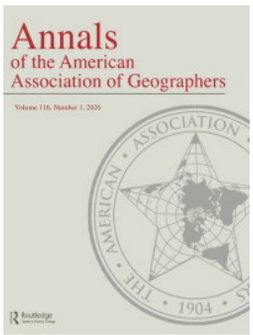

Annals of the American Association of Geographers

ISSN: 2469-4452 (Print) 2469-4460 (Online) Journal homepage: www.tandfonline.com/journals/raag21

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To cite this article: Gavin Weedon & Paige Marie Patchin (08 Dec 2025): Labored Breathing: "BP Syndrome" and the Fallout of the *Deepwater Horizon* Oil Spill, Annals of the American Association of Geographers, DOI: 10.1080/24694452.2025.2587226

To link to this article: https://doi.org/10.1080/24694452.2025.2587226

ANNALS OF THE AMERICAN ASSOCIATION OF GEOGRAPHERS
https://doi.org/10.1080/24694452.2025.2587226

Labored Breathing: "BP Syndrome" and the Fallout of the *Deepwater Horizon* Oil Spill

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The 2010 BP oil spill in the Gulf of Mexico is the largest commercial oil spill in marine drilling history, yet human geographers and allied fields have not attended proportionately to its aftermath. As environmental disasters intensify, revisiting this moment is urgent—especially given whistleblower claims that the remediation caused greater harm to people and planet than the spill itself. Drawing on affidavits, anonymous testimonies, and other materials, this article reconstructs BP's cleanup operation, focusing on the decision to introduce the chemical dispersant Corexit into the Gulf, the assembly of a precarious workforce—including prisoners and out-of-work fishers—and the management of financial, reputational, and legal risk. Through an approach that traces how air was managed, modulated, and measured at the cleanup site, we establish the conditions through which workers became afflicted by what they term "BP syndrome," a debilitating condition comprised of chronic breathlessness, cancers, and other illnesses that remains the subject of legal contestation. Our analysis sheds light on BP's marshaling of certainty and uncertainty in defining dangerous breathing environments, identifies contingency as an area of high strategic importance for future health- and environment-based legal and policy struggles, and aims toward more just forms of environmental remediation in anticipation of future ecological disasters. We conclude by situating the experiences of the cleanup workers in historical continuity with the making and fallout of our current planetary conjuncture of fossil-fueled climate breakdown. *Key Words: breath, Corexit, environmental remediation, labor, oil spill.*

Under the Gulf of Mexico that curves along more than 3,700 miles of shoreline, from the northern tip of the Yucatan Peninsula around to the Straits of Florida, once-living matter sediments over millennia under the seabed, forming an archive of "past life" (Huber 2017, 165). It lay dormant until, in 1938, industrial apparatuses and the logic of accumulation cohered in the drills of the Pure Oil and Superior Oil companies, whose foray into the seabed unleashed that past life as fuel. Commercial oil drilling had already been underway in North America since the mid-nineteenth century, but with some qualifications this scene is now recalled as the birth of the offshore oil industry, distinguished by novelty of distance: The drilling took place "out-of-sight-of-land" (Priest 2007, 237) and represented a new frontier in deep-water exploration. The Gulf of Mexico would soon become "the most explored, drilled, and developed offshore petroleum province in the world" (Priest 2007, 227).

That famed scale and depth of exploration turned to notoriety seventy-two years later, when an explosion forty-one miles from the Louisiana shore blew open the black box of black gold drilling and exposed anew the fantasy of mastery that animates the whole enterprise of extractivism. The explosion of the *Deepwater Horizon* oil rig on 20 April 2010 was and remains the largest spill in the history of commercial marine oil drilling (U.S. Environmental Protection Agency 2023). Under cover of nightfall, a surge of gas tore through a concrete core installed to seal the oil well for later use, igniting the platform nearly 5,000 feet above the seabed and engulfing the rig. Eleven workers were killed and seventeen injured as more than 200 million gallons of oil and some 225,000 tons of methane began pouring out and continued unabated for more than 100 days. The spill is estimated to have harmed or killed 82,000 birds, 29,500 marine mammals, and

ARTICLE HISTORY
Initial submission, March 2024; revised submissions, December 2024, July 2025; final acceptance, October 2025

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untold numbers of fish, as well as contaminating more than 1,000 miles of shoreline (Center for Biological Diversity 2023).

What happened that night exemplifies the capacity for destruction that is always latent to petrochemical production, not to mention the environmental harm wrought when the burning of hydrocarbons is running smoothly. As spectacles, oil spills and other disasters pose a visible threat to a global petrochemical industry fighting to retain its power (Mah 2023; Malm and Carton 2024). At the same time, they are increasingly normalized in the age of climate breakdown as part of the many disparate shocks that interact and compound in "polycrisis" (Tooze 2022), producing feelings of overwhelm and fatigue in distant onlookers. Against this beleaguered sense of "crisis ordinariness" (Berlant, 2011) wherein people are inured to the perpetual stream of systemic injustices, it is imperative to attend carefully to the fallout of catastrophes like the BP spill: to ask where they begin and end, whose labor they enlist, and who needs care in their wake. Doing so requires dispelling any notion of oil spills as spatially and temporally contained events, and attending to what Nixon (2011) called the "slow violence" that "occurs gradually and out of sight, a violence of delayed destruction that is dispersed across time and space, an attritional violence that is typically not viewed as violence at all" (2). Although BP's response insinuated that there would, at some point, be an "after" to the spill, the neat temporal couplet of disaster and aftermath belies what actually happened, and has since unfolded, along that shoreline.

This article chronicles the BP oil spill cleanup from the initial response to the blast, through to the recruitment of a precarious workforce to contain and control its material and visual aftermath, and, centrally, to the chronic conditions of ill health subsequently experienced by those who were exposed to the site. We show how the multiplying effects of Corexit, the chemical dispersant used to disappear errant oil, registered in the bodies of those who labored in the Gulf—those whose lives fall outside of the official commemorative death toll of the explosion itself. They include over 100,000 people, largely comprised of fishers and shrimpers, prisoners, and other local residents (Underferth 2022), many of whom lived in close proximity to the dense area of U.S. petrochemical production called "Cancer Alley" (Forensic Architecture 2024) and were still coming to terms with the effects of Hurricane Katrina. For thousands of those people, the capping of the wellhead was not the end of the disaster, but the beginning of years of chronic illness known colloquially as "BP syndrome," which has profoundly shaped their lives ever since.

