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Sunk Costs: The Plan to Dump the Brent Spar (A)

On the evening of April 29, 1995, the "Moby Dick," an old fishing vessel restored by the international environmental group, Greenpeace, sailed from Lerwick in the Shetland Islands. Its destination was the Royal Dutch Shell deep-water oil storage installation, known as the Brent Spar, located 150 miles off the northwest coast of Scotland. The 118-mile journey in one of the world's roughest seas was made in 15 hours. The crew arrived at mid-day on April 30th, they were met by the MS Embla, a chartered vessel with Greenpeace activists from Germany and media representatives from all over Europe.

With military precision, inflatable speedboats were put in the water and took four climbers to the platform. Within minutes they had scaled 28 meters by rope to the top of the tower of the Spar and unfurled a banner, which read, "Save the North Sea." Greenpeace organizer Tim Birch announced to reporters on board the ships that "Greenpeace would remain on the Brent Spar until the British government or Shell come to their senses and revokes the decision to dump it."¹

At the same time as the occupation of the Spar was underway, Greenpeace officials in London released a report entitled "*No Grounds for Dumping: The decommissioning and abandonment of offshore oil and gas platforms.*" It was presented to the waiting media as an analysis of the decommissioning options available to the British government. The report concluded that, "total removal is not only the best environmental option but also the most cost-effective, feasible and job-saving."²

Eric Faulds, the Decommissioning Manager for Shell Expro watched in disbelief as the events unfolded on the evening TV news at his home in Aberdeen, Scotland—the oil capital of Europe. Faulds was keenly aware that the Greenpeace action was designed to draw public attention to the fact that the British Government decision to license Shell to sink the Brent Spar would come just one month before Environmental Ministers were due to meet in Denmark to discuss solutions to toxic environmental problems affecting the North Sea. The British government had previously blocked multi-lateral measures regarding environmental protection in its highly lucrative offshore oil fields.

¹ Greenpeace Press Release, April 30, 1995.

² Ibid.

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The Plan to Sink the Brent Spar

The Shell plan called for sinking the Brent Spar 6,000 feet down on to a spot called the North Feni Ridge in the North Atlantic Ocean, 150 miles off the north-west coast of Scotland (see Exhibit 1). The plan was developed by Aberdeen-based Shell Expro, the North Sea arm of Shell U.K., who also carried out four years of quiet negotiations with the British Government for legal approval. The installation had been decommissioned in September 1991 and could not remain where it was indefinitely because it was a danger to shipping.

Shell claimed that the overall risk of an industrial injury or death during onshore dismantling was six times higher than with deepwater disposal. Shell, which spent over \$1.5 million on environmental impact studies, contended that apart from costing \$7.5 million, as opposed to \$70 million for disposal on land, deep sea burial avoided the risk of the Brent Spar breaking up in shallow waters on its way back to land. It also avoided the risk to staff from hazardous substances. The same waste, it claimed, posed no danger at sea.

Shell contended that radioactive waste on the Brent Spar was low-level³ and that the structure contained only small quantities of heavy metals, such as 8 kg of cadmium and 0.1 kg of mercury. The company estimated that there was a total of 53 tons of oil and oily wax in the Spar. The scientific views of Shell, based on over 30 independent studies, which were then reviewed by the University of Aberdeen Research and Industrial Services Department for environmental implications of decommissioning the installation, were contained in a report entitled "*Best Practicable Environmental Option (BPEO) and Impact Hypothesis*" and was submitted to the British Government in October 1994, following months of formal consultations with conservation bodies and fishing interests. In that study Alasdair McIntyre, an expert at the University of Aberdeen, contended that the level of radioactivity "would have been equivalent to what a person is exposed to in a city with granite buildings."⁴ Other scientists and experts in the industry supported this research.

Keith Clayton, professor of environmental science at the University of East Anglia, said the oceans capacity for dilution of toxic materials increasingly had been eclipsed by sentiments about their role as the "global commons." He said, "although low-level radioactive waste was much less hazardous in the deep sea than on land, it was precisely such sentiments which had prompted an international ban on deep-sea disposal."⁵ He added that deep-sea volcanoes in the middle of the Atlantic routinely belched highly toxic chemicals such as sulphur into the deep seas. "I would have thought that the Brent Spar's contribution compared to that is not measurable."⁶

Dismantling the platform on land would mean dealing with pollutants in a much more sensitive environment. During the long process workers would be exposed to them, as well as to all the other hazards attendant on any complicated piece of demolition work. The pollutants would, in all likelihood, end up as landfill unless, that is, the elderly platform broke up while being brought to shore. If that happened, the pollutants would end up in shallow coastal waters, probably the worst place for them.

³ Shell's scientific reports described the radioactive substance as "Naturally-Occurring Radioactive Material (NORM) and contended that Low Specific Activity scale was like the "furring" from natural salts in water pipes.

⁴ "Hollow Shell," *The Economist*, June 24, 1995, p. 76.

⁵ Boulton, L. "Shell burial party ready: Greenpeace protesters prepare to chain themselves to doomed storage platform to prevent sinking." *The Financial Times*, June 20, 1995, p. 13.

⁶ *Ibid.*

The National Environmental Research Council, the publicly funded national research group, which included some of Britain's top marine centers, submitted a report to the House of Commons which described the deep oceans as a resilient and remote environment. They said the plan to sink the Brent Spar contained considerable merit. "Operationally this option would be straightforward and the direct impact on the environment would be small, since at these depths animal life is sparse and only loosely connected to the food chain."⁷

British authorities said that the disposal was fully in line with the 1991 Oslo & Paris Convention (OSPAR) of internationally agreed guidelines for the disposal of offshore installations at sea. On February 16, 1995, the British Energy Minister, Tim Eggar, approved Shell's plans to decommission the Brent Spar, calling it the "best practicable environmental option," (BPEO).⁸ It would mark the first time that an offshore oil platform of this size would be disposed of at sea.

At the same time, the British Government also notified the other 12 European governments who were signatories to OSPAR. A few days later, the management of Shell U.K. signed off on the plan, with little more than nominal consultation with the international board of the parent company in the Hague, where no objection were raised.

North Sea Oil and the Brent Spar

First tapped in 1971, the oil bearing geological structures beneath the North Sea constitute one of the largest proven oil reserves in the world. Divided between Britain, Norway, Denmark and the Netherlands the area produced 5.57 million barrels per day in 1994.

Despite 20 years of production, new reserves of oil have been discovered in the U.K. sector of the North Sea due to advanced exploration methods. Today, it is estimated that there are over 21.5 trillion barrels of oil remaining, even while more than 2.6 million barrels are pumped out each day at an average price of \$16.50 per barrel. North Sea oil brought \$6 billion in royalties and taxes to the British Treasury in fiscal 1994-1995 and accounted for about 1.6% of the country's total revenue.

Tapping the seabed required varied technology in the form of deep-water installations like the Brent Spar (see Exhibit 2). The Brent Spar was just one of 6,500 offshore rigs world wide and one of a total of 416 oil platforms in the North Sea. In the British sector there are 219 offshore installations. Fifty three of them are deep water oil platforms due to be decommissioned over the next 10 years in order to comply with International Maritime Organization guidelines which call for complete removal of structures weighing less than 4,000 tons and standing in less than 75 meters of water.⁹ Fifteen of these structures have been put forward for immediate U.K. Government approval for abandonment.

⁷ Corzine, R. "Oil groups try to avoid deep water. The industry is determined there will be no repeat of Brent Spar fiasco." *The Financial Times*, August 15, 1995, p. 8.

⁸ Brown, K. "Heseltine seeks to limit embarrassment: Brent Spar ministers defend sinking policy as Shell rebuffs prime minister's report." *The Financial Times*, June 21, 1991, p. 10. The U.K. government formally granted a disposal license to Shell on May 5, 1995. Prior to the granting of the formal license, none of the other OSPAR countries raised objections. The BPEO has been defined by the U.K.'s Royal Commission on Environmental Pollution as "the option that provides the most benefit or least damage to the environment as a whole, at acceptable cost, in the long term as well as the short term." A BPEO is based on the comparative assessment of technical feasibility, environmental impacts to atmosphere, land and water, risks to health and safety of the workforce, public acceptability and economics, and sets the regulatory standard against which all licenses for decommissioning oil installations are judged by the U.K. government.

⁹ The U.K. Offshore Operators Association estimates that the total costs of decommissioning the 53 offshore oil installations will be approximately \$2.25 billion.

