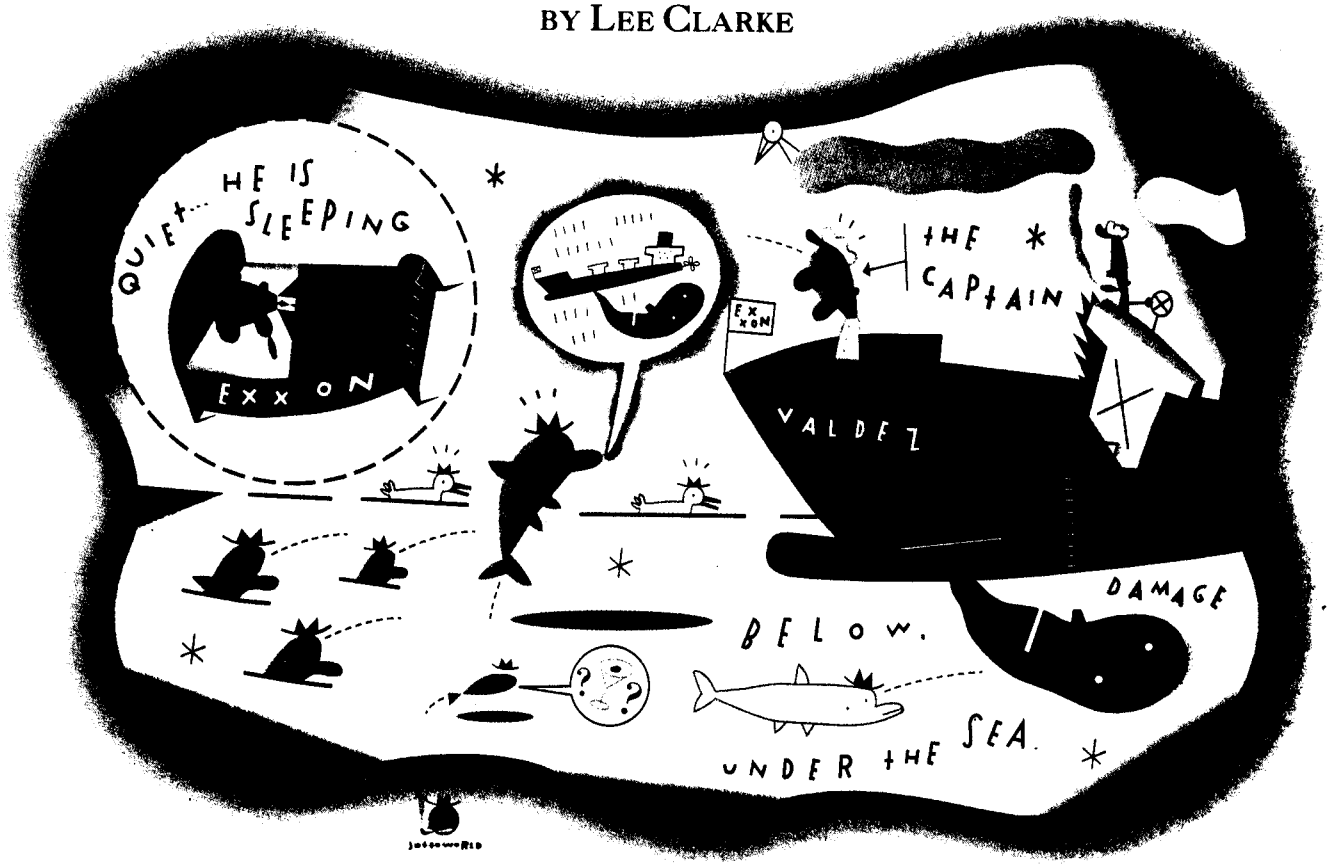
The Great Alaskan Oil Spill was a drama in which the main characters played out their roles according to the script for an elaborate charade—the pretense that a major oil spill can be controlled. The principal props in the charade are the "contingency" plans written to assure the public that organizations know what to do when a spill occurs or one is imminent. In real life, however, contingency plans are barely worth the paper they're written on

OIL-SPILL FANTASIES

BY LEE CLARKE



WITHIN HOURS OF THE *EXXON VALDEZ* GROUNDING, IN PRINCE WILLIAM Sound in March of last year, officers from the Alaska Department of Environmental Conservation were aboard the stricken vessel. To the extent possible, ADEC officials surveyed the damage and began nudging numerous bureaucracies into action. The night was dark, so officials could not tell how badly damaged the ship was, but they knew the spill would be large. "The oil was several feet deep *on top of the water*," an eyewitness told me (probably with some exaggeration) not long ago. "You could have put a hose in the stuff and sucked it up." One of the first ADEC officials to board the vessel used the ship's radiophone to awaken the terminal superintendent of Alyeska Pipeline Service, the corporation owned by the seven oil companies that oversee the Alaska pipeline. He reported that the spill was "a bad one" and advised that airplanes with oil dispersants be readied immediately. A sense of urgency, even panic, was appropriate, because some of the airplanes and dispersants were in Arizona.