Despite the scale of this disaster, and despite the emergence of a nascent literature on environmental remediation (Little 2014; Maxwell, Kiessling, and Buckley 2018; Beckett and Keeling 2019; Kiessling et al. 2021), critical scholarship on the BP spill is scant and has, for the most part, not attended to the cleanup operation or its aftermath. Bond (2013) has offered an account of the epistemic politics of "making the environment whole again," and others have focused on the spill as a mediated event (Jue 2019, 2020) or for its capacity to offer "hope in blasted landscapes" (Kirksey, Shapiro, and Brodine 2013). Away from the Gulf, however, we find invaluable guides for making sense of its fallout. Petryna (2002) has written of the 600,000 people who cleaned up the radioactive ruins of the Chernobyl power station, showing how their future health was compromised by the refusal of the Soviet state to publicly concede the extent of the disaster or to document their operations in ways that would have aided them in posterity. Writing specifically about petrochemical production, Sawyer (2022) has shown how existing methods for measuring contamination render inert and benign hydrocarbon molecules that are constantly in flux, thus allowing Chevron to make the claim in court that oil installations in Ecuadorian Amazonia do not imperil health—despite nearby communities claiming otherwise. Cram's (2023) work has helped us to situate BP's remedial strategy as in keeping with U.S. environmental remediation policy, to which harm, injury, and even death have been inherent since the Cold War. And in *Making the World Clean Again*, the decolonial political scientist Vergès (2024, 20) drew a crucial distinction between the "cleaning up" orchestrated by corporations like BP and the cleanup needs and demands of affected communities.

Petryna (2011) contended that "being accountable to those affected" by such catastrophes is "a key challenge of our time" (35). Accountability in the context of the BP oil spill becomes more even more pressing once one confronts the stark possibility, asserted in whistleblower reports, that remediation

was more damaging to people and planet than the spill itself (Devine and Devine 2013). Part of our goal in what follows is to explore how this could possibly be the case, not as an exercise in the taxonomy of harm but as a contribution to understanding how environmental remediation exceeds the thresholding of the disaster as event and registers under the skin. To this end, centering the breath of laboring bodies and the contamination of Gulf Coast air, together with BP's efforts to exert control over the respiratory environment, has proved instructive. Writing of people like the BP cleanup workers as "irreversibly altered by petrochemical world orders," Ahmann and Kenner (2020) made a point of emphasizing that their "lives are not over. They are *still breathing*, still 'open to alteration' within the mess of chemical, colonial, and racialized violence" (418). Their invocation of the endurance of breath as generative of multiplying alterations (see also Mansfield 2022; Mostafanezhad, Evrard, and Vaddhanaphuti 2024) underscores the importance of respiration in this case, as a bodily register and a vital index of petrochemical harm. Inhibited breathing was reported from early in the spring of 2010 and still figures in medical and legal reports fifteen years later.

Our analysis shows how air was managed, modulated, and measured at the cleanup site in ways that shaped, and in a sense even anticipated, what became known as BP syndrome. Breath serves as an index for us to help chronicle the cleanup, bringing together the "synergistic toxicity" (Rico-Martínez, Snell, and Shearer 2013) of the oil dispersant product Corexit with oil production's more general roles as both a principal cause of climate change and a font of pollutants that are harmful to human bodies. Respiration is also a pragmatic object of analysis given its importance to the sustained success of BP's campaign to avoid culpability for BP syndrome. More than 5,000 medical cases have been filed, with only one achieving a payout (Sneath and Laughland 2023). The account we offer is intended, in part, to provide insight into why ongoing efforts to take BP to task in court have fallen short: namely, BP's strategic marshaling of both certainty and uncertainty in defining dangerous breathing environments. We also show how it might have been otherwise: how the danger of adding 2 million gallons of Corexit to the oil-laden Gulf was already established in 2010, how the recruitment of people already living precariously along the Gulf to clean only exacerbated the multiplying force of this concoction when mixed with oil and on contact with noses and lungs, and, plainly, how different approaches to environmental remediation are needed.

Through compiling worker testimonies, original court documents and exhibits from recent and ongoing cases, government reports, investigative journalism from the Gulf, worker safety manuals and presentations, and marine safety literature, in what follows we reassemble the conditions that produced a "secret sickness" (Woodward 2011) among remedial workers from the summer of 2010. The vigilance of journalists, activists, legal and medical workers, and witnesses whose reporting has challenged BP's efforts to construct the disaster in a palatable way makes this analysis possible. We are especially indebted to the archive of original sworn affidavits and anonymous testimonies of cleanup workers collected by the Government Accountability Project at the request of Louisiana-based ear, nose, and throat doctor Michael Robichaux, who was described by them as the "only one [doctor in the region] willing to help" (compiled in Government Accountability Project 2014a, 2014b, 2014c, 2014d, 2024). They offer key insights into how the otherwise obfuscated cleanup operation was actually carried out.

We begin by appraising the decision to deploy Corexit, a petrochemical product itself that was already associated with concerns over marine and occupational safety. Here we explain that Corexit was readily positioned as salve to the spill for its known capacity to visually disappear oil. We then turn to the recruitment of a precarious workforce, including prisoners and out-of-work fishers, and the specific forms their cleaning labor took, all of which brought them into contact with the toxic sludge and vapors of oil and Corexit combined. In the third part, we explore how their airways and atmospheres were evaluated and endangered in the remediation, including claims about the denial of respirators for their visual impact and the establishment of a since discredited "community air monitoring" program. All of these elements of the remediation cohere in Barack Obama's portending remark in his address to the nation in June 2010, that the spill would be less a "single event" than an "epidemic," "one that we will be fighting for months and even years" to come (White House Office of the Press Secretary 2010). We conclude

by situating the experiences of the cleanup workers in historical continuity with the making and fallout of our current planetary conjuncture of fossil-fueled climate breakdown.

