

8

Environmental disasters

by Hannah Lendon and Brian Martin

Major nuclear reactor accidents and oil spills are disasters for both humans and the environment. With such disasters, attention usually is focused on the environmental impacts. But there is another sort of impact — on public opinion. Outrage is a common reaction. Some people see accidents as due to blind fate, but others hold corporations or governments responsible, or even entire technological systems. “Environmental backfire” — when outrage from environmental disasters is directed at industries, governments, or technological systems — offers an opportunity for the promotion of environmental causes.

In the cases described in previous chapters, the targets attacked were humans, whether described as protesters, citizens, or employees. Environmental backfire is quite different: the assault is on the environment, though humans may be affected too. Another big difference is that there seems to be no human *intent* behind accidents: in other words, the environment was not targeted for attack. Nevertheless, although an accident may be entirely inadvertent, if it has serious environmental or other effects, it can have adverse consequences for whoever or whatever is perceived as responsible. Although accidents are not intentional, many of the preconditions for accidents — technological design, maintenance systems, work schedules, adherence to rules — are the direct result of human decisions. So it is quite possible to attribute blame. The result is that the dynamics of environmental disasters fit the backfire framework.

On closer inspection, it is not so obvious that assaults that backfired were always intended. The Sharpeville shootings, according to Frankel's account as given in chapter 2, were not a pre-planned massacre, but rather

the result of rash copycat behavior by police in a tense situation. Likewise, the police who beat Rodney King did so at the conclusion of a furious police chase, known to pump up adrenaline and increase the risk of abuses. Generally speaking, only some assaults — such as torture — are coldly calculated; others are partly inadvertent, occurring in circumstances that make them possible or even likely. Environmental backfires can be seen in this way: they are inadvertent, in that no one intended them, but underlying conditions make them possible or even likely.

To examine environmental backfire, we look at two famous accidents: the Chernobyl nuclear accident and the *Exxon Valdez* oil spill. Both show evidence of the common methods of inhibiting outrage. We conclude by noting some implications, both for environmentalists to prepare for and deter future disasters and for managers who feel their organizations have been unfairly blamed. Disasters can serve as catalysts for strengthening environmental consciousness and leading to greater protection for the environment.

Chernobyl

On 26 April 1986, a chemical explosion in a nuclear power plant at Chernobyl in the Soviet Union dispersed radioactive pollution over a vast area, exposing thousands of people to dangerous levels of radiation.

A nuclear accident, like Chernobyl, can harm the environment as well as the local population. An event such as this is likely to be perceived as unjust because both the environment and the people are seen as innocent victims. Therefore, the accident can backfire against whoever or whatever is seen

as responsible: the operators, the managers, the designers, the industry, or the form of technology itself.

Chernobyl was the most prominent nuclear accident in history, triggering a tremendous reaction against nuclear power. It is easy to find evidence of major efforts to minimize this antagonism to nuclear power, because of the extensive documentation about this accident.

There is plenty of evidence of cover-up. Indeed, it was the most characteristic feature of the Soviet nuclear enterprise, which was tightly controlled by the Soviet government. There had been dozens of serious accidents within the Soviet Union prior to Chernobyl, yet the government had not permitted any public information about a single one.¹ In 1957 there was a chain reaction in a military nuclear waste dump at Chelyabinsk, contaminating a huge area with radioactivity and killing hundreds of people, but there was no announcement. This event was also denied by Western authorities.²

Following the Chernobyl accident, the government made no public statements; President Gorbachev's new policy of glasnost had not taken hold in the nuclear industry.³ By chance, winds blew radioactivity from Chernobyl towards Western Europe, where it was first registered in Sweden. Western evidence and reports forced the Soviet government to make its own announcement. This was followed by an apparent new-found openness about the causes of the accident. But other cover-ups continued. The full effects of

the radiation on the local population and ecology were not revealed. Local people were not given realistic information about dangers, leading to rumors. Few statistics were kept about health impacts and ecological damage. Foreign scientists were not allowed entry to the region except under carefully controlled conditions.⁴

For the purposes of devaluation, the "target" included both the people and the environment affected by radioactive pollution. There is little evidence of official statements casting aspersions on the people or the environment, but the actions of the government reflected devaluation in practice. Some local communities were evacuated; others were not. Party officials and their families were evacuated quickly, but school children were removed from the special zone only later. Rather than fully informing the population, the government kept people ignorant and treated them patronizingly, thus devaluing their good sense.