ADEC notified Alyeska first because the consortium bore the greatest organizational and legal responsibility for immediate response to an oil spill in Prince William Sound. The elements of that response are detailed in oil-spill contingency plans, particularly one written by Alyeska and approved by ADEC. Alyeska's contingency plan called, chiefly, for two measures: the use of a containment boom (like a long curtain, partly submerged in

the water, which is strung around oil in hopes of controlling it) to hold the leaking oil for later collection with skimmers, and where collection was not possible, the deployment of aircraft with dispersants to dissipate the slick.

As is now common knowledge, both industry and government had major problems implementing Alyeska's contingency plan. Alyeska and Exxon, in particular, have been criticized, with some justification, for responding haltingly or not at all. Reportedly, Alyeska's terminal superintendent made a few calls and went back to sleep. In any case, it seems that Alyeska did not call its dispersant contractors immediately, as its plan promised. Alyeska's safety barge, the only mechanism available to transport a boom to the *Exxon Valdez*, was in drydock for repairs, and its boom was being stored in a warehouse, where it was mixed up with other gear. Reloading the boom delayed the recovery of a significant amount of oil and the minimizing of environmental damage. According to this scenario, bumbling or confused experts and agencies failed to do the right thing.

For its part, ADEC has been charged with impeding Exxon's and Alyeska's initial efforts, especially those concerning dispersants and burning. Lawrence Rawl, Exxon's chairman of the board and chief executive officer, has said, "The basic problem we ran into was that we had environmentalists advising the Alaska Department of Environmental Conservation that the dispersant could be toxic. . . . It was the state and the Coast Guard that really wouldn't give us the go-ahead to load those planes, fly those sorties, and get on with it." The Coast Guard, too, has been criticized for insufficiently controlling the waterways, neglecting to "federalize" the response quickly, and acting inefficiently.

the barge by at least fourteen hours. By then booming the spill was as futile as trying to contain the radioactive cloud from Chernobyl. What's more, Alyeska had only 4,000 gallons of dispersants in Valdez the day of the accident, not nearly enough to respond to a large spill. By the fourth day of what was becoming a political, environmental, and corporate crisis, 70 m.p.h. winds were whipping through Prince William Sound, making it impossible for either aircraft or watercraft to attend the *Exxon Valdez* safely. Because of the storm it was too dangerous, and too late, to dump dispersants on the oil.

The most frequent complaint from critics within the Alaska government and elsewhere has been that the spill could have been boomed effectively during the first three days after the accident, when, as an ADEC officer remarked, the waters were "as calm as glass." And if it had been boomed, the argument goes, skimmers could have been deployed and dispersants applied, resulting in

The organizations involved were in fact inadequately (or ineptly) coordinated, and spent far too much time in the first critical hours and days figuring out who was to be in charge of what, and who was to blame. One veteran of disaster response in Alaska's oil industry says, "It was as if a pilot in a 737 lost one of his engines and got on the radio to the CEO of the airline to ask what to do." A member of the Alaska Oil Spill Commission likened the organizations to the Keystone Cops. They were in fact more like a group of children at seaside, trying to empty an ocean with plastic buckets. Whatever the appropriate simile, the groups were clearly incapable of implementing available solutions constructively, let alone devising successful creative ones.

Most public arguments about the Exxon spill have centered on the implementation of contingency plans. However, a crucial point has been overlooked: even under the best of circumstances the response to the *Exxon*

Valdez catastrophe would have been a failure. If "success" is defined as recovering 15 percent of the oil—a very modest goal—then neither Alyeska, Exxon, the Coast Guard, ADEC, nor anyone else could possibly have claimed success.

Indeed, *oil has never been successfully contained in a major tank-ship accident, nor has a recovery operation ever been successful.* Contingency plans are little more than imaginative fictions about what people hope will happen when things go wrong. Contingency plans for major oil spills ("major" meaning more than 100,000 gallons) on the open sea are fantasy documents that organizations use to reassure others that they are in control of potentially uncontrollable situations. These plans, and the promises from experts who promote them, will remain fantastic for the foreseeable future. Although the sophistication of such plans is ever increasing, they are no closer today to spelling out ways to fix oil spills than they were twenty-three years ago, when the first major spill from a supertanker occurred.