The 462 ft. tall, 14,500 ton Brent Spar installation posed unique problems because it was one of the few structures to contain storage tanks which acted as a vital staging post for the export of crude oil from the area via tanker until a pipeline was commissioned in 1978 to take the oil directly to land (see Exhibit 2 for a diagram of the platform). These tanks accumulated toxic residues and radioactive waste. Like an iceberg, most of its bulk, mainly the six-segmented storage tanks, was beneath the water's surface.

Royal Dutch Shell

The Brent Spar was jointly owned by Shell and Esso U.K., the British subsidiary of Exxon Corporation, the largest U.S. oil company¹⁰ Royal Dutch Shell has for a long time been considered one of the world's most impressive companies. Operating in 132 countries with 104,000 personnel, it posted a net profit in 1995 of \$6.9 billion on sales of \$109.8 billion, making it the largest company in the world based on profits, and the biggest in Europe based on turnovers and market capitalization. It ranked evenly with the U.S.-based Exxon as the leading oil company in the world.

In spite of the slump in oil prices in the mid-1980s, Shell's return to shareholders over the previous 10 years outperformed both the stock market and most of its competitors, including such giants as British Petroleum, Exxon and Texaco. With world energy demands expected to grow as much as 70% over the next 30 years, Shell was well placed to remain one of the market leaders. In a June 1995 poll by the Petroleum Economist Magazine, Shell was rated as the best managed oil company.¹¹

The Royal Dutch/Shell Group of companies grew out of an alliance made in 1907 between The Royal Dutch Petroleum Company in the Netherlands and The Shell Transport & Trading Company, Plc. in the United Kingdom, by which the two companies agreed to merge their interests on a 60:40 basis while keeping their separate identities.

These two entities remain public companies in their own right and directly or indirectly own shares in three Group Holding Companies, (Shell Petroleum N.V., Netherlands, The Shell Petroleum Company Limited, U.K., and Shell Petroleum Inc., USA) but are not themselves part of the Group. Eleven group service companies and 132 operating companies in countries around the world reported to the management of the Group Holding Companies in the Netherlands and the United Kingdom. There were about 295,000 institutional and private shareholders of Royal Dutch and some 300,000 of Shell Transport. Shares of one or both companies were listed and traded on stock exchanges in eight European countries as well as in the United States.

Since the 1950s The Royal Dutch/Shell Group had operated under a matrix structure invented for it by McKinsey, the management consultancy firm. Each operating company reported to the one boss supervising the region, and to another responsible for explaining global corporate policies on issues such as, the environment, internal codes of conduct and employment practices.

The matrix system encouraged operating companies to make decisions themselves rather than referring them back to the center. By contrast with other oil companies, there was no apparent head. Cornelius A. J. Herkstroter, president of Royal Dutch and Chairman of the Committee of Managing Directors, the group's most senior decision making body was considered a "leader among equals." Throughout the senior levels of the company, decision-making followed the same pattern of debate and consensus.

¹⁰ Esso, was deeply bruised in the public's mind by the Exxon Valdez oil spill off the coast of Alaska in 1989.

¹¹ Petroleum Economist Magazine, United Kingdom (September 1995), p. 12. Royal Dutch Shell received 193 votes, followed by British Petroleum with 151 and Exxon with 121.

At the level of the operating companies the reverse was true. Chiefs of operating companies were akin to local barons, free from interference from above. In part, this is because the matrix meant that many decisions could only be taken locally, but it also reflected the fact that Shell stressed the benefits of decentralization to its employees. Regional bosses, it was frequently emphasized, had more knowledge of local regulations and consumer tastes. With oil and gas markets changing from hour to hour, they also needed the freedom to act quickly.

While its record was quite good, environmental hazards were nothing new to the management of Royal Dutch Shell. Since 1984, Shell Oil, its subsidiary in the United States, has been named, along with other co-defendants, in numerous product liability cases, including class actions, involving the failure of plumbing systems in the United States constructed with polybutylene plastic. Shell Oil provided the resin to make this pipe. Shell Oil was also a party to litigation regarding Nemagon, an agricultural chemical containing DBCP (dibromochloropropane) manufactured and sold by it from 1955 to 1977 in pesticides.¹² In 1995, the United States government and Shell Oil entered into a court approved settlement with respect to environmental claims at the Rocky Mountain Arsenal where Shell Oil engaged in chemical manufacturing from 1952 to 1982.¹³

Greenpeace

Greenpeace was founded in 1971, when a small group of people set sail in a fishing boat from Vancouver, Canada, to express their opposition to U.S. nuclear testing by "bearing witness" at the test site on the Aleutian island of Amchitka. The Greenpeace ethic is derived from the Quaker philosophy to not only to personally bear witness to atrocities against life but also to take direct action to prevent them. The organizational handbook states: "While action must be direct, it must also be non-violent. We must obstruct a wrong without offering personal violence to its perpetrators. Our greatest strength must be life itself and our commitment to direct our own lives to protect others."¹⁴

By the early 1990s, Greenpeace operated in 32 countries, linked by e-mail and fax. It had seven ocean going ships, the most noted of which was called the "Rainbow Warrior II."¹⁵

In 1994, Greenpeace had an annual income of \$130 million from its 3.1 million supporters world wide, down from the peak of \$179 million and 4.8 million supporters in 1991. It is currently the world's largest environmental non-government organization (NGO) and has earned observer status on 25 international bodies.

Greenpeace lists as its "successes" a number of major campaigns issues that have affected public and governmental attitudes. These include:

- Reducing the kills of seal pups to one-tenth of previous levels.
- Ending the dumping of nuclear and toxic waste into the world's oceans.
- Closing loopholes in the Basel Convention banning toxic trade.

¹² Royal Dutch Shell 1995 Annual Report, p. 50. DBCP was banned in the United States in 1977 after being suspected of causing sterility and cancer.

¹³ Pursuant to the final settlement, Shell has agreed to pay 50% of amounts expended for remedial costs and natural resource damages up to \$500 million; 35% of expenditures between \$500 million and \$700 million; and 20% of expenditures in excess of \$700 million.

¹⁴ *Greenpeace New Zealand Handbook 1995*, p. 1.

¹⁵ The original Rainbow Warrior was sunk in Auckland Harbor in 1985 by French commandos.

- Stopping nuclear testing by all nations in the Pacific.
- Stopping large-scale drift netting, a practice that threatens dolphins and many other marine creatures.
- The 1991 decision to impose a 50-year ban on mining in Antarctica.
- The signing of the UN Climate Change Convention by 157 countries.¹⁶

Greenpeace International allocated about half of its \$33 million dollar annual budget and 25% of staff time to contingencies such as the Brent Spar campaign. In many ways, Greenpeace's management structure paralleled that of Shell. Most decisions were taken locally. National offices, rather than Greenpeace International's headquarters in Amsterdam, conducted campaigns on national pollution issues and were responsible for building contacts with national politicians and journalists.

Yet when necessary, Greenpeace could act like a centralized organization. At any moment, Greenpeace ships could expect an order from Amsterdam to change course. Although managers of national offices were given relative freedom from Amsterdam, they were never allowed to change Greenpeace's world-wide policy to suit local positions. Greenpeace Norway, for example, is obliged to oppose whaling despite objections from local fishermen.

Greenpeace did not accept any corporate sponsorship or government funding. It was entirely supported by individual donations and volunteer workers. "We live or die by our supporters," said one campaign organizer. "Greenpeace as an entity is more than an organization, it is an organism. When the magic happens, it's because of that."¹⁷

The early 1990s, however, brought a new and different kind of challenge to Greenpeace. The leadership feared that popular anxiety about environmental threats would never regain the heights of the late 1980s. Peter Wilkinson, a former Greenpeace board member noted, "Greenpeace now has a fleet of ships running around the oceans looking for something to do. Whaling is now subject to an international moratorium. Dumping of toxic waste from cargo ships has been banned; so has the dumping of radioactive waste at sea."¹⁸ Shell's efforts to sink the Brent Spar presented Greenpeace with a much needed and highly visible focus for their endeavors.

Greenpeace Takes Action

Representatives from Greenpeace strenuously opposed Shell's plans. They said it was impossible for scientists to say exactly how seabed organisms would be affected, as no toxicity tests had been carried out. Greenpeace argued that sinking the Spar would release heavy metals, oil, and radioactive materials into the sea, and that it would set a precedent for others to do the same. In their view, the government's BPEO was clearly not the best plan. Said Greenpeace campaign director Ulrich Jurgens: "I don't care about scientific arguments. I don't care if there are ten or a thousand tons of hazardous waste on the platform. The question is how does our society cope with its waste? And our message is: don't litter!"¹⁹

¹⁶ Greenpeace New Zealand pamphlet entitled: "Actions Speak Louder Than Words."