Synergistic Toxicity: Chemical Dispersal, Respiratory Vulnerability, and the Visual Politics of Disaster

For more than 100 days after the *Deepwater Horizon* explosion, oil poured unbidden into the Gulf. How much exactly is disputed and hard to fathom: BP claimed that 13,000 to 14,000 barrels a day escaped before the well could be capped, whereas the U.S. government estimated that 60,000 barrels a day at the height of the disaster, nearly 5 million in total, were lost. To grasp the scale of the cleanup operation that followed, consider that one single day, at its height, saw the deployment of 6,000 boats, eighty-two helicopters, twenty planes, and almost 4 million feet of containment boom, with twenty-six controlled burns carried out. On that day, more than 47,000 people were working in some capacity, the vast majority of them directly employed by BP (National Oceanic and Atmospheric Administration 2011, vi).

Within days of the spill, almost 2 million gallons of the chemical Corexit were applied to the sea. This involved spraying the surface via planes and boats and injecting 771,000 gallons one mile subsea at the broken wellhead—depths at which it had never been tested (Earthjustice 2010). For emphasis, this was an unprecedented program of chemical remediation in terms of volume and style of application, the significance of which will shortly be clear.

Corexit is a chemical dispersant. It transforms the oil to which it is applied by "splitting it into tiny droplets that measure roughly 10 microns in diameter," which are about ten times smaller than the droplets would be otherwise (Schmidt 2010, 340). These smaller droplets then get pulled ("entrained") down the water column (Schmidt 2010). It is important to emphasize that dispersants do not eliminate oil but rather break it apart and move it around. Whereas undispersed oil tends to float on the surface, chemically dispersed oil has a much more expansive spatial reach in the aquatic environment. It can also form a sludge with oil that washes up onto beaches. Corexit's use for oil spills has always courted controversy: As early as 1969, scientists were questioning manufacturer claims that it was nontoxic to marine animals at the quantity that would be needed to disperse an oil spill (Griffith 1969). Indeed, it had been banned in the United Kingdom for a decade when the *Deepwater Horizon* rig exploded (Goldenberg 2010).

Why was Corexit the central pillar of the cleanup effort? One answer is expediency: According to U.S. Environmental Protection Agency (EPA) administrator Lisa Jackson, it "was available the week of the explosion" (quoted in Guarino 2010). This was why Corexit had been employed in a string of smaller spills in the Gulf between 1999 and 2005 (National Research Council 2005, 69–72). Further explanations for this ready availability lie in the history of the petrochemical industry, the inability of existing regulatory structures to account for the product's particular brand of compounding danger, and its utility to BP's imperative of panoramic visual restoration.

Manufactured by Nalco Water, a firm that specializes in "industrial air and water solutions," Corexit was developed by the Standard Oil Company of New Jersey, the dissolution of which in 1911 led to the formation of multiple firms, including those that would later become Exxon and Chevron. The product's internality to the petrochemical industry is reflected in the fact that, according to EPA worker Hugh Kaufman, in at least one of the two variants deployed in the BP spill, its most abundant ingredient is simply oil (DemocracyNow 2010). It has also been a mainstay in disasters for more than half a century, such that to chart its history is to also chart major oil spills over that duration. It was used after an oil spill in Cornwall in 1967, after the sinking of two tankers off the West African coast in 1968, and after what is now the second largest commercial oil spill in history, *Ixtoc I*, in Mexican Gulf waters in 1979 (Jernelöv and Lindén 1981). It was also used in the *Exxon Valdez* spill along the Alaskan coast in 1989, after which the Oil Pollution Act expanded the mandate for any "substantial spill" in the navigable waters of the United States to be immediately addressed. This could mean the use of approved chemical dispersants, of which Corexit was—and remains—one (Clean Water Act 1972; Oil Pollution Act 1990).

A ready interpretation of Corexit's invention and its application at oil spills is that it exemplifies both the propensity of capitalism to temporarily and

partially resolve crises by creating new markets to exploit, and the propensity of individual firms to find ways of profiting from the social and ecological problems they themselves create (see Klein 2007). This begins to explain Nalco's convergences with the oil industry. Five years after the *Exxon Valdez* spill, Nalco formed a joint venture company named Nalco/Exxon energy chemicals, and former president of ExxonMobil Chemical Company Daniel S. Sanders was on Nalco's board of directors in 2010 (DuBois 2010). Hence, DuBois's (2010) claim that "weirdly, the exposure [from the BP oil spill] could end up as a positive for the company" is neither exaggeration nor aberration. In 2010, for example, Nalco "estimated that it will probably sell $40 million worth of Corexit, up from the roughly $2 million in typical annual sales of the product" (DuBois 2010).

This exposure, though, was not altogether positive for Nalco. The Material Safety Data Sheets in play following the explosion—documents that provide information related to occupational health and safety—referred to confidential proprietary components, which obviously piqued the interest of locals as well as environmental groups given the unprecedented nature of the chemical remediation program. By June, under mounting public pressure, the EPA revealed that the undisclosed components were surfactants like sorbitan and 1-(2-butoxy-1-methylethoxy) 2-propanol, a solvent and antifreeze mixture (Schmidt 2010, 342). Later, in response to an environmental litigator's Freedom of Information Act request, the EPA admitted that:

> five of the 57 ingredients in dispersants eligible for use in response to oil spills are linked to cancer; 33 chemicals are associated with skin irritation, from rashes to burns; 33 chemicals are linked to eye irritation; 11 chemicals are suspected or potential respiratory toxins or irritants; and 10 chemicals are suspected kidney toxins. As for potential effects on the marine environment, 8 chemicals are suspected or known to be toxic to aquatic organisms and 5 chemicals are suspected to have a moderate acute toxicity to fish. (EarthJustice 2010)

The experimental use of Corexit and the original nondisclosure of its toxic ingredients will be familiar to scholars of U.S. environmental remediation and chemical regulations more broadly. According to Nash (2017), Cold War nuclear policy rewrote the tenet that pollution must never affect human health into the more pliable stipulation that exposure to pollutants was something to be carefully managed. This built on the idea, fortified in earlier regulatory transformations, that industrial chemicals like Corexit "are a normal part of the environment, and that the only relevant question to ask was at what level" (Nash 2008, 656). Through nuclear industry risk frameworks, cost–benefit analysis was mainstreamed in the EPA's adjudications (Cram 2023, 25). This was evident in the federal on-scene coordinator's authorization of the first aerial application of Corexit by saying the dispersant would confer a "net environmental benefit." That proclaimed benefit was built, in part, on the general assumption of Corexit to be safe for use until it had been incontrovertibly proven otherwise, and that a history of use—like the one we have recounted—itself constitutes evidence of safety.