Why Oil Recovery Is All But Impossible

IN 1967 THE *TORREY CANYON*, A 975-FOOT-LONG VESsel (the *Exxon Valdez*, now the *Exxon Mediterranean*, is 987 feet), ran aground in the English Channel with nearly 35 million gallons of oil on board. Within the first six days 6 million to 12 million gallons of the *Torrey Canyon*'s cargo leaked out and, with assistance from the winds, soon blackened the Cornwall coast. (The Exxon spill was estimated at 11 million gallons.) As in Alaska, a boom to contain the spill was scheduled to arrive soon but didn't. For the first seven days after the stranding, salvors tried to save the ship, to no avail. One salvor died in the attempt. Then the tanker's back broke, whereupon the British government declared war on the wreck. On the tenth day of the crisis eight bombers from the Royal Navy attacked their enemy, dropping 1,000-pound bombs on the crippled vessel in an attempt to burn the oil. Soon the *Torrey Canyon*'s stern was aflame, and Prime Minister Harold Wilson expressed delight with the navy's proficiency. Another attack soon followed, this time by fighter jets dumping 5,000 gallons of aviation fuel on the wreck. By the end of the day eighteen tons of bombs had been dropped on the *Torrey Canyon*. Experts worried that the conflagration might be so immense as to endanger all life for miles around. Alas, even with enough flammable material to burn a small city, the fire lasted but minutes. The next day brought more of the same, with napalm added for good measure. More fires started and again failed to burn the cargo. Before the tragedy was done, many more millions of gallons of oil had coated Brittany, where the slick earned the epithet *la marée noire*.

Having failed to burn the oil, the British dumped several million gallons of detergents on it, both at sea and on beaches and cliffs; thousands of soldiers and volunteers went to work in a cleanup operation similar to Exxon's in Alaska. The French were opposed to the large-scale use of detergents, preferring to sink the oil instead. Scientists later discovered that the detergents, themselves quite toxic, did more harm than good to the environment; also, oil driven to the bottom by sinking agents smothered bottom-dwelling organisms. (Today's dispersants are less toxic, but they break up oil into finer particles in the water. Thus, rather than ending the contamination, they make the oil more available to sea life. Scientists are trying to turn this to advantage with a developing class of genetically engineered microorganisms that can metabolize oil.) As *Oil in the Sea*, published by the National

Academy of Sciences, aptly notes, "Many of the impacts observed were due largely to the awesome cleanup efforts used and not to the spilled oil." Although no trustworthy estimates exist of the amount of *Torrey Canyon* oil that was recovered in the cleanup effort, experts agree that it was paltry.

The *Torrey Canyon* story is unusually dramatic, but its outline is typical of spills and cleanups of that magnitude. In 1968, for example, the *General Colocotronis* spilled more than 2 million gallons of crude oil off Eleuthera, in the Bahamas. In 1969 an oil-well blowout dumped at least 1.3 million gallons into the waters near Santa Barbara, California, little of which was recovered. In 1970 the *Arrow* spilled 2.5 million gallons of oil into Chedabucto Bay, Nova Scotia, most of which luckily was swept out to sea. In 1976 the *Argo Merchant* disgorged onto the Nantucket shoals, off Massachusetts, about 7.5 million gallons, much of which stayed on the surface, turned into petroleum pancakes, and floated into the Atlantic. In 1978 the *Amoco Cadiz* lost 68 million gallons, contaminating 180 miles of Brittany, with much of the oil turning into a gooey, long-lasting, and toxic "mousse." In 1979 and 1980 the Ixtoc I well blowout in the Gulf of Mexico bled from 130 to 430 million gallons of oil over a nine-month period; optimistic estimates are that 10 percent was recovered. In June of last year, just a few months after the *Exxon Valdez* grounding, three large spills occurred within twelve hours: the *World Prodigy* leaked 420,000 gallons off Narragansett, Rhode Island; a barge in the Houston Ship Channel lost 250,000 gallons; and the *Presidente Rivera* spilled 800,000 gallons into the Delaware River. This year the *American Trader* spilled 400,000 gallons near Huntington Beach, California.

In all these calamities only the cleanup of the *General Colocotronis* spill could be considered even a qualified success. After the *Colocotronis,* which was under charter to Humble Oil, a subsidiary of Standard Oil of New Jersey (now Exxon), ran aground, a dramatic lightering operation ("lightering" is transferring cargo to another vessel) retrieved nearly 3.5 million of 5.5 million gallons of oil in the ship's cargo, though the ship ultimately had to be scuttled. The best estimates are that "only" 14 to 20 percent of the *Colocotronis*'s oil spilled, polluting "only" a few miles of beach because most of the oil blew out to sea. Even if one considers this a success story, human intervention had little to do with minimizing the damage. Luck, plainly, is our most effective guardian against shoreline contamination from major spills.

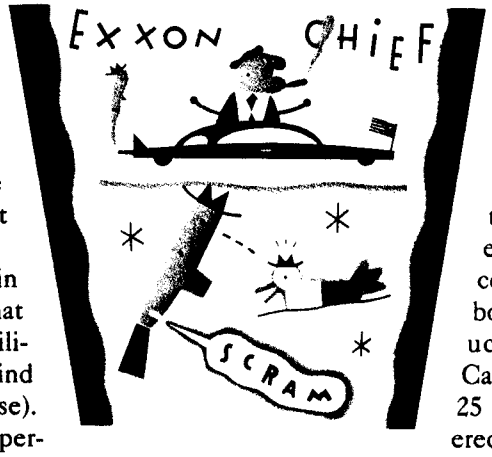
Were all these cases overloaded with conditions that hindered effective response? Perhaps they are stories of organizational and technological failure not because effective response to big spills is impossible but because conditions were simply too severe to permit any productive response: the seas were too high, the winds too violent, the catastrophe too sudden and remote. Such an argument raises the question of what would happen if conditions were more forgiving. In 1987 the Canadian Coast Guard, Environment Canada, and the Minerals Management Service of the U.S. Department of the Interior ran an experiment "to evaluate," in the words of two authors of a report on the project, "the containment and recovery capabilities of three state-of-the-art booms and skimmers."