Large numbers of workers were used in sealing the damaged reactor, in the process receiving significant doses of radiation. They were hailed as heroes at the time. Later, when many of them reported illnesses, these were dismissed as unrelated to radiation.⁵ Thus, both the health consequences and personal understanding of these workers were devalued.

There were several ways to interpret the responsibility for and significance of the Chernobyl accident. The Soviet government promoted the view that workers at the unit caused the accident by carrying out unauthorized tests of safety measures. This view was presented by Soviet officials to the August

1. Zhores A. Medvedev, *The Legacy of Chernobyl* (New York: Norton, 1990), 263–88.

2. Zhores A. Medvedev, *Nuclear Disaster in the Urals* (New York: Norton, 1979).

3. In a retrospective assessment, Mikhail Gorbachev, "The Nuclear Disaster that Opened Our Eyes to the Truth," *The Australian*, 19 April 2006, p. 12, claims there was no cover-up, but that the Politburo simply did not have sufficient information to understand what was happening.

4. David R. Marples, *The Social Impact of the Chernobyl Disaster* (New York: St. Martin's Press, 1988); Grigori Medvedev, *The Truth about Chernobyl* (New York: BasicBooks, 1991); Medvedev, *Legacy of Chernobyl*; Alla Yaroshinskaya, *Chernobyl: The Forbidden Truth* (Oxford: Jon Carpenter, 1994).

5. V. M. Chernousenko, *Chernobyl: Insight from the Inside* (Berlin: Springer-Verlag, 1991), 46.

1986 meeting of the International Atomic Energy Agency. The IAEA, well known for its promotion of nuclear power, accepted this explanation without much question. For nuclear power promoters, blaming the workers was better than blaming the technology. Indeed, the Soviet government was praised for being so open at the IAEA meeting about the causes of the accident.

An alternative view was that the key to the accident was the Soviet RBMK reactor design, which critics said had serious deficiencies: it was not designed to be failsafe in the face of operator mistakes. By this interpretation, those who designed and approved RBMK reactors should have been held responsible.

The Soviet government attributed much of the criticism over the accident to anticommunism. On 14 May 1986, Gorbachev, in a major televised statement about the accident, claimed the Soviet Union had faced “a veritable mountain of lies — most dishonest and malicious lies” from Western politicians who intended “to sow new seeds of mistrust and suspicion towards the socialist countries.”⁶

The use of official channels was most apparent in the role of experts in making pronouncements about the accident. Soon after the accident, groups of Soviet experts were flown to the site to make assessments. In August, when Soviet officials reported to the IAEA about the accident, this provided an account taken by most western nuclear experts to be authoritative. Western media coverage also was influenced by the Soviet official line.

The government set up the “Chernobyl Rectification Program” to undertake decontamination, resettlement, food provision, and other work to deal with the ongoing human and environmental impacts of the accident. According to a Soviet scientist intimately involved in the aftermath of the accident, “The Program’s purpose seems to be only to: soothe

public anxiety; exonerate the real culprits; minimize expenses.”⁷ Critics would say the main purpose of official statements and official programs was to give the appearance but not the substance of properly dealing with the problem.