The relationship between industry and the state in this case is complex. There was considerable confusion in the regulations concerning dispersant application, but considerable overlap in declarations of safety by BP and the U.S. federal government. Although industry was certainly not synonymous with government—as evidenced, for example, by the EPA's eventual disclosure of Corexit ingredients, as well as the fact that three federal entities all called for BP to collect data on worker exposures (Sneath and Laughland 2023)—the convergence of their interests in returning to business as usual is clear. Obama's earlier warning that the spill was an "epidemic, one that we will be fighting for months and even years" must be read in tandem with the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling's (2011, 293) assurance that "drilling in deepwater does not have to be abandoned." In fact, that report made a point to highlight that the "already-crucial role" of offshore oil and gas was expected to increase in the years to come (294). The imperative to sustain industrial production is at the core of U.S. environmental remediation policy.

Notwithstanding the importance of discerning their toxicity, none of the revealed ingredients alone or even together explain the significance of Corexit's application in the Gulf to what would become BP syndrome. Corexit in combination with crude oil is what devastates marine life: what ecotoxicologists Rico-Martínez, Snell, and Shearer (2013) called its "synergistic toxicity" increases harmfulness

fifty-two-fold. The damage caused by this synergy appears to be attributable to its propensity to "open up" bodies to other environmental toxins, to render those in proximity exponentially more vulnerable. It is therefore the relational encounter of Corexit combined with oil, and the exposure of the breathing, laboring body that needs to be focalized.

Here is how this is understood to work in the human lung. Every minute a person will take about six liters of air into their body, which includes "constituents of the inhaled environment" such as allergens, microorganisms, and pollutants that find a place on the epithelium lining the lung (Hackett 2022, 51). Respiratory scientists describe the epithelium as "a monolayer of cells that provides a continuous, critical, and a highly regulated barrier" (Li et al. 2015, 2) that provides "protection … from environmental insult" (Vaughan and Chapman 2013, 922). It appears that when a person is exposed to Corexit, the frequency of programmed cell death in the epithelium increases. Moreover, Corexit degrades the capacity of epithelial cells to act as a barrier to injury. The result is an increase in permeability and decrease in airflow (Li et al. 2015). As such, it is not only that Corexit produces "structural and functional abnormalities in airway tissue" (Antony, quoted in Rohan 2015); it also pries open cell barriers, allowing more potentially damaging toxins entry (Rohan 2015). Corexit's status as a salve for oil spill remediation needs to be understood alongside its propensity to act as a damage multiplier, compounding vulnerability to pollutants.

For the avoidance of doubt, it is true that BP's unprecedented deployment of 2 million gallons of Corexit in the Gulf would have involved "trade-offs between decreasing the risk to water surface and shoreline habitats while increasing the potential risk to organisms in the water column and on the seafloor" (National Research Council 2005, 2). Thick shoreline accumulations of oil can stick around for years, recurrently exposing mammals, birds, fish, and shellfish. Yet Hepler-Smith's (2019) point that the molecular structures underpinning U.S. toxics policy are chosen to sustain industrial production is salient. There simply was not space in the decision-making framework for potential compound reactions, like those of Corexit and oil, or Corexit's capacity to, via the epithelium, pave the way for further environmental insults. This context goes some way to explaining why the product appeared as panacea rather than poison to those making decisions in government and industry in the heady days following the rig explosion.

There is one final, crucial consideration around the decision to deploy Corexit in the BP spill. From the start, BP sought to manage the visual panorama of the spill in particular ways. Oil-laden beaches were placed under an intense security regime, keeping journalists, independent researchers, and concerned local residents from the spectacle of pooling oil and the unfolding effort to clean it up (Kirksey, Shapiro, and Brodine 2013, 232). This regime of curtailed visibility contrasted with the hypervisibility of live "spillcam" footage, which relayed the spectacle of the broken well to a global audience at all hours of the day. In Jue's (2020) analysis, the *Deepwater Horizon*'s spillcam lent "an eerie immediacy to an event that everyone could only experience at a distance" (4). Whereas the livestream of the gushing oil might seem to conflict with the restricted visibility of the shoreline by offering onlookers from far and wide access to the origin point of the disaster, it is best to think of them as complementary stagings of the spill. To use Krupar's (2013, 9) language, the "spectacular hypervisibility" of the gushing wellhead arranged the scene of BP's accountability, circumscribing the disaster to the alien depth of a mile subsurface, away from the obvious signs of impacted or impactable life that were accumulating on the shoreline. And because the wellhead would eventually be plugged, the live stream was imbued with the latent promise of conclusion, an end to transmission marking an end to the disaster.

Corexit, like the spillcam, can be thought of as a geographical tool in a politics of visuality. It splices, sinks, and disperses oil around. BP used it to visually disappear the oil, to make it drop into the depths of the Gulf (and thus, in Jue's [2019] assessment, out of public discussions). It was the agent BP employed at the scale of molecular transformation in the wider project of constructed visibility. The language of cleaning is therefore misleading: The verb implies an obliteration of undesirable material, whereas the way Corexit reacted with oil resulted in the mere movement of that material around—and, importantly, the formation of new agglomerations that proved consequential for human and environmental health. While all of this was happening, molecular transformations were also

becoming palpable in the noses, throats, and lungs of those who labored to contain the spill alongside this dispersing agent.

Assembling the Frontline: Prisoners, Fishers, and Contract Workers

As applications of Corexit were aimed toward the sinking and dispersal of oil and as the public gaze was directed to spillcam footage, people were cleaning on the shore and out to sea. The technical elements of the cleanup operation are more than incidental to the physical onset of BP syndrome and so need some bearing out. Three forms of cleaning were executed. The first was the removal of contaminated material from the beaches. Shorelines were quickly becoming saturated with oil and Corexit, which had to be manually removed to hazmat sites and nearby landfills. The second, carried out in boats, concerned containing the pooling oil with booms and then skimming it off the surface for removal. The distribution of oil that could be "recovered" across the Gulf was far from uniform; by whim of weather it was spread across the open ocean around the spill's origin, closer to shore, and into the region's extensive inshore marshes. Aerial surveillance was required to identify sites for skimming, deemed the most critical mode of oil removal at the height of the response by the National Oceanic and Atmospheric Administration (2011, vii–viii). Third, there were 411 controlled burns carried out over the summer: Teams of workers torched the equivalent of 250,000 barrels of oil from May to July (National Oceanic and Atmospheric Administration 2011,, vii). To ensure boats and other necessary equipment could remain operational, thousands of workers were also employed in decontamination ("decon") sites, removing oil and sludge from equipment as well as workers' clothes so they could rejoin the effort as soon as possible (National Oceanic and Atmospheric Administration 2011, xi). Together, these activities constituted the physical labor of cleaning up the spill.