The experiment, which cost nearly a million dollars, was run in the North Atlantic some twenty-five miles east of Newfoundland, where the researchers dumped about 20,000 gallons of oil. (They had a Canadian permit that required, among other things, westerly winds; the test was also scheduled for a season when no birds or whales would be in the area.) The plan was to contain and collect as much oil as possible. Three booms, one behind another, were to be strung around the stern of the spilling vessel. Then the skimmers would be put to work.

On the day of the experiment the sea had long swells, topped with two- to four-foot whitecaps, according to estimates (the instrument that would have measured them accurately failed), and the winds were at ten to twenty knots. By 6:45 A.M. the necessary vessels were in place, the helicopters (important for coordination) were ready

A CRUCIAL POINT HAS BEEN OVERLOOKED: EVEN UNDER THE BEST OF CIRCUMSTANCES THE RESPONSE TO THE *EXXON VALDEZ* CATASTROPHE WOULD HAVE BEEN A FAILURE.

to go, and the first line of boom was strung. By 9:00 all the oil had been released into the first line of boom. Between 9:00 and 10:00, when media representatives were allowed to watch, the experimenters tried to pull the second line of boom into place, but every attempt resulted in the boom's twisting in on itself. By 10:30 wind was pushing oil over the first boom, and oil was leaking under it as well. Although the frequently twisting second boom was a disappointment, the authors of the report claim that all three booms were able to contain the oil, at least temporarily.



The oil was then towed around in the last boom for about an hour, so that the experimenters could test their ability to corral oil while heading into wind (they fared poorly, to no one's surprise). Then the winds stiffened a bit, to perhaps twenty knots, one of the tow boats started going too fast, and the oil was lost. The experimenters managed to get the first boom back in place and deployed the skimmers. "The first skimmer. . . was deployed and no measurable recovery was observed," according to the report. Other problems developed. Of the three types of skimmers tested, two experienced mechanical problems with the support arms that suspended them from the boat, with the result that both were "frequently submerged so that oil and water were washed into the sump of the skimmer." One of these skimmers enjoyed an "overall rate of oil recovery [of] 60 gallons per minute with unknown amounts of the recovery resulting from frequent partial submergence." As the report indicates, albeit opaquely, the skimmers were probably more useful as buckets than as vacuum cleaners. A third skimmer operated admirably during the test, recovering almost eighty-five gallons of oil a minute, though for some reason it was used only a short while before being brought back aboard. The first skimmer, which earlier in the experiment had been a complete failure, was redeployed after the oil had been treated with a chemical that made it sticky, and this time the skimmer recovered about fifty gallons a minute. Finally rough seas and a dark sky brought the experiment to an end.

Evaluations of the Newfoundland experiment were mixed and sometimes conflicting. Though the authors of the report cited above don't give an overall recovery rate, they claim that "the containment and recovery effort was one of the most successful on record." They do not, however, define success. Edward Tennyson, of the Minerals Management Service, one of the report's authors, told me he estimated recovery at 15 to 20 percent. A month after the test an official Canadian Coast Guard estimate claimed that 33 to 40 percent of the oil had evaporated and that another 33 percent had been lost to sheens, the rainbow-colored film that petroleum products leave on water's surface. The Canadian Coast Guard also claimed that 25 percent of the oil had been recovered, a truly enormous proportion for an open-sea spill. But others in the Canadian Coast Guard, and staff members of Environment Canada, say quietly that the overall recovery rate was closer to 10 percent and consider the experiment a "gigantic flop." The literature on the experiment leads a reader to one unavoidable conclusion: even under reasonably favorable conditions, with state-of-the-art equipment, state-of-the-art chemicals, sufficient trained personnel, well-coordinated organizations, and a completely predictable time of spill, effective oil recovery is, by any reasonable definition, simply impossible. As an observer noted in Jeffrey Potter's 1973 book, *Disaster by Oil*, "It isn't that oil has a mind of its own. It's as mindless as those who spill it. The trouble is the stuff just won't cooperate."