Another use of official channels was the July 1987 trial of plant officials held in the town of Chernobyl. This use of the court gave a legal stamp of approval to the authorities’ interpretation of events, namely blaming individuals rather than the reactor design or the Communist Party elite. Foreign journalists were permitted to attend only the opening and closing days of the trial, being banned from the rest of its three weeks, during which many revelations about the accident occurred.⁸ The trial of plant officials thus played multiple roles: it was an official channel giving a formal endorsement of the dominant interpretation, combined with cover-up of more damaging information.

Finally, intimidation played a role in reducing the expression of concern. The secrecy about previous accidents, and the failure to learn from them, can be attributed to the climate of fear in the Soviet Union, in which voicing criticism could be met by serious reprisals. For example, Dr Ivan Zhezherun, long before the accident, pointed out design defects of the RBMK, but couldn’t go to the media because of the likely consequences.⁹ After the accident, journalist Alla Yaroshinskaya investigated health consequences of the accident and came under attack after having articles published in newspapers.¹⁰

In earlier Soviet nuclear accidents, government efforts to inhibit anger and concern had been largely successful. The outside detection of radiation helped the Chernobyl disaster break through the usual Soviet pro-

6. Mikhail Gorbachev, “Television Address by Mikhail Gorbachev, 14 May 1986, Moscow,” in *Chernobyl: The Real Story*, ed. Richard F. Mould (Oxford: Pergamon, 1988), 195–201, at 198.

7. Chernousenko, *Chernobyl*, 263.

8. Marples, *Social Impact of the Chernobyl Disaster*, 118–24.

9. Medvedev, *Legacy of Chernobyl*, 259.

10. Yaroshinskaya, *Chernobyl*, 45.

cesses of censorship, disinformation, and intimidation, contributing to worldwide criticism of nuclear power.

Exxon Valdez

Since the 1960s, there have been numerous oil spills, with millions of gallons of oil escaping into the sea. Yet only a few of these spills have generated massive publicity. Among the prominent accidents, named after the ships involved, are the *Torrey Canyon* spill of 36 million gallons off southwest England in 1967, the *Amoco Cadiz* spill of 67 million gallons off France in 1978, and the *Prestige* spill of 23 million gallons off Spain in 2002. However, some of the largest spills generated little media coverage or public outcry. During the 1991 Gulf war, over 250 million gallons of crude oil were spilled in the Persian Gulf, with minimal attention or public response.¹¹

Also receiving little attention are slow spills, such as the Guadalupe Dunes spill in California that released 8 to 20 million gallons over four decades. Because there is no sudden crisis, such spills often evade scrutiny even when the long-term damage is huge.¹²

Of all spills, the *Exxon Valdez* is most well known. Because it occurred in what was seen as a pristine Alaskan ecosystem, the spill generated huge international media coverage and mobilized support for the protection of the environment.¹³

Just after midnight on 24 March 1989, the supertanker *Exxon Valdez* ran aground on

Bligh Reef in Prince William Sound, Alaska. Eight of its 11 cargo tanks were ruptured, causing over 10 million gallons of crude oil to be spilled. At the time, Captain Joseph Hazelwood was in his cabin, quite possibly under the influence of alcohol, and the ship was being navigated by third mate Gregory Cousins.

Before retiring, Hazelwood directed the ship to travel in inbound shipping lanes and had the ship's autopilot speed increased to the maximum. Cousins, who was fatigued, did not respond to several indications the ship was off course. When he finally realized the problem, it was too late to avoid grounding on the reef.¹⁴

Immediate cleanup efforts were plagued by terrible weather, insufficient resources, and poor safety procedures. The environmental and legal repercussions of the spill continue today and remain controversial.

Alyeska, the consortium of oil companies that managed the Valdez terminal and the Trans-Alaska Pipeline, was not well prepared for such a large accident. Its cleanup equipment was inadequate, with many of its booms buried in snow. Soon after the accident, Alyeska put the responsibility for the spill onto Exxon. Other oil companies with Alaska operations tried to avoid criticism by keeping a low profile.