As for whose arms bore the weight of oil-saturated sands, and whose noses were deployed to perform the "smell" tests for in situ burns, we can identify three groups of workers who hold in common degrees of historical oppression and restricted freedom, as well as proximity to the scene. An acquiescent and readily available labor force was necessary for the intuitively dangerous and difficult work required, as BP and federal officials found early in the operation: The Louisiana Workforce Commission noted that fielding 400 workers on Monday would regularly mean only half turning up on Tuesday (Clarke 2011). The roles had to be filled in other ways.

One group of workers was Louisiana prisoners. At the time of the spill, the Louisiana Department of Corrections had almost 40,000 inmates, the vast majority of them African American men, but only infrastructure to house half of them. The state's penchant for imprisoning without prisons meant that the other half of the inmates were living either in parish jails, for-profit facilities, or work release centers, and those that had evidenced good behavior were able to provide cheap work to companies like BP outside the bounds of the facilities in the final three years of their sentences. For six days a week these inmates worked twenty minutes on and forty off. The Occupational Safety and Health Administration (OSHA), the federal agency concerned with workplace hazards, prescribed this intermittent schedule because of the heat that would accumulate inside their uniforms, which at the end of each day were deposited into the same dumpsters as sludge-saturated sand grains. Respite from the work had to be taken to catch breath, but that respite, taken under fabric tents, was enveloped in a wider toxic atmosphere comprised of the fumes that hung over the Gulf as a result of the explosion (Young 2010).

The significance of BP's use of inmates to rearrange both the oil released in the spill and its coagulations with Corexit is twofold. It made safety contestations on the job extremely unlikely: As the warden of the Terrebonne Parish Work Release Center explained, "If they [inmates] say no to a job, they get that time that was taken off their sentence put right back on, and get sent right back to the lockup they came out of" (quoted in Young 2010). It was continuous with the history of convict leasing in the U.S. South, in which, following the Civil War, state governments leased Black prisoners to private corporations seeking to extract useful materials from the Earth (Mancini 1996). It is important to highlight here that a key sector of those working on the frontlines of petrochemical disaster management were the descendants of both the enslaved and leased convicts: The people whose labor was forcibly

extracted in the making of our current planetary conjuncture in centuries prior were enlisted to mitigate the fallout of its excesses.

Like the pooling oil that Corexit was directed at disappearing, BP was keen to keep convict leasing hidden from view. By contrast, a second mode of worker recruitment was widely advertised. The Vessels of Opportunity (VOO) program offered earning opportunities for local fishers and other marine workers who had been put out of work by the spill. Boats were reportedly hired at $1,200 to $3,000 a day per owner, or $200 per crew member (National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling 2014). This would not have been a comfortable decision for those affected workers, but their future ability to work as fishers and shrimpers hinged on the cleanup. As Klein (2015) wrote, "it was tremendously difficult for local shrimpers and oystermen to take work from the company that had just robbed them of their livelihood—but what choice did they have? No one else was offering to help pay the bills. This is the way the oil and gas industry holds onto power: by tossing temporary life rafts to the people it is drowning" (386). Compounding this, skimming oil via converted fishing boats was not particularly efficacious, as hundreds of gallons were concomitantly pumping out of the well.

The criticism voiced by workers at the time was that VOO was not sufficiently reaching those put out of work. What became clear to them deeper into the operation was that the number of VOO applications far outnumbered available positions for paid employment. With fishing areas closed, VOO personnel were, in the words of one worker, "between a rock and a hard place," unable to risk being fired because they were eminently replaceable (J. Danos testimony).[1] A reserve army of labor that was dependent on the bounty of the Gulf became dependent on its contamination, which made contesting working conditions difficult.

The third group comprised the workers already employed by the companies that were contracted out by BP for the cleanup. Here the story of Jamie Griffin Simon is instructive. Griffin Simon worked for GIS Dock Services & Logistics, a company based in Fourchon, Louisiana, that provided logistical support to oil and gas companies in the Gulf region. BP contracted GIS in May 2010 to provide and service a barge that would serve as one of the "decon" sites. Griffin Simon's assignment was to live on the barge—which she described as moldy and poorly ventilated—for six months, cooking for cleanup workers as well as keeping things tidy. She noted that some 250 workers would circulate through the barge every day, bringing oil and Corexit sludge in on their clothes and boots. She and her coworker washed both the barge and their clothes, neither of which ever seemed to get clean (J. Griffin Simon testimony). Although she was not formally enlisted in the remediation we have been describing so far, her station on the GIS barge positioned her proximately to it via paid domestic labor.

These descriptions of worker recruitment and types of physical labor in the largest commercial oil spill in history lend weight to Cram's (2023) assessment that "Clean does not mean uncontaminated in U.S. environmental policy" (3). We can already begin to see how clean is not defined by the absence of undesirable materials, but rather by the relationship between those materials and the body. How, exactly, though, did BP configure this relationship? To answer that question, we now turn to worker experiences of the effort, which detail the ways in which their breathing faculties were variously enlisted, concealed, and damaged in the context of nebulous, even conflicting environmental regulations and hectic daily scenes of unfolding harm from the spill.