¹⁷ Stephanie Mill, Greenpeace New Zealand Campaign Director, interview with writer March 27, 1996.

¹⁸ Maddox, B. "Rubber suits turn the tide for Greenpeace." *The Financial Times*, June 21, 1995, p. 10.

¹⁹ M. Winter and U. Steger, *Managing Outside Pressure* (United Kingdom: John Wiley & Sons, 1998), p. 88.

Oil companies, having tapped the earth's crust for a fuel, which could end up damaging the world's climate, start out with a handicap in the environmental-friendliness stakes. "The idea of Royal Dutch Shell, the world's biggest private oil company, sullyng the ocean with hundreds of tons of steel, sludge and radioactive waste was too much for the green imagination to bear," said another spokesman for Greenpeace. Even some oil companies were angry at Shell's decision to put the Brent Spar at the front of the abandonment queue. They felt that Shell should have realized that the Spar's toxic residues, accumulated during the many years of service as an offshore storage installation, would attract environmental concern.

Shell Formulates Its Response

Eric Faulds now had to consider his response to the Greenpeace occupation of the Brent Spar. This was a challenge, in part because "We were trained as engineers to look at problems, analyze possible solutions and come up with a balanced answer at the end of the day which are based on science and fact to the maximum possible extent. We couldn't base it on emotions."²⁰

Shell's strategic planners had contemplated a number of worst case scenarios that Greenpeace and other organizations could get up to, but none had included such an assault on the Spar, nor had response plans been formulated before April 30th. Uppermost in Fauld's mind in dealing with the problem was a time constraint. The Spar had to be moved into position in the North Atlantic by early October before the rough weather set in, or the move would have to be delayed a year. In his mind, it was not a matter of money, but the safety of the hundreds of workers carrying out the operation.

Shell decided to counter the Greenpeace action with a series of civil court cases for trespassing. On May 12th, the Court of Sessions in Edinburgh, Scotland ordered the protesters off the platform but the ruling did not empower any law enforcement officers to carry out the eviction. The lawyers for Shell returned to court a week later and were granted a modified order, which allowed Sheriff Officers to forcibly remove the people occupying the Spar.

At the same time, Faulds dispatched the largest mobile platform in the North Sea. It was the size of a small city and dwarfed the Spar. It took two weeks to reach its objective. At dawn on May 23rd, police and Shell personnel re-occupied the Brent Spar.

Once back in control of the platform, Shell employed boats with water cannons to create a protective shield around the Spar to ward off any further intruders.

Losing the Media War

But while Shell won the battle, it was losing the media war. British Broadcasting Corporation (BBC) News Editor, Richard Sambrook, noted that Greenpeace was perceived by the media as "David taking on Goliath." He pointed to Greenpeace's ability to outspend television companies in shooting footage of its protests, which was given to broadcasters. Stating that "this particular David isn't armed with a slingshot so much as AK47" Sambrook estimated that Greenpeace spent \$2 million on the Brent Spar campaign, of which some \$540,000 was spent on TV equipment and feeds.²¹

Greenpeace's media operation was headed by Richard Titchen, an ex-BBC journalist who was Greenpeace International's Director of Communication and one of seven executive directors. He

²⁰ BBC TV News documentary—Battle for the Brent Spar, 1996.

²¹ Boulton, L. and Corzine, R., "Greenpeace admits Brent Spar blunder: Environment-Pressure group apologises after publicising incorrect oil data." *The Financial Times*, September 6, 1995, p. 8.

worked with a staff of 29 and an annual budget of \$1.5 million (about 4.5% of the organization's total budget). Titchen organized a group of freelance photographers and cameramen dotted around the world. Their photographs and video footage could be transmitted back to London from remote places by satellite. Greenpeace was particularly proud of its "squisher," an expensive device to convert video footage into a compressed stream of digital signals which can be sent rapidly by satellite telephone link to headquarters at significantly less cost than other satellite transmissions. Once in London, the pictures were delivered free of charge to television stations, print news agencies, and the press offices of its individual country organization.

In addition to the video feeds supplied by protesters, independent journalists covering the incident at sea were "forced" to report from either the Spar itself using the pressure group's transmitter, or the Greenpeace ship, as it was the only other available point of access.

"I'm left with the feeling that Greenpeace pulled us by the nose through too much of the campaign. In spite of our best efforts, we never put enough distance between the participants and ourselves. The provision of pictures, facilities and information, be it from Greenpeace or anyone else, is a Trojan horse for editorial and political spin," said Sambrook.²² David Lloyd, a senior editor for the commercial network Channel Four News confirmed that view. "We were bounced. By the time broadcasters tried to introduce scientific argument into the narrative, the story had long since been spun far, far in Greenpeace's direction."²³

Such co-ordination under Greenpeace Executive Director Steve D'Esposito, served the NGO well during the Brent Spar episode. For months leading up to the crisis, the organization had been divided between those who believed Greenpeace should become more analytical (publishing research to counter the arguments of governments and companies), and those who feared relinquishing their eye-catching, high-profile methods. The most radical element of Greenpeace was in Germany, who originally conceived the idea to occupy the Spar on April 10th. As a former Greenpeace campaigner said: "There had been differences between those who came in with doctorates and those who still like to put on rubber suits. In the battle with Shell, the rubber suits won."²⁴

As public outrage grew over Shell's plans, D'Esposito decided to run the show himself. The speed of the operation reflected the financial and technological strength of the group while hiding behind its public face of bearded "green" activists. D'Esposito sent a 22-page report to the Shell U.K. board on June 10th and published it publicly on June 19th. The report claimed that the platform's sinking would carry radioactive waste, heavy metals and 5,550 tons of oily sludge into the sea with unpredictable consequences for the environment. Greenpeace based its calculations on measurements taken by the protesters on board the Spar who recorded oil over sea water levels from several six inch diameter vent pipes on the platform which they claimed were linked to two of the Spar's six storage tanks. The NGO's findings were over a hundred times more than Shell's previously published estimates.

²² Thorncraft, A., "Sambrook warns media not to be misled by publicity of environmental groups." *The Financial Times*, August 28, 1995, p. 6.

²³ Culf, A., "Greenpeace used us, TV editors say; Broadcasting chiefs reckon they must wake up to pressure group manipulation." *The Guardian*, August 28, 1995, p. 2.

²⁴ Maddox, B., "Rubber suits turn the tide for Greenpeace." *The Financial Times*, June 21, 1995, p. 10.

"It is much more responsible to bring the thing on land in conditions where you can monitor and control what is going on," said Paul Horseman, Greenpeace's Political director. Adding, "We don't know that will happen at sea, but dealing with these kinds of waste on land is nothing new."²⁵

Reactions in Europe

In Germany, publicity over Shell's plans drew an immediate public reaction. "We couldn't believe the response," said Jochen Vorfelder, one of Greenpeace's main German coordinators. "These ordinary people said they wanted to do something."²⁶

Greenpeace Germany organized a grassroots protest movement involving churches, trade unions and local politicians to boycott Shell's 1,711 gasoline stations. The boycott gained momentum when Germany's main political parties put aside their differences to unite in opposition to the dumping of the Brent Spar.

According to the Hamburg-based Vorfelder, "the reason for this campaign against Shell, is that it was Shell in the first place which asked permission to sink the platform, not Esso. We are not against Shell or Esso as such. We are against any dumping of the Brent Spar. But since Shell is responsible for making the decision to sink it, the campaign is against them."²⁷

In the United Kingdom, Greenpeace took out advertisements in the national newspapers on June 19th, demanding that Shell accept its corporate responsibility to the public at-large. "The day Shell sinks the Brent Spar, Shell's reputation sinks with it," the ads stated. The next day, a U.K. government official at the Department of Trade and Industry responded caustically, "if we have accepted this as the best option from the environmental point of view, what are people asking us to do, go for the worst one?" Environment Minister Eggar accused Greenpeace of "grossly exaggerating" the disposal problem. He said disposal on land would cause "very significant environmental damage."²⁸

In the British House of Commons, Prime Minister John Major stated that Shell's plans for sea disposal had his full support. He said it was incredible that Greenpeace had proposed to dispose of it on land. Major was very firm in rebutting German Chancellor Helmut Kohl's criticism at the G7 meeting in Halifax, Nova Scotia, earlier in the week, insisting that burial at sea was the best possible environmental solution to the problem of disposing redundant oil platforms.