The reaction against Exxon was enormous. For example, eight weeks after the spill:

At the annual shareholders' meeting on May 18, [Exxon CEO Lawrence] Rawl faced a firestorm of criticism from both shareholders and the general public. Thousands of people across the country had already cut up their Exxon credit cards and mailed the pieces to Rawl. Crowds of protesters marched in the streets outside the meeting. Some stockholders wanted an environmentalist on the board, while others

11. Abelard News Archives, "Oil 1-2." <http://www.abelard.org/news/archive-oil1-2.htm#spills> (accessed 27 June 2006).

12. See Thomas D. Beamish, *Silent Spill: The Organization of an Industrial Crisis* (Cambridge, MA: MIT Press, 2002) for an insightful analysis of how the Guadalupe spill has evaded attention. We thank Kevin Wehr for referring us to this book.

13. John Keeble, *Out of the Channel: The Exxon Valdez Oil Spill in Prince William Sound* (New York: HarperCollins, 1991).

14. J. Steven Picou, Duane A. Gill, and Maurie S. Cohen, eds., *The Exxon Valdez Disaster: Readings on a Modern Social Problem* (Dubuque, IA: Kendall-Hunt, 1997).

demanded the resignation of top management. Pension fund representatives holding large amounts of Exxon stock made it clear that they would be watching Exxon's cleanup performance.¹⁵

There were dozens of legal cases targeted at Exxon. In the 1991 legal settlement, Exxon was fined \$150 million for an environmental crime, paid \$100 million for injuries to fish, wildlife, and lands, and agreed to pay \$900 million over a decade as civil settlement to restore resources harmed by the spill.¹⁶ Exxon said it spent \$2.1 billion as a result of the spill.

The media outcry and public support for the environment after the disaster created a situation in which Exxon's efforts to inhibit outrage were not very successful in the face of a local and wider community of environmentally conscious individuals. Still, there is evidence of Exxon's use of several inhibition methods.

First, cover-up: Exxon claimed 11 million gallons of crude oil were spilled when the ship ran aground, and this is the figure normally quoted. However, the Alaskan government, in an unpublished investigation, found the actual figure was roughly 35 million gallons, a figure three times as great. After the spill, other Exxon vessels removed most of the remaining oil from the *Exxon Valdez*. Exxon claimed all the salvaged liquid was oil, but ballast water survey forms showed about 24 million gallons of the salvaged liquid was water, implying an additional 24 million gallons of oil — besides the 11 million admitted by Exxon — was spilled.¹⁷

15. Art Davidson, *In the Wake of the Exxon Valdez: The Devastating Impact of the Alaska Oil Spill* (San Francisco: Sierra Club Books, 1990), 205.

16. *Exxon Valdez Oil Spill Trustee Council, The Court Settlement*. <http://www.evostc.state.ak.us/History/settlement.htm> (accessed 27 June 2006).

17. Riki Ott, "Why Exxon Owes Alaska \$5 Billion," *Anchorage Daily News*, 25 June 2002.

Exxon said 1,300 miles of coastline had been oiled by the spill. In contrast, the National Oceanic and Atmospheric Administration reported 3,240 miles had been oiled.

According to court records of lawsuits filed by sick workers, Exxon's cleanup led to sickness among approximately 6,700 of its 11,000 workers. Exxon did not report these cases to state and federal agencies, thereby avoiding requirements to monitor the long-term health consequences of hazardous waste cleanups.¹⁸ These examples of discrepancies in figures about oil spilled, coastline oiled, and workers made sick can be attributed to cover-up by Exxon or to a genuine divergence of views, in which case they fit into the reinterpretation method of inhibition.

In the first few weeks, Exxon paid for wildlife rescue boats that reported on the number of dead birds and mammals observed. But then Exxon cut back on the operation: fewer boats meant fewer reported wildlife fatalities.¹⁹ In effect, by not collecting data, the full effects of the spill were covered up.