The Giving and Taking of Breath: Respiratory Management in Worker's Testimonies

The Oil Pollution Act (1990) dictates that chemical dispersants may only be applied more than three miles from the shore and at a safe distance from workers. There was considerable confusion, however, about federal, state, and local regulations concerning the procedural geography of Corexit application, as well as a general lack of transparency. For example, a chemist affiliated with the Louisiana Environmental Action Network noted that, although the EPA stated Corexit was not being sprayed inshore, Louisiana law allowed for exemptions in state waters, and companies spraying under those exemptions did not have to report doing so. "You can't find out who sprayed what, when, where, and yet I have all these people reporting that they have been sprayed," she averred

(W. Subra testimony). Indeed, workers' testimonies illustrate how an obscure geography of spraying interacted with the gales and gentle breezes of the Gulf, casting Corexit onto their bodies and faces: "Airplanes sprayed dispersant on our [VOO] members on multiple occasions. … The planes would spray from a distance but the wind would carry it over the top and hit the vessels directly" (A.C. Cooper testimony); "I could see the stuff coming out of the plane—like a shower of mist, a smoky color. I could see [it] coming at me, but there was nothing I could do" (Anonymous testimony). Over and over, "planes sprayed inside of procedural distances" of both workers and of land (C. Guidry testimony). Worker Jorey Danos was sprayed with Corexit four times, noting that its "ammonia-like odor would take your breath away" (J. Danos testimony). In sum, contact with Corexit was a common, near-inevitable experience for workers.

From testimonies we also know that, within this turbulent atmosphere of aerial Corexit application, explosion plumes, and unstable Gulf winds, the cleanup effort enlisted not just the laboring body but the nasal passages. As VOO captain A. C. Cooper noted, workers were regularly required to go out in the middle of the night to "locate fresh oil [to be burned in controlled burning activities] based on how much their eyes and noses would burn, and if they could smell the oil." Workers' noses, the intimate functions of their sense of smell, were directly recruited to the cleanup. Cooper also stated that although groups of workers had air monitors that were meant to ensure exposure limits were not breached, they often malfunctioned or were cut off (A. C. Cooper testimony). Clint Guidry of the Louisiana Shrimp Association, variously involved in VOO operations, stated that teams conducting the burns only received four hours of safety training "before working in the most hazardous conditions of all the workers," and corroborated Cooper's point about the use of breath as a sensory mode of locating oil to burn: "I asked the workers from the in situ team … and they explained, 'We look around and when your eyes start burning and you're coughing and your lungs hurt, you're in the thickest part of the oil and you can burn it.'" He claimed that BP did not have any data on the content of the smoke that they would be inhaling but proclaimed the activity "not hazardous because they stay upwind of the burns." Despite claims of the ability to control team position vis-à-vis the wind, Guidry said that his experience as well as photographic evidence attest to worker exposure to the smoke of controlled burns, which sometimes lasted for ten hours (C. Guidry testimony). We can be certain that the controlled burns released dangerous polycyclic aromatic hydrocarbons (Centers for Disease Control and Prevention 2022); we can also surmise that, by virtue of Corexit's insult through inhalation and interaction, they were rendered more dangerous to workers.

From the beginning, workers experienced pained respiration and other symptoms that would persist and compound to become BP syndrome. These symptoms were neglected or denied by the on-site medical establishment, and indeed, most workers were told there were no health risks associated with Corexit (Devine and Devine 2013, 2). Safety training modules that workers encountered before taking to the field compared Corexit to domestic cleaning products ("household petroleum products and detergents"), arguing that conditions that would produce any ill health effects were "very unlikely during cleanup activities" (BP and TEEX 2010, 70). By contrast, sun exposure was positioned as the major health risk on site (BP and TEEX 2010, 10).

The preemptive denial of Corexit posing a health hazard, and the turn to heat as a deflection from workers' questions about their conditions, found its most virulent expression in the BP medical office. Lamont Moore began to notice changes in his body on his second day of work when he developed an aggressive rash and a deep cough. He was told by BP officials that it was heat rash, "but I went to see my doctor anyway. Soon as they heard about that, I was told if I went to see a doctor without authorization, they'd fire me" (Bellona 2014). He continued to ask for medical assistance from his employers yet recounted that BP medics carried on with the diagnosis of heat rash and dehydration and neglected to provide counsel or medication. Jamie Griffin Simon's life of cooking and cleaning on the "decon" barge importantly shows that this experience extended beyond those directly involved in burning the oil or shoveling and skimming mixtures of oil and Corexit. Fumes from washing workers' clothes in the dryer would make her feel woozy, and a month into her assignment she began to get very sick. She visited the on-site medic, who put an oxygen mask on her and called an ambulance. When more medical personnel

arrived, however, they took the oxygen flow away from her on the grounds that it was "unclear what was wrong" (J. Griffin Simon testimony).

In concert with the logic of constructed visibility that guided the decision to add almost 2 million gallons of Corexit to the oil-soaked Gulf, there is evidence that BP elaborated more pointed efforts of visual remediation through the medium of air. A key example of this was the production of data, through an undisclosed methodology, on acceptable air quality, at the same time as neglecting to collect data on workers' bodies or experiences. The community air monitoring program, set up the day after the rig exploded, established a network of monitoring stations at the site of the spill, along the coast, and at locations in between. In BP's internal assessment, the data failed to demonstrate any risks to workers because "airborne volatile chemicals would 'gas off' from the oil and into the atmosphere shortly after it left the well" (*Butler v. BP* 2023, 3). As lawyers representing worker Lakesha Butler recently revealed, however, e-mails circulating within the industrial hygiene department indicated a public relations utility to the air quality data and a plan for its future use in litigation: The data "adds value in the eyes of public perception, and zeroes [in measurements of dangerous pollutants for inhalation] add value in defending potential future litigation." It is noteworthy that BP spent $13 million to flood the books with data on acceptable air quality during the seven-month duration of the cleanup, through which 140,000 discrete measurements of air were generated (*Butler v. BP* 2023, 14).