The Canadian Alternative

IF EFFORTS TO RECOVER OIL FROM MAJOR SPILLS ARE futile, then we need to prevent spills from occurring in the first place. The *Exxon Valdez* spill would not have happened in Prince William Sound were it not for the Alaska pipeline, through which flows nearly 25 percent of the oil produced in the United States and the source of 85 percent of Alaska's revenues. In the heady days of the late 1960s and early 1970s, after huge oil de-

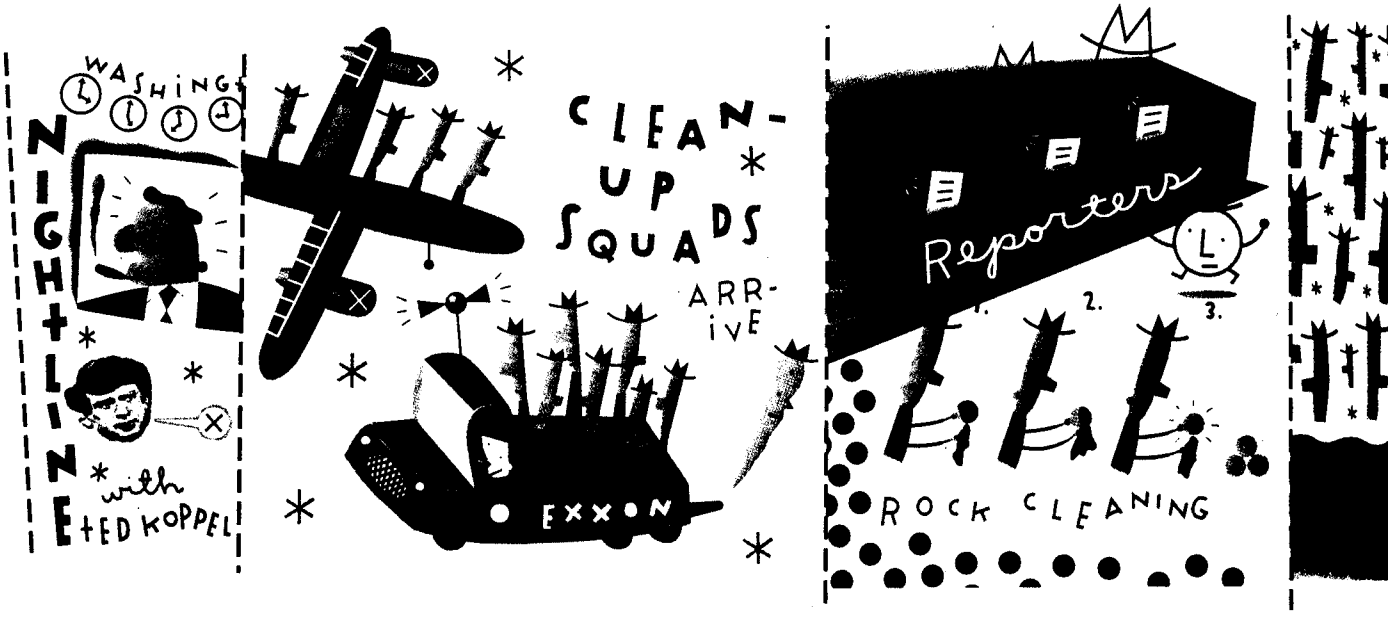
CONTINGENCY PLANS FOR MAJOR OIL SPILLS ON THE OPEN SEA ARE FANTASY DOCUMENTS THAT ORGANIZATIONS USE TO REASSURE OTHERS THAT THEY ARE IN CONTROL.

posits were discovered but before the pipeline was constructed, little discussion took place about how the oil would be transported to refineries. Some rumblings were heard, however, to the effect that a pipeline-tanker system was not the best available method of transport. Representatives of the Sierra Club, for instance, argued that the mere presence of a trans-Alaska pipeline would spoil much of Alaska's great beauty. And other opponents pointed out that more than two thirds of the proposed route for the pipeline would lie within twenty-five miles of the recorded epicenters of major earthquakes, and that tremendous spills might result, since each mile of the 800-mile pipeline could carry about 476,000 gallons of oil at a time.

Indeed, on March 27, 1964, twenty-five years before the *Exxon Valdez* grounding, the worst North American earthquake on record had struck Prince William Sound.

The alternative to a trans-Alaska pipeline system was a trans-Canada pipeline terminating somewhere in the midwestern United States, possibly near Chicago. Such a route had much to recommend it. The segment of Canada through which the pipeline would run was seismically much less active than Alaska. Canada had already agreed to the project and had begun to facilitate construction, and indeed parts of the system, including rights-of-way, were already in place. Some economists concluded that a trans-Canada pipeline would even be more profitable than an Alaskan one. And, as environmentalists pointed out, it would completely eliminate the risk of tanker spills.

Yet the Canadian alternative was never seriously considered. The oil industry was squarely in favor of the Alaska idea, partly because it left oil transport completely under American corporate control, partly because oil