For the purposes of devaluation, one potential "target" is the environment itself. This might work with some environmental issues, such as a proposal for a waste dump in an area already polluted by toxic chemicals: degraded areas are commonly seen as less worthy of protection. But this was far from the case for the unspoiled areas polluted by *Exxon Valdez* oil. Many communities, from Anchorage to Cordova, maintain strong environmental values; national park and heritage sites cover thousands of miles of coastline. Therefore it would have been futile, and probably counter-productive, for Exxon to attempt to devalue the environment. Instead their devaluation attempts were targeted towards Captain Hazelwood (as discussed below) and the validity of scientific research that deviated from Exxon's own claims.

The third method of inhibition is reinterpretation. The accident received such immediate

18. Ibid.

19. Davidson, *In the Wake of the Exxon Valdez*, 208–9.

news coverage that Exxon could hardly deny a major accident had occurred. The main controversy lay not in what happened but who was to blame: Captain Hazelwood, Exxon, Alyeska, or the oil industry generally?

Captain Hazelwood was Exxon and Alyeska's favorite scapegoat. He had a long record of alcohol intoxication, and had had his car driver's license repeatedly suspended for drunk driving. Nine hours after the accident, Hazelwood had a blood alcohol test, indicating his alcohol level could have been extremely high at the time of the accident.²⁰ Exxon CEO Rawl portrayed Hazelwood's drunkenness as the crux of the problem and strongly disassociated Exxon from "the captain ... this man" who was unable to deal with his alcoholism.²¹ On the other hand, Exxon could be blamed for not addressing known alcohol abuse.

There is another perspective: it was normal for captains to leave the ship's bridge after leaving the sound, and third mate Cousins was well qualified, so it may be unfair to blame Hazelwood. It can be argued Cousins's sleep debt was the prime cause of the accident.²²

Or perhaps the problems were more deep-rooted. The magnitude of the cleanup totally overwhelmed the mechanical capabilities of the Valdez terminal and its vessels. Alyeska and Exxon's lack of emergency preparation led to delays in obtaining permission to apply chemical dispersants to the oil. Alyeska and Exxon both downplayed their ongoing failure to meet the annual safety requirements of the Alaskan Department of Environmental Conservation. Should Alyeska have been held primarily accountable due to its decade-long

failure to comply with regulations? Or should the Alaskan government have been held responsible for approving oil development but not enforcing its own regulations?²³

A deeper challenge to the oil industry is to question the feasibility of oil cleanups even with the best possible protection. According to risk analyst Lee Clarke, when organizations create plans to handle disasters such as nuclear reactor accidents and massive oil spills, they can sometimes reassure the public but actually they are producing "fantasy documents" that obscure dangers and give a false sense of security. Experiments in trying to recover spilled oil show it is not feasible in practice, so contingency plans are largely symbolic rather than practical.²⁴

Exxon maintains the spill has had no adverse long-term environmental impacts. In 1993, it claimed that, "Biological recovery of affected species has been rapid and in most cases is nearly complete." A government official from the National Oceanic and Atmospheric Administration said Exxon had put up a "smokescreen" and that Exxon's assertions made no "difference in the big picture in regards to damage."²⁵ A study by a team of researchers published in the journal *Science* in 2003 found the long-term impacts of the spill on wildlife were greater than expected, and therefore it should not be assumed the main effects were the immediate ones.²⁶

20. Ibid., 64–70.

21. Edmund Faltermayer, Alex Taylor, III, and Marshall Loeb, "In Ten Years You'll See Nothing" (interview with Exxon CEO Lawrence Rawl about the Valdez oil spill), *Fortune*, 8 May 1989, pp. 50–53.

22. William C. Dement and Christopher Vaughan, *The Promise of Sleep* (New York: Dell, 2000), 51–53. We thank Kevin Wehr for pointing out this reference.