As the head of one of Europe's most environmentally conscious countries, Kohl faced a battery of legislation designed to combat pollution and encourage recycling. The car, paper, publishing and chemical industries had invested heavily in introducing environmentally friendly products. One environmental analyst advising a large German company explained the German reaction saying, "Shell was trying to undo everything we have tried to do over the years. Huge efforts have been

²⁵ Boulton, L., "Shell burial party ready: Greenpeace protesters prepare to chain themselves to doomed storage platform to prevent sinking." *Financial Times*, June 20, 1995, p.13.

²⁶ Ibid.

²⁷ Ibid.

²⁸ Brown, K., "Heseltine seeks to limit embarrassment: Brent Spar—Ministers defend sinking policy as shell rebuffs prime minister's report." *Financial Times*, June 21, 1995, p. 10.

made by industry to persuade their customers to switch over to products which help protect the environment. German industry felt angry with Shell."²⁹

Major's political opposition in Britain then tried to capitalize on the crisis. The opposition Labour Party's environment spokesman, Frank Dobson, called on U.K. motorists to join the filling station boycott now taking place on the Continent. His call was echoed by Matthew Taylor, the Liberal Democrat Party environment spokesman, who said he was "delighted to see motorists across Europe avoiding Shell stations and hoped those in the United Kingdom would follow their example."³⁰

The call for a boycott of Shell products won wide support from German consumers. In Berlin, Shell service stations reported a 30% fall in sales in the first two weeks of June. German mothers sent Shell hundreds of letters with pictures of their babies urging them to stop the planned sinking. The British Department of Trade and Industry even received cash contributions from individual Germans to help pay for the land disposal.

On June 16th, a Shell station in Hamburg (the corporate home of Shell Germany), was firebombed in the middle of the night. For the first time, the threat that someone might be killed entered the equation. In a space of six days, a total of 200 Shell stations were damaged, two were firebombed and one was raked with bullets. The intensive coverage of the German boycott threatened to spark similar actions in neighboring Holland where Shell had a 25% market share.

Reactions at Shell

At Shell, the matrix structure was beginning to show signs of strain. Company officers in other countries bemoaned the troubles unleashed by their U.K. colleagues. In Germany, some senior Shell officials voiced bitterness about their British sister company, and distaste for the U.K. Government's seemingly arrogant attitude to the whole affair.

It also appeared that Shell did not give its employees the warning that could have provided them a firmer grip on events. In an interview with *Der Spiegel*, the German weekly news magazine, Peter Duncan, chairman of Shell Germany, said he first heard about the planned sinking of the Brent, "more or less from the television."³¹ Senior Shell executives outside the United Kingdom spoke publicly of their surprise and concern about the plan. Managers in Germany, the Netherlands, Belgium and Scandinavia, found themselves under immense pressure from their own governments. The head of Shell Austria described the plan to sink the Brent Spar as "intolerable."³²

The harm to Shell's pride and image proved too much to bear. A spokesman for Shell U.K. which operated the Brent Spar conceded: "The European companies of Royal Dutch Shell Group find themselves in an untenable position and feel that it is not possible to continue (with the sinking) without wider support from (their) governments."³³ The growing intensity of the publicity firestorm forced Shell to postpone the much acclaimed "Better Britain Environmental Awards" which it sponsored because of an "inappropriate atmosphere" in which to celebrate the award's environmental achievements.

²⁹ Corzine, R. & Dempsey, J., "Shell stunned by Brent Spar anger." *Financial Times*, June 17, 1995, p. 2.

³⁰ Cassell, M., "Shell pledges to go ahead with dumping oil rig as row grows." *Financial Times*, June 19, 1995, p. 20.

³¹ Lascelles, D., et al, "Brent Spar dents oil giant's pride rather than its profit." *Financial Times*, June 20, 1995, p. 13.

³² *Ibid.*

³³ Lascelles, D., "Company struggles to accept disaster." *Financial Times*, June 21, 1995, p. 10.

On the night of June 16th, approximately at the same time as the Shell service station firebombing in Hamburg, two Greenpeace activists re-boarded the Brent Spar by helicopter as it was being towed out to the open sea. They claimed that they were going to chain themselves to the platform to stop the controversial sinking. Meanwhile, Greenpeace's director in Amsterdam set the stage for a further confrontation by dispatching one of its ocean-going tugs to intercept the Spar as it neared the dumpsite.

Exhibit 1 Proposed Dump Site

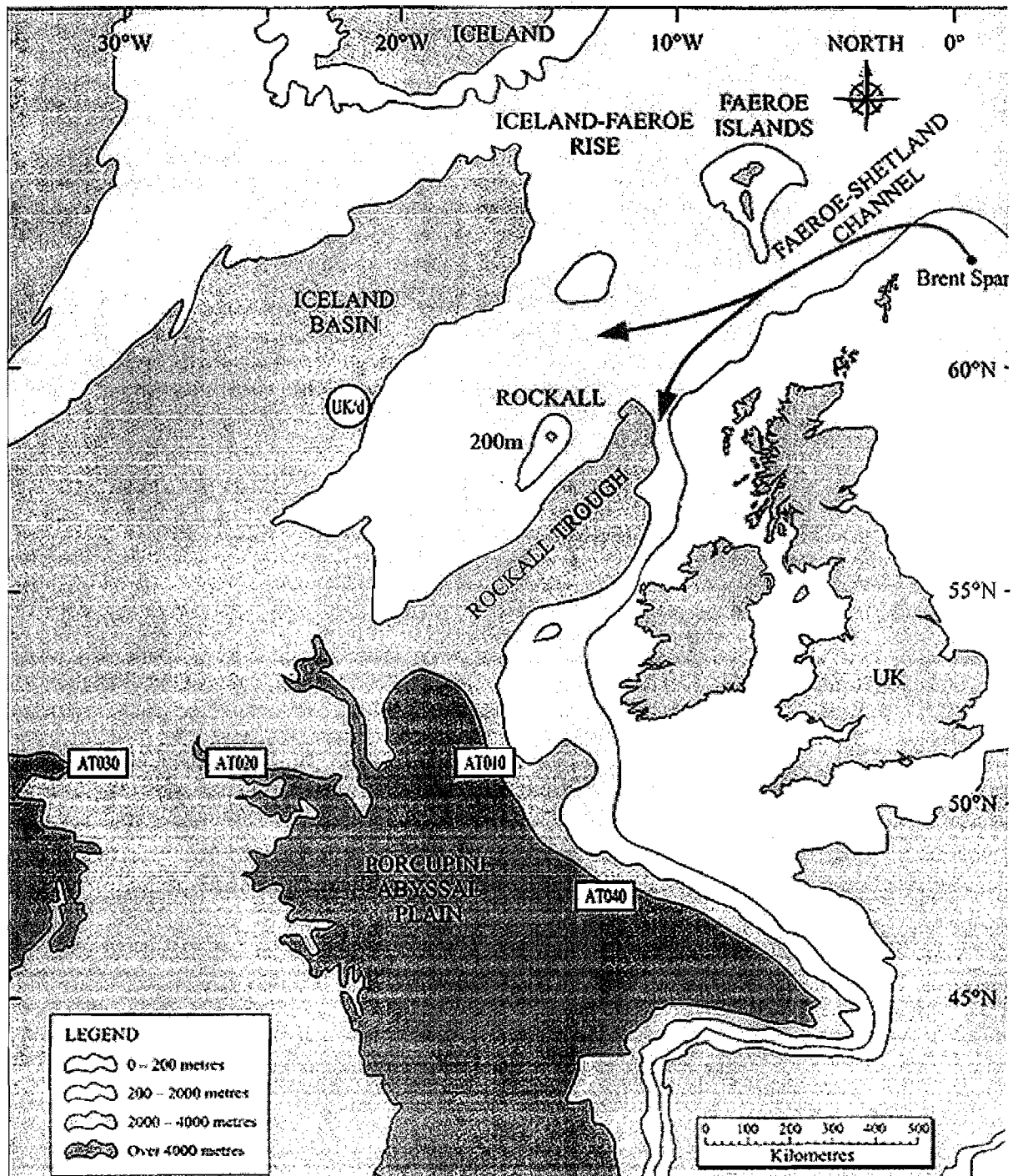
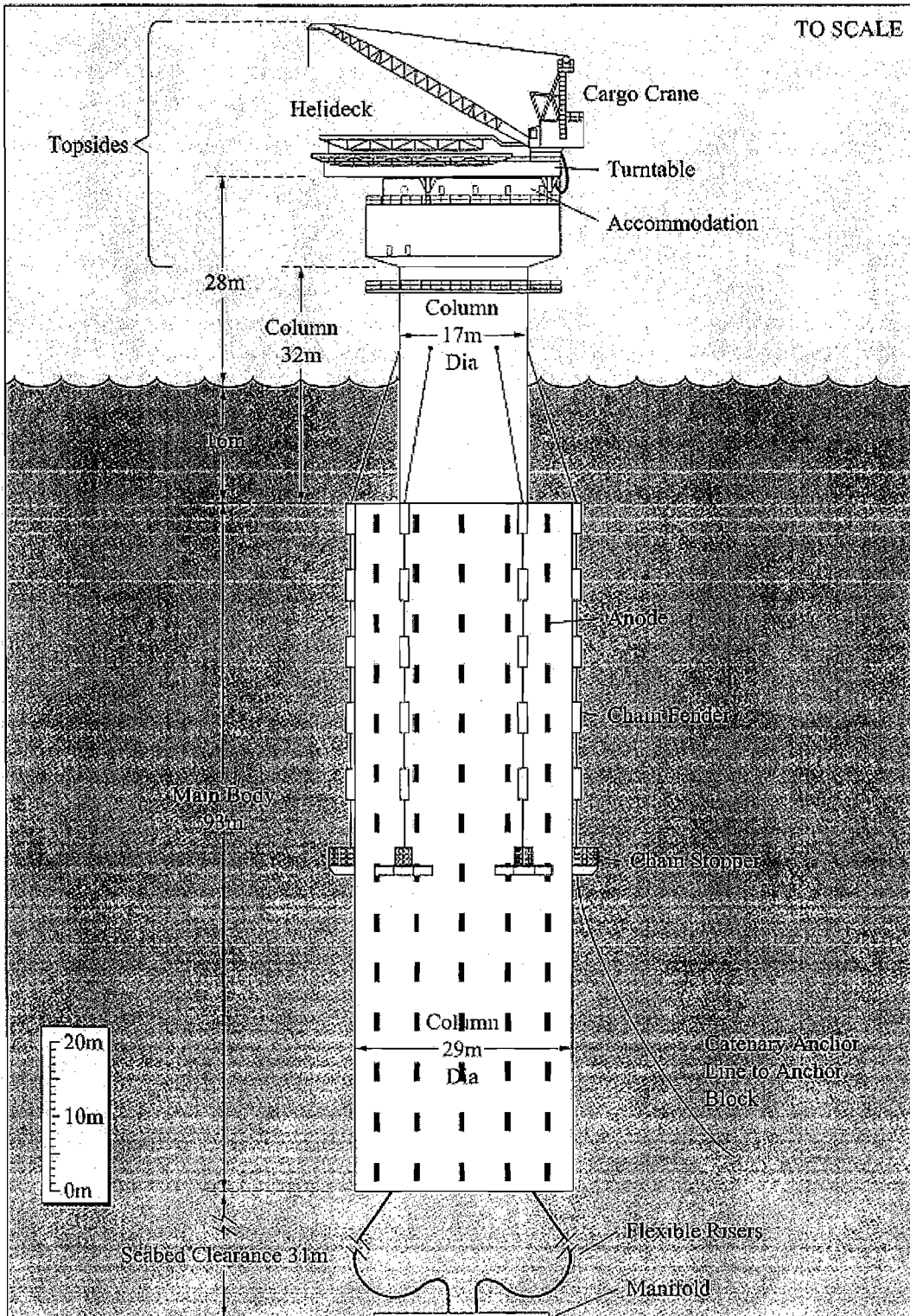