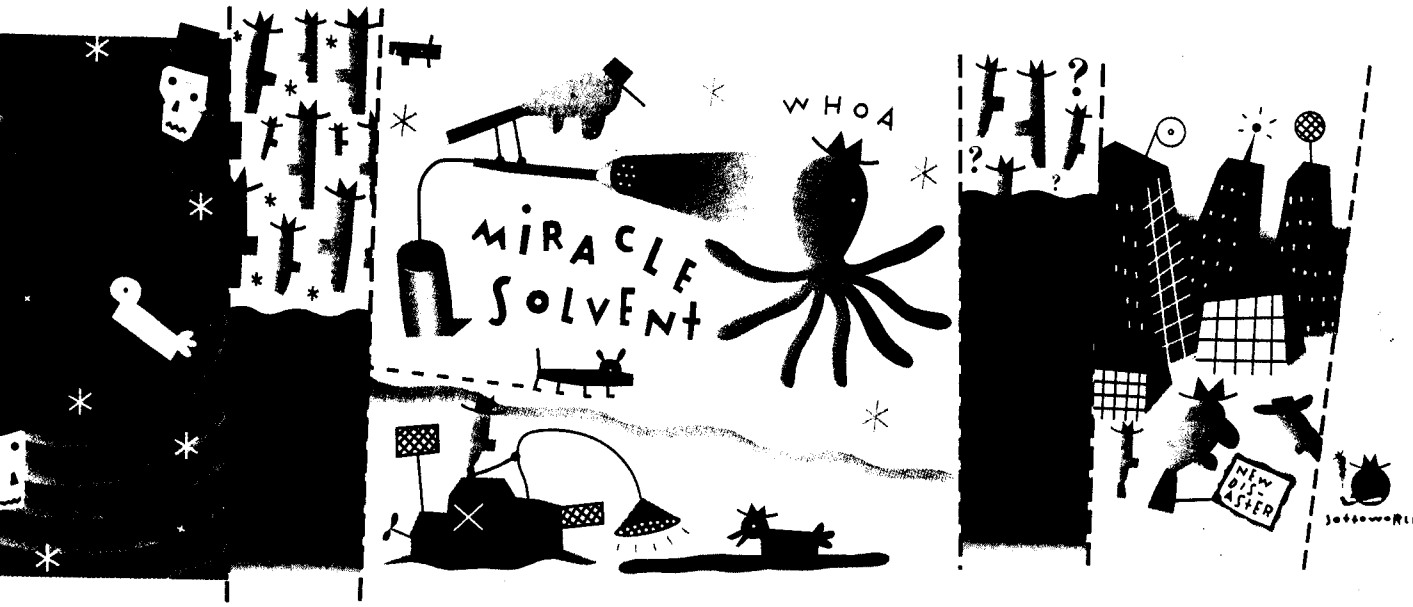


A hundred and thirty-one people died in the disaster. Registering 8.4 on the Richter scale, the "Good Friday earthquake" caused substantial ground displacement and sent forty-foot waves onto shore. Rushing water snapped spruce trees a hundred feet above the low-water mark. The earthquake wrought so much damage that the town of Valdez was moved to safer ground, three and a half miles away. Today, all that remains of old Valdez is the concrete foundation of the former post office, decorated with a plaque commemorating the dead and the forty children orphaned by the quake. The new Valdez conducts annual earthquake drills, and has drawn up plans for its response to nuclear attack, though not to oil spills. But across its harbor are eighteen storage tanks capable of holding 385 million gallons of oil. A major earthquake in the area could rupture the tanks, resulting in a spill potentially thirty-four times as large as the one from the *Exxon Valdez*.

companies wanted the option of selling to Japan (difficult to do with a midwestern terminus), and partly because the government of Canadian Prime Minister Pierre Trudeau was proposing increased regulation of foreign corporations operating in Canada. The U.S. Department of the Interior in 1971 prepared a draft environmental-impact statement that barely considered the Canadian possibilities; nor did the final report discuss them in detail, though it did note that "the magnitude and frequency of future seismic events [along the proposed tanker route] are qualitatively predicted to be high." In 1973 the Senate considered a bill, which had the support of President Richard Nixon, that effectively bypassed both a viable Canadian route and the National Environmental Policy Act's requirement that environmental impact be considered. The Senate vote, with two senators absent, was 49–49. Vice President Spiro Agnew cast the deciding vote, and the House passed a complementary bill soon

thereafter. Any possibility of serious debate over whether the pipeline should be built died with Agnew's vote. Construction of the pipeline began in the summer of 1974. The supertankers probably were already on order.

Although they didn't prevail, opponents of the pipeline-tanker system did force a more careful assessment of the environmental impact of the pipeline than would otherwise have been made. For instance, the oil companies initially claimed they could bury nearly all the pipeline, thus lending the impression of an undisturbed ecology. But after geologists pointed out that hot oil (oil is at 180° F when it comes out of the ground) passing through the pipeline would melt the tundra, thereby weakening the base on which the pipeline lay, the broad-scale burial plan was dropped. And Alyeska was moved to create a fifteen-volume oil-spill contingency plan, twelve volumes of which are devoted to specifying



precisely what would happen should a section of the 800-mile pipeline fail.

What is interesting, and curious, is the discrepancy between the discussion of pipeline safety and that of tanker safety. In sharp contrast to Alyeska's extensive contingency planning for the pipeline was the section of its plan that deals with Prince William Sound—248 pages, perhaps two thirds of which contain maps and lists of equipment. The plan promised much but was vague on what would actually be done in the event of a major spill. The discrepancy is curious because Prince William Sound and the Port of Valdez are precisely the places one would expect a major spill. (In the aftermath of last year's disaster, the contingency plan is of course being extensively rewritten.)