23. Davidson, *In the Wake of the Exxon Valdez*, 79–98.

24. Lee Clarke, *Mission Impossible: Using Fantasy Documents to Tame Disaster* (Chicago: University of Chicago Press, 1999). See also Davidson, *In the Wake of the Exxon Valdez*, 297–301, who says the oil industry and government officials must have known that plans to recover spilled oil were unrealistic.

25. "Exxon Valdez Controversy Revived," *Oil and Gas Journal*, 26 April 1993, pp. 26–27.

26. Charles H. Peterson, et al., "Long-Term Ecosystem Response to the Exxon Valdez Oil

In summary, Exxon reinterpreted events by blaming the captain and by playing down the scale of the disaster, the company's lack of preparation, and the long-term environmental effects.

Several official channels were involved. Exxon tried to give the impression justice was being carried out by dealing with the spill through the courts, scientific research, and the federal government.

The legal aftermath of the Exxon case extended well over a decade. Federal and state governments settled their criminal and civil cases against Exxon in 1991, but private legal cases were still proceeding in 2004.²⁷ But is moral or social justice achieved through these legal channels, which focus on financial compensation? The legal agenda does not include any radical change in the regulation of Exxon's transportation of oil, Alyeska's operations, or the oil industry as a whole.

Exxon, using a multi-million dollar budget, contracted science advisors to monitor and report on damage from the spill. As part of this, Exxon flew three British scientists, known to be skeptical about oil-spill ecological damage, to Valdez. (At an Institute of Petroleum seminar, Otto Harrison of Exxon said a scientific message was more credible to the U.S. public when spoken in a British accent.²⁸) Exxon said it had chosen these scientists to provide impartial findings from the field. One of the scientists wrote that, "The effects of the cleanup, coupled with the scouring action of winter storms, left the shoreline largely free of oil by the spring of 1990. ... There is evidence that remaining oil

is neither toxic nor harmful."²⁹ In contrast, scientists not funded by Exxon reported that pockets of crude oil had the potential to disperse toxic chemicals into the food chain, causing long-term damage.³⁰

On 7 April 1989, President George Bush Sr. reportedly exempted Exxon from some cleanup requirements. He put the Coast Guard in charge, and promised to send troops to Prince William Sound.³¹ Exxon managed and paid for the cleanup and supplied equipment while the Coast Guard made final decisions and approved and monitored the plans. Although there was no evidence from historically declared national disasters to suggest federal intervention would improve the effectiveness of the response,³² the fact that the Coast Guard was making the final decisions gave the *impression* that appropriate action was being carried out and the situation was being dealt with professionally.

Cases of intimidation and bribery in the corporate sphere are often difficult to verify publicly as there is usually such an imbalance of power and influence that individuals are afraid to speak out. There have been claims Exxon harassed and fired whistleblowers who had access to compromising information at the time of the early court cases.³³ Investigative journalist Greg Palast claims the oil industry used dirty tricks against individuals who warned, before the oil spill, of shortcomings in containment systems. For example, in 1984, Captain James Woodlee, Alyeska's commander of Port Valdez, warned of weaknesses in

Spill," *Science* 302 (19 December 2003): 2082–86.

27. Ashley Shelby, "Whatever It Takes: Exxon Has Used the Legal System to Avoid Paying Damages for the Valdez Spill," *The Nation* 278 (5 April 2004): 16–23.

28. Corporate Watch, "Degrees of Involvement," Magazine Issue 8 (Spring 1999).

29. Robert Clark, "Recovery: The Untold Story of Valdez Spill," *Forum for Applied Research and Public Policy* (Winter 1991): 24–26, at 25.

30. CTV, "Contamination From Exxon Valdez Still a Problem," 19 December 2003.

31. Keeble, *Out of the Channel*, 51.

32. *Ibid.*, 95.