Exhibit 2 Brent Spar Deep Water Installation





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Sunk Costs: The Plan to Dump the Brent Spar (B)

Shell Abandons its Plan

On Tuesday, June 20th, Shell's directors in The Hague argued over the fate of the obsolete oil platform that would soon be in position for its planned sinking in the deep Atlantic. By the end of the three-hour meeting, the management of Shell decided to abandon its plans to sink the Brent Spar.

With the board's final decision in hand, Shell's U.K. Chairman and Chief Executive, Dr. Chris Fay, flew to London on the corporate jet that afternoon to inform the U.K. government which had strongly supported Shell, that the plan had been abandoned. He went straight from the Royal Air Force base at Northolt in North London where his arrival was kept secret from the press, to the Department of Trade and Industry headquarters, where he was ushered into the office of Tim Eggar.

Eggar had become increasingly worried about Shell's determination to go ahead with the plan. He feared that the increasingly unpopular Conservative Government would be further embarrassed and its environmental policy would be increasingly tattered--this time by one of its main constituents if the disposal plan was not carried out as approved. There was little discussion between the two men. Fay merely informed the Minister that a press release announcing Shell's decision would be published within the hour.

Fay said, that Shell was in an "untenable position" because of its failure to convince other governments around the North Sea that dumping was the best way of disposing the installation. He added that Shell would now have to dispose of the Brent Spar onshore, which would be more expensive.¹

Shell's decision to back down was greeted with relief across Europe. Hans Wijers, Dutch Minister for Economic Affairs said that the Netherlands had promised Shell it would do its very best to find a temporary place to "park" the Brent Spar in Europe while it decided how to dispose of the platform.² The structure was towed and moored in the deep Norwegian waters of Erfjord, close to Stravanger.

¹ Lascelles, D., "Shell drops plan to sink rig: Company bows to international protests; Environmental groups celebrate." *The Financial Times*, June 20, 1995, p. 1.

² *Ibid.*

Admitting Mistakes

Reactions to Shell's decision were predictably mixed. Heinz Rothermund, managing director of Shell (U.K.) Exploration said, "this affair was an embarrassment for the whole of the decision-making process in the European environment."³ By contrast, Germany's liberal Free Democrats (FDP), the junior partner in Kohl's governing coalition, described Shell's decision as "a victory for the environment."⁴

A week after Shell abandoned its plan to sink the Brent Spar, OSPAR commissioners voted 11-2 for a moratorium on disposal at sea of decommissioned offshore installations in the Northeast Atlantic, including the North Sea. Britain and Norway voted against the ban. Under the terms of the convention, the suspension is not legally binding in those two countries.

Amidst all the accolades for Greenpeace and its environmental victory, a British scientific magazine, *Nature*, quietly noted on June 29th, that the episode had exposed the "shallowness of Greenpeace's arguments on scientific issues."⁵ After a detailed analysis comparing the metallic elements contained in the structure with those commonly found on the ocean floor, the article by two scientists from the University of London, concluded, "that in deeper seas where the planned disposal of the Brent Spar was to have occurred, localized off-ridge venting and local bottom conditions may occasionally be metal rich. As a result, the environmental damage from the disposal of the Brent Spar in this setting would probably be minimal."⁶

A little more than two months later, on September 7th, Greenpeace publicly acknowledged that it overstated its case with incorrect data, which it calculated from measurements taken from two of the six storage tanks. "Greenpeace scientists who analyzed the samples were given the wrong information regarding the depths that the samples were taken," said Sue Mayer, Greenpeace U.K. Science Director. "Instead of the depths being measured at the top of the storage tanks, they were taken from the top of vent pipes that gave access to the tanks." Despite the error, Mayer defiantly justified her group's actions: "Although regrettable, Greenpeace does not consider the misunderstandings in our calculations to be of primary importance. It does not deflect from the strength of our case against sea dumping."⁷

Throughout the episode, Greenpeace had demanded that Shell carry out an independent assessment of the likely pollution damage resulting from sinking the Spar. After it had abandoned its plans to sink the buoy and having towed it instead to a fjord in Norway, Shell commissioned the Oslo-based environmental consulting firm Det Norske Veritas (DNV), to carry out a full investigation.

The full extent of the exaggerated environmentalist view became known on October 18th when the DNV report concluded that Greenpeace had "grossly overestimated" the amount of oil left on board. The two-month, \$300,000 survey, under the direction of DNV Vice President Ole-Andres Hafnor, estimated that between 74 and 103 tons of oil remained, compared with Greenpeace's Chart of 5,550 tons. DNV, one of the world's leading ship certification bodies, said that Shell's assessment of the

³ Ibid.

⁴ Ibid.

⁵ *Nature Magazine*, vol. 375 (September 29, 1995), p. 715.

⁶ Ibid.