Strangely, in the original plan Alyeska claimed that a large oil spill was "highly unlikely"; last year Exxon Shipping's president, Frank Iarossi, said, "No one ever anticipated trying to handle 250,000 barrels of oil on the water." Yet the possibility of a major oil spill in Alaska was not at all unlikely. The shipping industry loses hundreds of ships every year, although few of them are supertankers. We know roughly how many spills to expect each year (at least one involving more than 7.5 million gallons of oil, on average), and we know approximately how many tankers will founder or otherwise meet their demise. Before construction of the trans-Alaska pipeline began, officials both in the oil industry and in government acknowledged that there were risks of tanker spills and other environmental disasters. Some were even forthright. As a Humble Oil vice-president put it, "The oil is going to be extracted and some of the country hitherto unmolested is going to be torn up in the process. Let's not fool ourselves." Furthermore, explicit scenarios of grounding and spillage must have been considered in developing the extensive regulations that concern tanker and harbor safety, and in calculating the insurance-premium rates that shippers pay. Precedent exists as well: several major and many minor spills have occurred in Alaska over the past ten years.

Tanker accidents are not rare in Alaska. In January of 1987, for example, the *Stuyvesant*, a tanker larger than the *Exxon Valdez*, encountered severe storms in the Gulf of Alaska almost immediately after leaving Valdez. The storms caused a hull fracture, resulting in the loss of over half a million gallons of North Slope crude. Luckily, none of the oil hit the shore: if it had, the spill would have been the largest in Alaska's history. After repairs, the U.S. Coast Guard inspected and recertified the *Stuyvesant*. Nine months later, in October, the same ship sustained additional structural damage, spilling 600,000 gallons of oil into the Gulf of Alaska and thus becoming responsible for both of the two largest spills off the U.S.

coast that year. Like most disasters, the second spill could have been much worse, because the *Stuyvesant* was fully loaded with 63 million gallons of oil (the *Exxon Valdez* was carrying about 55 million gallons). As with the vessel's previous spill, heavy seas and high winds (more luck) prevented oiled shorelines.

The strong reasons to expect oil catastrophes notwithstanding, no one concerned with oil-spill risks in Alaska—either in government or in industry—has developed realistic worst-case scenarios for major tanker failures in Alaskan waters. This situation is unlikely to change, in spite of the Exxon spill and in spite of the generally earnest, hardworking staffs of the various regulatory agencies. As of July of last year, the Alaska Department of Environmental Conservation, a somewhat conflicted agency often characterized by hard-line environmentalism at the bottom and middle levels and complacency at the upper reaches, had but one officer to review all contingency plans for the entire southern half of Alaska, though the state's coastline is longer than that of all the rest of the country. "It's a lot of territory," he told me recently, and "it's virtually impossible to cover that kind of thing unless you have a hell of a big work force."

Rethinking Oil Priorities

HAD EXXON SPENT ON PREVENTIVE MEASURES the $1.3 billion it claims the spill cost, Prince William Sound might still be pristine. We will always have groundings and founderings of tankers. And given the immense economies of scale that supertankers afford, they will remain signal features of the world's seascapes. But supertankers are not as safe as they could be.

From 1964 to 1982 about 5,400 ocean voyages were completed by liquefied-natural-gas carriers, according to Leo Tasca, a senior environmental officer in the Ontario Ministry of the Environment (which has a major role in responding to oil accidents in Canadian waters) and the author of a forthcoming book on marine accidents. During that time only sixteen LNG accidents were reported, none involving fatalities and none involving a breach of the interior hull. Here containment is crucial, because an LNG tanker explosion would be a catastrophe of the highest order: Tasca reports that some LNG tankers contain "more energy than was released in the atomic explosion at Hiroshima." LNG tankers have an excellent safety record because they have double bottoms, double sideshells, and double decks, all measures that industry claims are too expensive to implement in oil tankers (industry representatives even claim that in some cases double hulls would be dangerous). These measures are enforced in U.S. waters by the U.S. Coast Guard, which bears regulatory and legal responsibility for certifying LNG tankers seaworthy. Oil transport would be much safer if the Coast Guard were as anxious about oil spills as it is about LNG spills.

Once a major oil spill occurs, one tanker captain says, "the best thing you can do is uncork another bottle of whiskey"—a poor prescription for Captain Hazelwood, the *Exxon Valdez*'s former skipper, but a not altogether inappropriate one for the rest of us. In spite of industry pronouncements, in spite of regulators' assurances, in spite of the enormous amounts of resources expended, in spite of everyone's best intentions, contingency plans for major oil spills simply do not constitute a productive response to their subject.

A week after the Exxon spill Lawrence Rawl, of Exxon, said from his New York headquarters, "We were ready [Saturday—the spill was Friday]. We couldn't get authority to do anything until 6:45 P.M. Sunday. We needed authorization. As an oil company we can't just go out and start spraying. We feel very badly about the damage to the environment. I don't want to point fingers, but the facts are we're getting a bad rap on the delay."