33. Cecilia Hunter, "Lasting Lessons," *Living on Earth* (5 March 1999). <http://www.loe.org/series/exxon/lessons.htm> (accessed 27 June 2006).

cleanup equipment and training, and pointed out an earlier oil spill in Valdez. Palast reports that,

When he prepared to report it to the government, his supervisor forced him to take back the notice, with the Orwellian command, "You made a mistake. This was not an oil spill." ... When Alyeska got wind of Woodle's complaints, they responded by showing Woodle a file of his marital infidelities (all bogus), then offered him pay-outs on condition that he leave the state within days, promising never to return.³⁴

Also in 1984, according to Palast, Charles Hamel, an "independent oil shipper," learned from Alyeska employees of problems in Valdez and flew to London to warn British Petroleum executives.

... a secret campaign was launched to hound him out of the industry. A CIA expert was hired who wiretapped Hamel's phone lines. They smuggled microphones into his home, intercepted his mail and tried to entrap him with young women. The industrial espionage caper was personally ordered and controlled by BP executive James Hermiller, president of Alyeska. On this caper, they were caught. A US federal judge told Alyeska this conduct was "reminiscent of Nazi Germany."³⁵

Intimidation can happen from both sides. The only juror to oppose the decision to charge Exxon \$5 billion in punitive damages was Rita Wilson. A pro-environmentalist security officer, at the time of the court decision, allegedly pulled his gun out to "put her out of her

misery," causing her much "emotional distress."³⁶

This case reveals that a multi-billion dollar oil company, Exxon, was unable to inhibit backfire from its catastrophic oil spill in Alaska. This shows that accidents offer opportunities to rally support against the activities of large companies. As a consequence of the disaster, tougher tanker regulations were put in place. Thomas A. Birkland, who has studied the policy consequences of the spill, says it "was the event that tipped the balance in favor of more stringent oil spill legislation."³⁷ The U.S. Coast Guard now uses satellite monitoring in Prince William Sound, two vessels are required to escort tankers through the Sound, pilots are trained specifically for this region of Alaska, all vessels in the Sound will be required to be double-hulled by 2015, and safety equipment is monitored regularly.³⁸ Many grassroots organizations, environmental monitoring bodies, and protection services emerged after the *Exxon Valdez* disaster. Arguably, the high profile of the accident made it more difficult to promote oil exploration in Arctic National Wildlife Refuge in Alaska.³⁹ So outcomes of the disaster included both new opportunities for environmentalists and new guidelines for organizations.

36. David Ridenour, "Jury Tampering in *Exxon Valdez* Trial Pollutes America's System of Justice," *National Policy Analysis* 232 (February 1999).

37. Thomas A. Birkland, "In the Wake of the Exxon Valdez: How Environmental Disasters Influence Policy," *Environment* 40 (September 1998): 4-9, 27-32, at 27.

38. Exxon Valdez Oil Spill Trustee Council, *Preparing for the Next Spill*. <http://www.evostc.state.ak.us/Habitat/improvements.htm> (accessed 27 June 2006). Of course it is possible that some of these measures may be more symbolic than substantive.

39. Birkland, "In the Wake of the Exxon Valdez," 29.

34. Greg Palast, *The Best Democracy Money Can Buy* (London: Pluto Press, 2002), 101-2.

35. *Ibid.*, 102.

Conclusion

Environmental disasters can backfire against industry and government, sometimes spectacularly as in the cases of Chernobyl and the *Exxon Valdez*. But these are the exceptions.

Dozens of nuclear reactor accidents have occurred that have received little, if any, publicity, such as the 1957 Fermi reactor meltdown near Detroit.⁴⁰ At that time, the anti-nuclear-power movement was virtually non-existent, so there was less prospect for turning the accident against the budding nuclear industry. The movement, once it developed, promoted new ways of understanding nuclear power, for example as a runaway technology or one that escaped public accountability. These frameworks for thinking about nuclear power, or in other words “interpretive packages,” offered alternatives to the previously dominant framework of nuclear power as progress and allowed members of the public to understand nuclear accidents in different ways.⁴¹ The important point here is that raising environmental consciousness increases the likelihood an accident will backfire, which in turn further stimulates environmental awareness and action.