⁷ Greenpeace Press Release, September 5, 1995.

quantities of oil, radioactivity and toxic metals in the Spar, were broadly correct. "It slightly underestimated some and overestimated others," said the report.⁸

Following Greenpeace's admission and the DNV report, Fay concluded, "the episode highlighted how difficult it could be for big companies and governments to fight an issue on a factual and scientific basis when organizations such as Greenpeace based their campaign on mischievous misinformation. It was populist sound bites versus reasoned arguments. How were we supposed to counter that?"⁹

Shortly after the decision to abandon the plan to sink the Brent Spar in June 1995, the Royal Dutch Shell Group changed its matrix management structure. Although the restructuring had been planned almost two years previously, the incident clarified the company's need to re-examine its crisis management capabilities. Under the new organization, regional directors were eliminated and country managers now report directly to the five man Committee of Managing Directors (CMD), who have assumed more direct accountability. Cornelius A. J. Herkstroter, president of Royal Dutch Petroleum and chairman of the CMD has, among his other duties, assumed overall responsibility for public affairs and legal matters.

⁸ Schoon, N., "'Glaring Error' on Brent Spar toxic waste." *The Independent*, October 19, 1995, p. 11.

⁹ Boulton, L. and Corzine, R., "Greenpeace admits Brent Spar blunder: Environment-Pressure group apologises to Shell after publishing incorrect oil data." *The Financial Times*, September 6, 1995, p. 8.



MICHAEL WATKINS

SAMUEL PASSOW

Sunk Costs: The Plan to Dump the Brent Spar (C)

In October 1995, Shell U.K. announced its new "Way Forward" strategy. The plan had three main elements:

- An international engineering competition
- A highly proactive communications plan;¹
- A series of dialogue events with interested stakeholders.

The company set up a dedicated Brent Spar web page on the Internet with a suggestion feature, allowing anyone to contribute ideas about the disposal of the Brent Spar. It received over 400 suggestions, ranging from breaking up and recycling the components of the structure into a harbour breakwater to converting it into floating casino.

"We wanted to engage, not enrage the public," said Heinz Rothermund, Managing Director of Shell UK. Exploration & Products. "Our aim is to capture public opinion in the broadest sense."² "Our communication plan had two fundamental objectives," noted Faulds. "To inform and to listen. The end result aimed to be an acceptable solution--but not necessarily a consensus solution---and one that would not be a surprise to anyone."³

The open bid engineering competition took nine months. Once again, Shell requested the independent consulting firm, DNV to perform a comparative assessment of the proposed options. As part of its communication plan, Shell set up a closely-knit team of project engineers and public affairs communicators. It required the engineers to learn new media skills that included an intensive course on interviewing techniques. The company co-operated in the making of two TV documentaries, assisted journalists and academics in the writing of books and case studies. It also produced three CD-ROMs with historical and technical data to facilitate public access to information about the Spar.

¹ The Brent Spar was not, of course, the only public relations issue taxing Shell in 1995. The continuing criticism of the company's record in Nigeria was highlighted that year when the military government of that African nation executed one of the leading political activists, despite appeals for clemency from governments around the world.

² "Still Sparring," *The Economist*, 7/20/96, p. 52.

³ Eric Faulds, "So Prove It," *Project Magazine*, United Kingdom, March 1999, pp. 8-9.

Samuel Passow (Kennedy School of Government '96), Head of Research at the Center for Dispute Resolution (CEDR) in London, prepared this case under the supervision of Professor Michael Watkins. This case was developed from published sources. HBS cases are developed solely as the basis for class discussion. Cases are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective management.

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A key aspect of the "Way Forward" for Shell was to actively listen to the views of others and in particular to try to understand what others felt were the important issues to its decision making process. The exercise had to enable peer debate and challenge, be structured so that a range of complex issues could be aired, ensure parallel feedback, and above all, have senior management commitment. According to Fauld's calculus, a successful outcome for the company could only be achieved if four basic requirements were met:

- The dialogue had to be facilitated by a mutually acceptable neutral party to ensure a fair, open and credible process.
- Shaping a manageable interface or forum for a dialogue that was acceptable to all involved.
- Agreeing firm ground rules on the scope and objective of the dialogue.
- Securing the participants endorsement of "balance" in the discussion.

Equally important to knowing what they needed to make the process work from their point of view, Fauld's and his team of communication advisors drew up a list of things they needed to avoid. For them, the dialogue:

- Could not act as a decision-making forum.
- Could not undermine the role of the regulator.
- Could not be restricted to the UK.
- Could not be left until the final choice stage

To set the process in motion, Fauld's called the Environment Council in London. Established in 1970, the Environment Council is an independent charity whose mission is to "protect the UK's environment by promoting effective dialogue and a collaborative approach to finding sustainable solutions to environmental issues."

The Environment Council's membership covers the entire spectrum of stakeholders in the environmental debate, from activists and academics, to corporate executives and government officials. Both Greenpeace and Shell are active members. Shell's relationship with the charity was established through its the Community Affairs Office, (part of the corporate communications division) well before the Brent Spar crisis arose.

To ensure their impartiality, the Environment Council claimed that "if any party is unhappy with our involvement or believe that we are prejudiced or compromised in any way, then we will offer to withdraw." They also promised stakeholders to be completely transparent over their sources of funding and apply the "Polluter Pays Principle" for their services. In this case, Shell paid the Environment Council \$800,000.

The Council designed a multi-stage dialogue process that was carried out in parallel with Shell's technical efforts through the international engineering competition and its highly proactive communications campaign (see flow chart in Exhibit 1).

In all, the Environment Council facilitated seven dialogue events or focus groups in 11 months, two each in London, Copenhagen, and Rotterdam and one Hamburg. Participants were drawn from a wide range of interested organisations, including environmental groups, energy industry representatives and consultants, consumer bodies, regulatory agencies, trade unions, fishing industry representatives, engineers, academics from a range of different disciplines, and journalists. Shell sent

along six of its own senior managers, including Faulds, as representatives to each seminar and the DNV sent two. All the meetings, with the exception of Hamburg followed the same format. They were half-day meetings of between 30 and 60 invited participants and held in at a well-known conference center or hotel in each location. The Environment Council provided about five facilitators for each event.

The participants were seated according to a pre-arranged plan at one of a dozen or so round tables set out in a banquet format. As they drank their pre-meeting coffee, they were invited to write their aspirations for the day, good or bad, on "post-it" notes and stick these on to large boards for general perusal. This set the scene for the day, because this technique of "posting" anonymous comments, suggestions and opinions on all aspects of the presentations and discussions regarding the decommissioning of the Spar was used at each stage of the proceedings.

Participants tended to express one of the following perspectives:

- Those that felt values and emotion should be incorporated into the decision making process and that information on technical details was not necessary
- Those that felt that the technical issues needed to be understood in great detail before any judgements could be made
- Those that felt that Shell should undertake all the technical decision-making, but leave the value judgements up to the politicians, who as elected representatives, should be able to account for public acceptability.⁴

The facilitators tried to create the ambience of a town-hall meeting. Faulds and Shell's management had a very evident agenda. The range of discussion was limited to the options presented to the participants, not to ones they tried to table. The end result was hundreds of little bits of sticky paper collected together by the staff of the Environment Council, which were later reproduced in a report for the Shell management, and, made public to all participants. There were as many opinions as there were delegates, all seemingly given equal weighting.

At the first seminar in November 1996 in London, the dialogue facilitators asked participants to review a short list of 30 outline concepts put forward by 19 contractors and to suggested what criteria Shell should use to reduce this down to shortlist of competitively bid detailed evaluations. The sheer choice overwhelmed the delegates, nevertheless, two clear views emerged: all the delegates believed that the Brent Spar affair would have far reaching consequences for the energy industry in general, and that any final solution would have to consider public opinion as a vitally important factor. Shell ended up choosing six ideas from five different contractors and paid each one about \$400,000 to produce a set of final plans.

The next two meetings in Copenhagen (March 1997) and Rotterdam (May 1997) asked participants to consider the criteria that DNV should use to evaluate the detailed proposals. The fact that the loading buoy had been subject to wear and tear through 20 years of service in the North Sea had to taken into account when planning the dismantling operations. This made it complex to get Brent Spar out of water without exceeding normal design limits. Structural limitations in the original upending design had since been identified in more sophisticated analyses. In addition damage had occurred during operations which have left the tanks open to the sea. Shell cautioned participants that difficulties of inspection also highlighted the need for a prudent approach. Again, while even a broad consensus of opinion failed to emerge, two new considerations were identified for Shell's decision-

⁴ The Brent Spar Dialogue Process—Report of Four European Seminars by the Environment Council, London, 1997, p. 2.

makers: First, that if the eventual solution were no more dangerous than other on-shore construction projects, it would be acceptable. Secondly, "waste handling" was a major public issue.