Imagine what might have happened if, instead, Rawl had appeared in Valdez on the day after the spill and made the following announcement: "A great tragedy has occurred: one of our fifty-million-gallon tankers has run

HAD EXXON SPENT ON PREVENTIVE MEASURES THE $1.3 BILLION IT CLAIMS THE SPILL COST, PRINCE WILLIAM SOUND MIGHT STILL BE PRISTINE.

aground on Bligh Reef. We don't yet know how much oil has been spilled, but it may be a lot. We know from experience and study that we can't do much once the oil is away from the ship. We'll never be able to collect enough of it from the water to make much of a difference. And once the oil is on the beach, washing rocks and picking up tarballs will succeed mainly in creating the false impression that we are able to clean up the mess. In fact, a gigantic cleanup might do more harm than good, because our high-pressure hot-water cleaners will disturb the shoreline's ecology, among other things. But we will do our best to keep the situation from getting worse, and so will concentrate on getting the remaining oil out of the *Exxon Valdez*. Beyond that, we will just have to wait for the ecology to repair itself, a process that could take ten to fifteen years."

Charges of callous negligence would have been far more forceful than they actually were. And demands might have been heeded to protect from development the Arctic National Wildlife Refuge, an 18-million-acre expanse with perhaps 3.2 billion barrels of recoverable oil under it. Other areas, too, might have come to be more aggressively protected, including the Florida Keys; Georges Bank, off Massachusetts; and Bristol Bay, in Alaska (where drilling rights have already been leased). But telling the awful truth might have achieved a still more important result: making the public aware that large oil spills are calamities for which we are unprepared.

Ultimately, we must look to the institutions that regulate and manage oil development—rather than respond to oil spills per se—for relief. A great many interests are served under the current system of oil development, including those of the shipping and auto industries, the port authorities, the forces opposed to mass transit, and the forces opposed to government intervention in the market as a matter of principle. When catastrophic spills occur, regulators often sound like the most strident of environmentalists. But when the media aren't training a spotlight on them, regulators and industry operate more like partners than like opponents. As Wesley Marx, the author of several books on ocean pollution, points out, "Oftentimes, regulatory agencies seek critical advice and assistance from the very industry being regulated. In this schizophrenic climate, the oil industry is able to take its lumps in public, remaining confident that it will retain the last word in shaping its own standard of conduct."

But not only standards of conduct are being shaped in these debates over the risks of oil development. The values being defended are ones of technical competence and of "national interest," which is perhaps the most persuasive of all principles in terms of its ability to confer legitimacy and hence attract political support. An alternative line of argument, often used by environmentalists and some ecology experts, assumes some pristine state of nature as its moral and political point of departure. Nature is presented in vivid contrast to technology and human institutions: nature is true, this reasoning declares, while institutions and technology are false. The problem from this point of view is that society is not structured in accordance with "environmental values," values that are somehow consonant with ecological, natural constraints. Toxic dangers are risk games, with defenders of and challengers to established positions. The defenders and challengers use different rhetoric to win adherents to their positions. Winners of risk games gain the right to define the terms of debate, to name the problem for others, thereby shaping the vocabulary of argument within which controversy ensues. Were the ecology-minded challengers to win the game of naming the risk of oil development, the debate would likely revolve around issues of "health hazards," "the environmental crisis," and "conflict between public interest and private profit." We cannot be sure that such a redirection of the terms of debate would enhance safety. It would, however, do away with the idea that oil spills are innocent until proved guilty.

But the winners of the debate about oil development have been those who favor production over conservation, and so it has been conducted in terms of "national security." Manuel Lujan, President Bush's Secretary of the Interior, represented the received view in posing the following questions when the House restricted offshore drilling for a year in the aftermath of the Exxon spill: "Do we want to become increasingly reliant on foreign supplies and foreign tankers for oil that this country must have? Or do we want instead to rely on our own capacity to safely produce and distribute our own oil?" This argument, it bears pointing out, has been used extensively since before Teapot Dome. It permits only one answer. Once such rhetoric is allowed to frame the national discussion of oil spills, opposing views become downright un-American. Thus does the national interest become equated with the well-being of major oil companies.

National interest, however, can be conceived in a way that doesn't resonate with the notion that enthusiastically supporting private oil development is a patriotic duty. If oil is a central national-security issue—and our oil addiction makes it one—then we may very well wish to protect it, rather than exploit it.

We probably will not put an end to the enormous efforts that go into planning for oil spills, because too many political and organizational interests depend on perpetuating an illusion of control. Our dependence on oil grows unabated; conservation becomes a priority item on big political agendas only when oil production is threatened by instability or upheaval among the oil-producing nations. As oil prices rise—and they inevitably will—production will increase, more tankers will be built, and more tankers will make unintended deliveries to the sea. The least we can do is demand a forthright discussion of the risks of oil development, and the inevitable disasters we will be asked to absorb. □