Similarly to nuclear reactor accidents, dozens of oil spills have occurred, such as the massive 1991 release in the Persian Gulf, only a few of which generated widespread concern. Timing and location are crucially important, as well as environmental constituencies.

As discussed above, rhetoric and action by industry and government can reduce outrage through the usual five methods. As environmental consciousness becomes more widespread, it becomes harder to use these mechanisms, as shown in the case of the

Exxon Valdez, where Exxon apparently did not attempt to challenge environmental values.

For both environmentalists and organizations, clearly it is best to avoid disasters altogether, though accidents will always be a possibility in many technological fields such as genetic engineering, nanotechnology, large dams, and nuclear weapons. But when disasters do occur, backfire analysis gives insight into how to wage the struggle over responses. Our case studies reveal the various ways in which organizations — namely the Soviet government and Exxon — attempted to inhibit outrage.

Backfire analysis can also give guidance to environmentalists wishing to prepare to use such disasters to promote better policies and practice. To counter cover-up, strong links should be built with investigative journalists, sympathetic editors, and workers on all levels from production to management, in order to reveal the full story. Alternative media are vital when the mass media underplay the issues.

Devaluing the target can reduce concern. Environmentalists can emphasize the value of all environments and all peoples, not just ones that are fashionable or highlighted in western news.

Reinterpretation of events is the most common method used to inhibit outrage once cover-up has failed. Governments and industry typically try to minimize concern by saying an accident was an isolated occurrence and by blaming individuals rather than top officials, organizations, or the entire technological enterprise. Environmentalists should draw connections between the disaster and the wider web of responsibility.

For environmentalists, it is tempting to respond by calling on counter experts and making submissions to investigations or court cases. This is sometimes effective, but it does reduce popular concern by transferring the struggle to specialist and legal forums, which are slow and technical, and where powerful interests have an advantage. Therefore, environmentalists should carefully consider the risks of heavy involvement in expert and legal struggles. A public campaign promoting

40. John G. Fuller, *We Almost Lost Detroit*. (New York: Ballantine, 1976).

41. William A. Gamson and Andre Modigliani, “Media Discourse and Public Opinion on Nuclear Power: A Constructionist Approach,” *American Journal of Sociology* 95 (July 1989): 1–37.

awareness and indignation about environmental damage may be more likely to foster greater participation in activism and to change policies and practices.

Finally, exposure is a powerful antidote to intimidation and bribery, because people are often angered by the abuse of power.

In summary, protesters can promote outrage by exposing what has happened, insisting on the worthiness of targets, giving their own interpretation, avoiding or discrediting official channels, and refusing to be intimidated. Thomas Birkland says that, "Groups would do well to seize on such events and use them not to distort facts or policy but to promote more responsible and responsive environmental policies."⁴²

But what about the other side? Sometimes governments and corporations are blamed for activities in a way that is unfair in their own eyes and in the view of some observers. What implications for such groups can be drawn from backfire analysis?

For organizations, it is risky to use methods perceived as constituting cover-up, devaluation, intimidation, or bribery. Each of these is seen by some people as discreditable in itself. Therefore, when these methods are exposed, they can increase opposition. The safest methods are reinterpretation — the honest presentation of one's own view — and use of official channels, if they are genuinely independent and fair and seen to be so. Taking this course maximizes the possibility that attacks by environmentalists will themselves be seen as unfair and backfire against the environmentalists.⁴³

Acknowledgements

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42. Birkland, "In the Wake of the Exxon Valdez," 32.

43. For comprehensive and engaging advice for companies along these lines, see Peter M. Sandman, *Responding to Community Outrage: Strategies for Effective Risk Communication* (Fairfax, VA: American Industrial Hygiene Association, 1993).