Given emergent experiences of breathlessness, the issue that most immediately concerned workers was not the air monitoring stations but BP's unwritten policy of respirator prohibition—another tactic of visual remediation. Workers described the relationship between the experience of being sprayed by Corexit and the desire for breathing equipment. According to one,

> [T]hey started spraying the dispersant Corexit and it was hard to breathe and everyone was asking for respirators. Everyone was getting worried because the boats got sprayed and we were breathing in the mist all day long. In the end we didn't know anything about the real dangers of the Corexit; they explained that Corexit was like Dawn dishwashing liquid. (Anonymous testimony)

Further testimonies indicate that when workers began to ask for breathing equipment, BP cited the aforementioned air quality data to argue that such equipment was not necessary, and OSHA (2011) used the image of the lung strained by heat to position respirators as themselves dangerous, arguing that "the health risks from using respirators in the extreme heat exceeded the low risk of chemical inhalation" (10). (Here the use of cost–benefit and risk lexicons to justify certain kinds and intensities of exposure is noteworthy.) A Microsoft PowerPoint presentation used in safety training modules explained that workers would only be in contact with "weathered oil," which because it "is no longer releasing volatile compounds," makes breathing equipment unnecessary (BP and TEEX 2010, 12). Crucially, almost half of the workers whose affidavits were collected by the Government Accountability Project in the years following the spill said that the termination of their employment was threatened when they tried to wear their own respirators (Devine and Devine 2013, 20–21). A recently released affidavit of VOO participant John Scott Maas exemplifies this:

> Daily we were told that we'd be safe without PPE [personal protective equipment], and if we tried to use it we would be fired immediately. Worley and Parsons Group, the contractor whom we worked for directly, forbade the use of the safety equipment I had purchased due to what BP described as "photogenic negative opportunity"—in other words, because the use of respirators and PPE suggested toxicity to the press and the public, which BP and their public relations team intended to minimize. Instead, we were instructed to wear clothes such as shorts and flip flops on the boats. (Government Accountability Project 2024)

It stands to reason that the "photogenic negative opportunity" of protective breathing equipment was of a piece with the logic of visual remediation guiding Corexit use. The ambition of visual therapy—elaborated through the spillcam as well as through chemical reorganization—hinged also on the lack of any observable markers of environmental toxicity, resulting in a program that was fundamentally at odds with worker safety.

As the remediation effort continued to unfold, more and more people started arriving at Michael Robichaux's clinic presenting with symptoms that other doctors had disregarded. First there were coughs and skin rashes, which morphed into fatigue, persistent headaches and dizziness, memory loss, blood sugar problems, acid reflux, abdominal pain, seizures, neurological disorders, and general feelings of being very unwell as the initial cough subsided (M. Robichaux testimony). We have been attending to the ambit of

exposure over the summer of 2010 that produced this collection of symptoms that workers would come to call BP syndrome, from which many are still suffering. Years after being denied care at the on-site medical office, for example, Lamont Moore was still experiencing severe breathlessness and depended on a cheap nebulizer (Bellona 2014). Jamie Griffin Simon continues to have the swollen throat, recurring ear infections, vomiting, dizziness, memory loss, and sight loss in one eye that she developed during her stint on the "decon" barge (Zelman 2011; *Simon v. Grand Isle Shipyard Inc.* 2021, 2023).

These workers were the frontline of remediation, and their experiences matter even more for what they reveal about BP's logics in the decision to deploy Corexit, to monitor air and not workers' bodies, and to consider the optics of the site as that which required cleansing. As a final point that is vital to our story, though, it is worth underscoring that the ambit of exposure extended beyond the workers and beyond the shore. Robichaux found the abrupt, debilitating, and aggravating illnesses of two people especially troubling in his medical practice: a three-year-old child who had been swimming in a beachside pool as cleanup workers were stripping a boom nearby, and a woman whose fisherman husband was involved in the cleanup (M. Robichaux testimony; Bellona 2014). Others have noted that the medical closet at Boothville Elementary School—on Oiler Drive, near where the Mississippi River meets the Gulf—became filled with inhalers, those handheld machines that convert liquid pharmaceuticals into mist that can be breathed in, allowing efficient entry into the lungs (K. Arneson testimony). The sudden density of respiratory ailments and aids among schoolchildren and the friends and families of workers was testament to the remediation's stripping away of breath in the region, suggesting BP syndrome to be an outcome of the environmental remediation—one that extended beyond the workers and the shoreline.

Conclusion: "I Never Did Get My Wind Back"

What are we to learn from this harrowing case, which according to many is "the worst environmental disaster America has ever faced" (National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling 2011, 173)? Let us consider three insights that the experiences of the cleanup workers offer our current planetary conjuncture of fossil-fueled climate breakdown. As we proceed through these summative points, recall that the central role of offshore oil drilling in U.S. energy policy was reaffirmed during the cleanup, and that petrochemical production has ramped up in recent years, a seemingly paradoxical rise after the establishment of the 1.5-degree threshold at COP21, Paris in 2015 (Malm and Carton 2024).

The first is that BP's response recapitulated the central tenets of U.S. environmental policy since the Cold War, primarily the ultimate aim of restoring the very extractive processes that caused the disaster and the acceptance of injury as part of that restoration. The evidence we have compiled shows that sites of potential and compound harm were persistently overlooked in the response, underpinned by unerring faith in the technical descriptions and net-benefit calculations of Corexit. Noteworthy, too, in this context is BP's sustained preemption of future legal challenges across the remedial process: the denial of respirators and the investment in the production of a data set on nondangerous air in a network of points sprawling across the Gulf Coast have both been identified as PR and prelitigation tactics. This followed the oil industry's elevation of its long-standing strategy of foregrounding contingency ("certain uncertainties" in Krupar's [2013] terms) in cases around toxicity into a more virulent form by producing an abundance of obfuscatory data. Journalists Sneath and Laughland (2023), who have been tracking recent cases against BP, described the company finding success in court by "argu[ing] that without biological evidence, workers and coastal residents cannot prove their illnesses were caused by the oil spill."

Given the logics guiding the operation it should not be surprising that the people tasked with carrying out manual labor of all kinds to address the fast-accumulating oil in the Gulf continue to suffer from a range of serious health issues. The account we have offered is hoped to inform efforts to transform remediation policy toward health and environmental justice in future catastrophes, as the strategies employed by BP in the remediation and in legal cases since are likely to persist (and might also find their way into climate cases when such activism reaches courts). The status of contingency seems to us to be of high strategic importance, for as we have demonstrated here, contingency was ignored in devising the remedial approach (e.g., the lack of

consideration to Corexit's possible compounding consequences) but later emphasized in etiologies of illness presented in courts (where concrete linkages between discrete substances and illnesses must be evidenced to attain recompense).