At the final set of meetings in October 1997 in London, Copenhagen, Rotterdam and Hamburg, the Environment Council presented to the participants results of the DNV evaluation on seven options, including the original deep-sea disposal (**Exhibit 2**). The participants were then asked to discuss how they felt Shell should make the value judgements between different criteria, such as safety and environment, or greenhouse gases and marine pollution. The methodology applied in the assessment by the DNV was based on standard industry practice. Each proposal was rated individually, not comparatively, in the following four areas.

- Confidence & Technical Risk Assessment (**Exhibit 3**)
- Safety Assessment (**Exhibit 4**)
- Environmental Assessment (**Exhibit 5**)
- Price comparison of Proposals (**Exhibit 6**)

The meetings started with a presentation from Shell detailing the results of the DNV evaluation on the short-listed proposals. This involved showing the participants the "scores" or "ratings" for individual sets of criteria for each proposal. The criteria covered technical confidence, a range of environmental factors, safety and cost. While the presentations were factual, they were not necessarily, straightforward.

Confidence in the overall proposal, for example, is a highly subjective criterion that can be established in a variety of ways. In this case, the assessment was based only on the quality of the engineering analysis and supporting documentation as submitted by the contractors for this particular job, and also their presentations of the proposed solutions at clarification meetings. For Shell, the key "confidence drivers" was experience from similar operations, contractor integration and systematic approach, quality of engineering and analyses, and proven technology.

While most of the audience said in a questionnaire after each event that they found the presentations by Shell useful, many felt that too much detail was provided. Skepticism was highest in both Britain and Germany as to whether the company had listened to the audience's views and whether the dialogue process itself had been worthwhile. "One of the concerns about the process itself, according to Pippa Hyam, the lead facilitator, "was the extent to which the participants represented large numbers of the public and how Shell could communicate with the public at large."⁵

Despite the new array of options on the table to both Shell and environmentalists, the British government still considered deep-sea disposal as the officially sanctioned BPEO. The Norwegian government, which temporarily allowed Shell to tow the Brent Spar back to one of its fjords, had yet to agree to allow the structure to be dismantled on its territory.

⁵ The Brent Spar Dialogue Process—Report of Four European Seminars by the Environment Council, London, 1997, p. 3.

Exhibit 1 Flow Chart of Technical Evaluation and Dialogue Processes

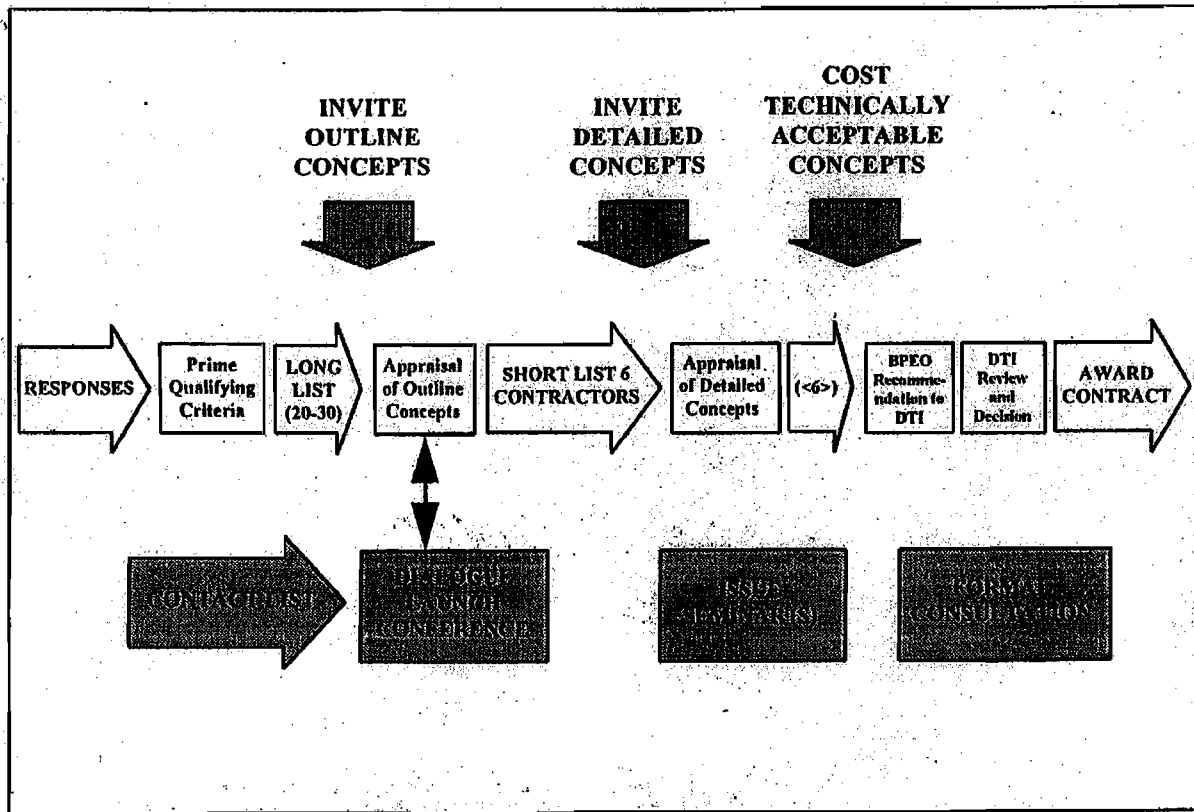


Exhibit 2 The Contractors and Alternatives

- **AMEC Civil Engineering (AMEC)** would take cleaned "slices" of the hull from another contractor and re-use them to help build a coastal defense barrier against sea erosion in Norfolk, in the south east of England. Contractor's price: £18.8 million (\$30 million). Estimated at a total of £32.8 million (\$52.5 million), allowing £14 million (\$22.4 million) for another contractor to raise the Spar and supply cleaned "slices."
- **Brown and Root Energy Services (BRES)** proposed up-ending the Spar at its mooring in Norway using compressed gas, then towing it across the North Sea to a yard in Scotland for scrapping onshore. Contractor's price: £48 million (\$76.8 million).
- **Kvaerner Seaway Spar Alliance (KASSA)** proposed two lifting methods. After towing the Spar to a yard in Norway, they would either raise it vertically using compressed gas, or raise and rotate it to the horizontal, then either scrap it onshore or re-use sections of the hull in a fish farm with the topsides becoming a land-based training center. Contractor's price: £17.6 million (\$28.1 million) vertical plan/£11.4 million (\$18.2 million) horizontal plan.
- **McAlpine Doris Able (MCDA)** proposed up-ending the Spar using compressed gas, towing it to dry dock in the north-east of England, and reusing much of the hull to build a quay at the dock itself. Contractor's price: £19.6 million (\$31.3 million).
- **Thyssen-Aker Maritime (THAM)** proposed partly raising the Spar using compressed air then towing it to a yard in Norway, where they would raise it up fully with jacked cables then scrap it onshore. Contractor's price: £21.3 million (\$34 million).
- **Wood-GMC (WOGM)** proposed raising the Spar vertically at its mooring in Norway using jacked cables, then cutting the hull into "rings" and re-using them to extend a quayside in Norway. The topsides would be scrapped onshore. Contractor's price: £21.5 million (\$34.4 million).
- **Deep Sea Disposal (DSD)** was the original plan approved by the U.K. Government in 1995, and adjusted for the Spar being towed from its mooring in Norway, not from the Brent Field, to a U.K. deepwater disposal site: Price: £4.7 million (\$7.5 million).

Source: Shell (UK) presentation of DNV findings of final short listed bids shown to the Way Forward dialogue group in London on October 15, 1998.

Note: Rate of Exchange £1=\$1.60.

