally proposed shortly after the Gulf spill. S. 661, Safe Dispersant Act, (introduced March 29, 2011). Both bills would mandate more extensive safety, health, and environmental testing of proposed dispersants, set more stringent standards for EPA approval of products to be added to the NCP list, and require increased public disclosure of information on product composition and potential risks. It is too early to tell whether these new bills will fare better than those introduced during the last Congress.

It also appears likely that the courts will continue to place scrutiny on federal dispersant policy. In the year since the Macondo well blowout, numerous plaintiffs have filed suits or notices of intent to sue the well owners, operators, EPA, and other entities involved in the Gulf spill and ensuing response effort. In August 2010, seventy-seven separate oil spill suits were consolidated in the Federal District Court for the Eastern District of Louisiana. *In re: Oil Spill by the Oil Rig "Deepwater Horizon" in the Gulf of Mexico*, MDL No. 2179 (Apr. 20, 2010). The consolidated case, which now contains approximately 200 matters, includes a variety of state tort claims against companies involved in the manufacture, sale, and application of dispersants during the Gulf response asserting damages "for physical injuries, costs of future medical screening and monitoring, the implementation of a medical screening and monitoring program and/or property damage resulting from clean-up efforts after the explosion at issue." *Id.* (Document No. 881 (Master Complaint in Accordance with PTO No. 11, Section III.B(3), filed Dec. 15, 2010)). More recently, on April 20, 2011, the Center for Biological Diversity filed a notice of intent to sue EPA under the Endangered Species Act (ESA), asserting that EPA failed to conduct ESA consultation activities necessary to ensure that listing dispersants on the NCP Product Schedule would not result in jeopardy to a species or destruction or adverse modification of critical habitat. *See, e.g.*, www.biologicaldiversity.org/news/press_releases/2011/dispersants-04-18-2011.html.These and other judicial proceedings will provide direct and indirect pressure on government officials, oil companies, and oil spill response companies to evaluate the current state of their industries.

Regardless of the outcome of these proceedings, dispersants are here to stay for the foreseeable future. On February 28, 2011, the newly-formed Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) issued the first of a series of deepwater drilling permits since the Deepwater Horizon oil spill. *See*, www.boemre.gov/ooc/press/2011/press0228.htm. In announcing that decision, and others since, the administration highlighted a number of subsequent regulatory reforms intended to ensure that operators can drill safely and contain oil in the event of a blowout. Time will tell if these reforms will be sufficient to prevent a future major spill. In the meantime, don't count on companies, or federal, state, and local officials, to discard their full range of oil spill cleanup tools if the unexpected occurs, and responders find themselves looking for ways to mitigate the damage.