Our second insight homes in on unevenness of distribution. That the ill-health effects of remediation now known as BP syndrome worked at a respiratory register is instructive, not least as it is the focus on air and its amorphous circulatory qualities that were crucial to the construction of uncertainty we have been following. Air quality is compromised by the "petrochemical planet" (Mah 2023) writ large; in turn, air helped us to trace and reassemble this account: We find it in the way Corexit works principally on the lung. It is in the smoke of the controlled oil burnings, in the winds and squalls on the Gulf that brought dangerous fumes into people's lungs, in the channels of ventilation in personal protective equipment, homes, and in "decon" barges. We find it in BP's shifting maps of air monitoring that worked to foreclose medical payouts and in the nasal passages of workers denied respirators for public image management purposes. It is in the pained and prolonged experiences of breathlessness among the precarious workforce that made up the frontline of the catastrophe, as well as those proximate to them. As one of many workers has recounted in an anonymous testimony, "My breathing has been messed up since I started working on the cleanup; I never did get my wind back" (Government Accountability Project 2014a). Therefore, although the elements of contaminated water and raging fire were far more visually prominent in scenes of the catastrophe, and although earth speaks to the astounding depth of the drilling operation that produced it, we posit air to be the key elemental medium through which the human harms of the spill—including the remediation—were distributed. They registered both immediately—such as in the requirement to use one's nose to identify oil to be burned, or the cracking open of cellular barriers via inhalation—and in the case of BP syndrome, have manifested over the course of lifetimes.

This, too, is relevant beyond the spill and its aftermath. The World Health Organization's (2022) recent Report on Global Air Quality stated that "almost the entire population breathes air that exceeds WHO air quality limits and threatens their health." This is at once exactly the point—the global effect of particular ways of organizing nature, including the nature of the body—and not the whole story. Toxic air is both ubiquitous and highly unevenly distributed; petrochemical pollution is widespread but falls heavily on those working and living around sites of production. Breathing is everywhere becoming more labored, and yet certain groups of people are being drawn into zones of exposure, such as experimental working environments for disaster remediation, that are recruiting and altering the mechanics of their breath.

It therefore bears emphasis that the cleanup labor was largely patterned along racial and class lines that were constituted in the formation of the modern industrial world. At the scene of the BP spill and all that followed, we have seen how African Americans, descended from those whom Gilroy (1993) cast as the first subjects of modernity, were disproportionately brought to the frontline of environmental disaster. Their bodies bore the weight of oil's dual position as a leading contributor to climate breakdown and the provenance of a great many dangerous pollutants that are everywhere altering human bodies. The remediation can be thought of at an interface between petrochemical production, climate breakdown, labor precarity and state racism, specifically through the racialized dimensions of the U.S. prison system and the precarity of work along the Louisiana coast in the wake of Hurricane Katrina. In keeping, we can venture a thesis akin to Beck's (1992) notion of a second modernity consigned to mitigate the risks of exposure and harm caused by the industrializing expanse of the first. Beck posited our age to be defined by constant response to escalating risk, a disposition that has only intensified through the twenty-first century as environmental disasters of all kinds compound. Whereas Beck sought to move social thought beyond what he called "zombie categories" such as class and the nation-state to understand this new age of reflexive risk management, this case makes their persistent relevance clear. Groups of people whose labor was historically exploited to create the abundances of wealth, fuel, and more in the United States and beyond—the enslaved, the imprisoned, and the poor—are now enlisted to mitigate the fallout of these excesses. BP syndrome can therefore be understood as a historical affliction born of both the enormous potential for environmental catastrophe inherent to petrochemical production and the fraught remediation response experienced by laborers whose ancestors made possible the gains of industrial growth in a range of different arenas in the first place.

Finally, this leads us to reflect on the damage caused by the remediation operation as a whole. There were reports circulating even in the summer of 2010 that BP would have been better off not acting at all—that doing nothing would be the least harmful of their available courses. That would have been unacceptable, though, for reasons that are crucial for thinking about remediation efforts of the future. In second modernity, or the Anthropocene, or whatever epithet we give this age of planetary upheaval, a predominant disposition is responding to heightened risk—and heightened awareness of risk. BP's response, its speed to deploy Corexit and what we now know of its other techniques to manage the site, suggests a hyperawareness of the risks posed by the spill: of lost profits in fuel, of reputational damage, of endangered life and livelihoods, and of the likelihood of future litigation, all with half a century of oil spills to heed. BP were compromised, with the rest of the petrochemical empire watching on. They proceeded to manage an operation of multiple risk exposures to prioritize capping the wellhead, returning to business as usual, preempting litigation, and protecting reputation. In doing so, they raised the risk profile facing these workers exponentially, who were themselves given scant opportunity to evaluate the risks posed by the toxicity of the cleanup operation. It begs the question of why BP and other polluters are allowed to take a leading role in remedial operations that follow their catastrophes, given that they are compelled to respond for reputational reasons, and given the scope this affords them to set the parameters of visual politics, to recruit precarious and pacified workers, and to limit the cost of the work to the terms of immediate engagement when its chemical effects linger for far longer.

We can conclude by positing environmental cleanup workers like those who shoveled, skimmed, and burned on the Gulf Coast in 2010 as occupying the frontlines of our "permanently polluted world" (Liboiron, Tironi, and Calvillo 2018) of escalating and interacting environmental catastrophes. Their experiences matter not only because they were not told of the extent of the harm they encountered and not listened to when their concerns were voiced at the time and are only starting to be reported on years later, but also because they are suggestive of environmental futures in which this kind of cleanup labor is increasingly fundamental and continuous rather than aberrational and episodic. Perhaps that is already the case; per Vergès (2024, 43), we must always be asking "Who is doing the cleaning?" We consider the resentment they and their loved ones express toward BP in affidavits and when speaking to journalists to be a "coherent and moral way of thinking and of acting on the world" (Seymour 2024, 29). And we find their gathering of the breathlessness, skin issues, cancers, and other illnesses they experience under a label of the name of the oil supermajor that brought them about to be an eminently political act.

Acknowledgments

Thank you to the editor and the anonymous reviewers for their generous and supportive insights that helped prepare this article for publication.

Disclosure Statement

No potential conflict of interest was reported by the authors.

Funding

This study was supported by the Independent Social Research Foundation under its Early Career Fellowship Scheme (Award 2826).

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Note

1. Hereafter we refer to sworn affidavits and anonymous testimonies collected and stored by the Government Accountability Project (2014a, 2014b, 2014c, 2014d, 2024) in this way.

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