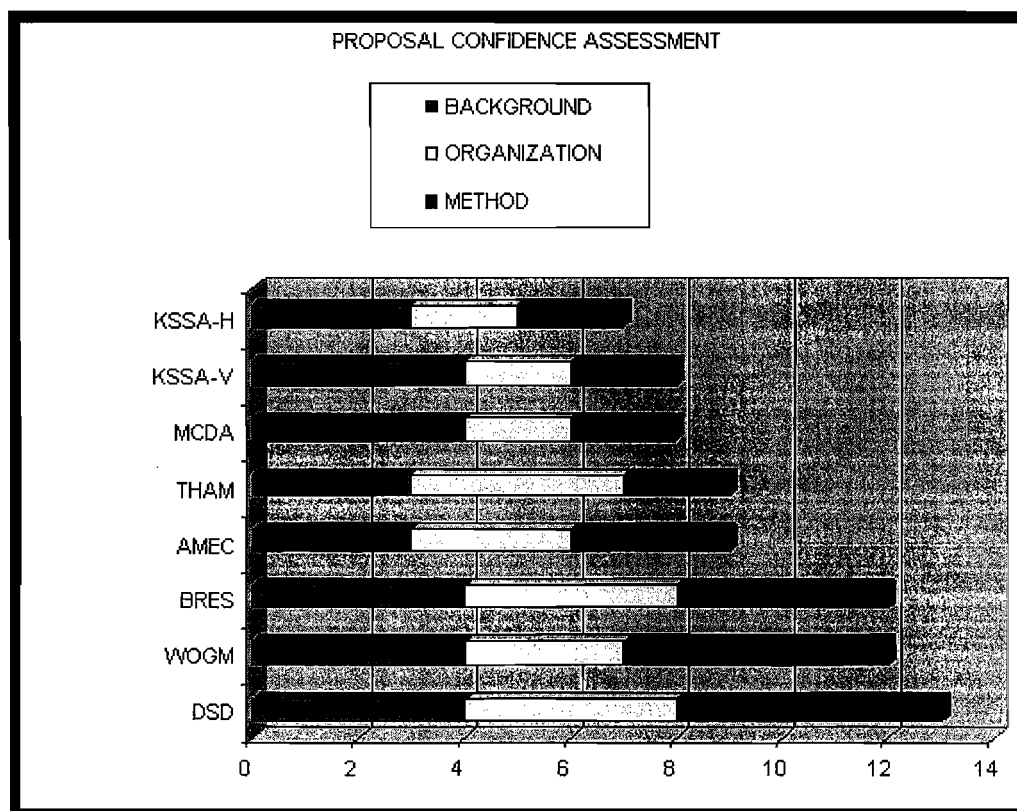
Exhibit 3 Confidence and Technical Risk Assessment

The assessment scale ranges from unacceptable (1) via satisfactory (3) to very high confidence (5). The results of the confidence assessment of the final short listed proposals are presented in **Chart A**. The proposals were marked for each of three categories, background, organization and method, giving a maximum score of 15.

Shell's original deep sea disposal option, for example, had the highest technical confidence rating, due to the fact that the operations had already been partly been carried out. Thus, engineering and analyses had been worked out to a much more detailed level than for the other alternatives. In addition to the DSD, WOGM and BRES represented the alternatives with the highest confidence. KSSA-H had the lowest technical confidence with the KSSA-V and MCDA proposals also performing less well.

The technical risk level depended on the probability of hazards and the consequences. For marine operations the consequences were mainly related to damage or loss of units and objects involved.

Chart A

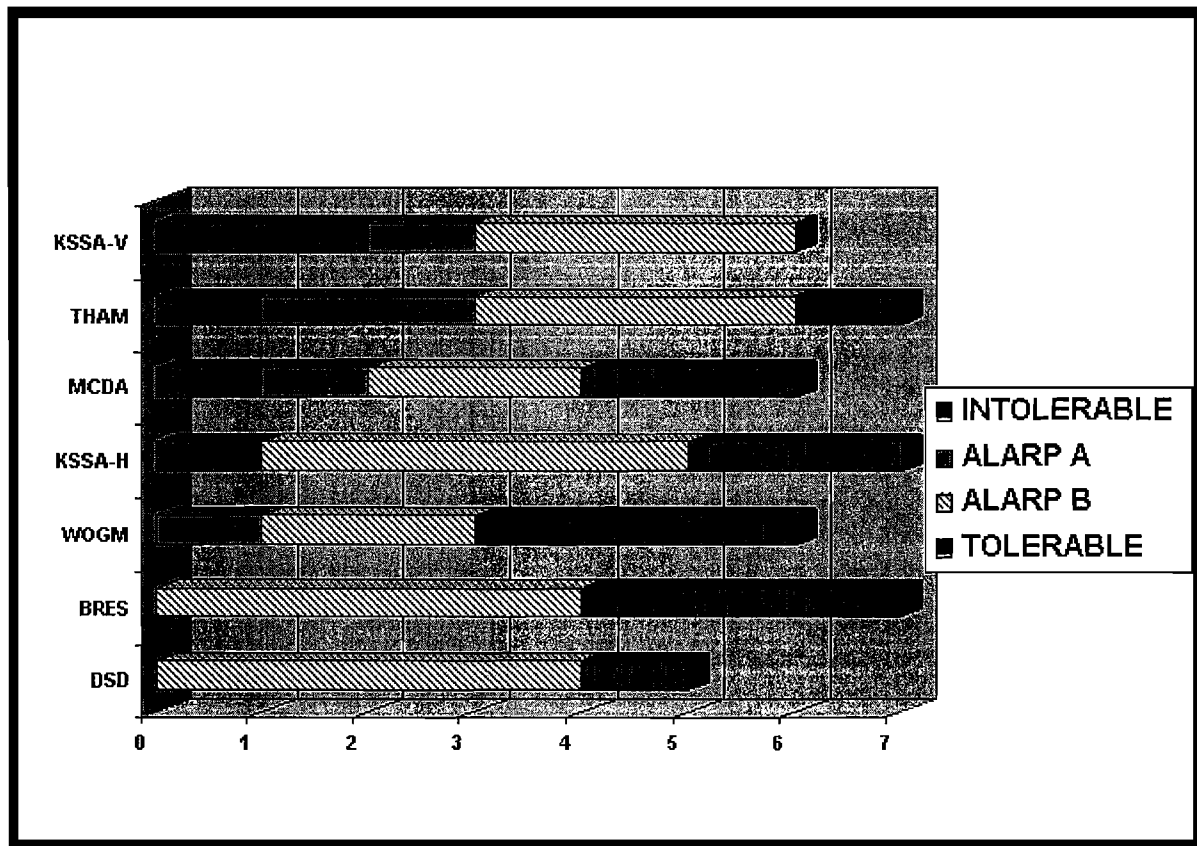


Source: Shell (U.K.) presentation of DNV findings of final short listed bids shown to the Way Forward dialogue group in London on October 15, 1998.

The industry standard presented in DNV Rules for Marine Operations was applied, and the results of the technical risk assessment are summarized in **Chart B**. The risks have been categorized from intolerable" (high risk) to "tolerable" (minor risk). The border area between them is denoted (ALARP) "As Low As Reasonably Practicable" and requires actions to be taken in order to become tolerable. The ALARP area has been divided into "moderate risk" (A) and "low risk" (B).

Here too, the DSD, BRES and WOGM proposals rated the lowest risk levels. The other alternatives had more significant hazards, which are assessed intolerable risks. Thus, it could be concluded that even though all proposals were technically feasible, some of the contractors had failed to demonstrate that feasibility could be assured critical areas.

Chart B



Source: Shell (U.K.) presentation of DNV findings of final short listed bids shown to the Way Forward dialogue group in London on October 15, 1998.

Exhibit 4 Safety Assessment

Safety was measured against two criteria: potential loss of life (PLL) and major accidents. Hazard identification was also been performed, but did not assist in the ranking of the proposals. This quantitative measure of safety provided estimates of the statistical number of lives lost if the proposed work were undertaken. The estimates were based on historical data for fatal accidents in similar types of work. Use of PLL does however not suggest that lives will be lost during the proposed work.

The estimates of PLL are based on separate evaluations of two components of risk, that arising from occupational activity, and that arising from major accidents. The occupational PLL is estimated using historical data for fatalities in similar types of work, and estimates of the number of man-hours for each work activity. The PLL due to major accidents is estimated using historical accident data and event trees. In each case, the historical accident data must be applied appropriately to the specific circumstances in the proposals. The results from a comparison of PLL estimates are shown in the following graph.

For the AMEC proposal, for example, the assessment showed that a significant PLL benefit could be obtained if sections of Brent Spar were used in the construction of an artificial reef. This net risk reduction was achievable because use of the Spar in the reef allowed the reef design to be modified and significantly reduced the number of hazardous operations in the handling of rock. The greatest benefits could be obtained in the AMEC proposal in which a jack-up rig was used for rock placement. There was no net benefit, in terms of PLL, in the other proposals.

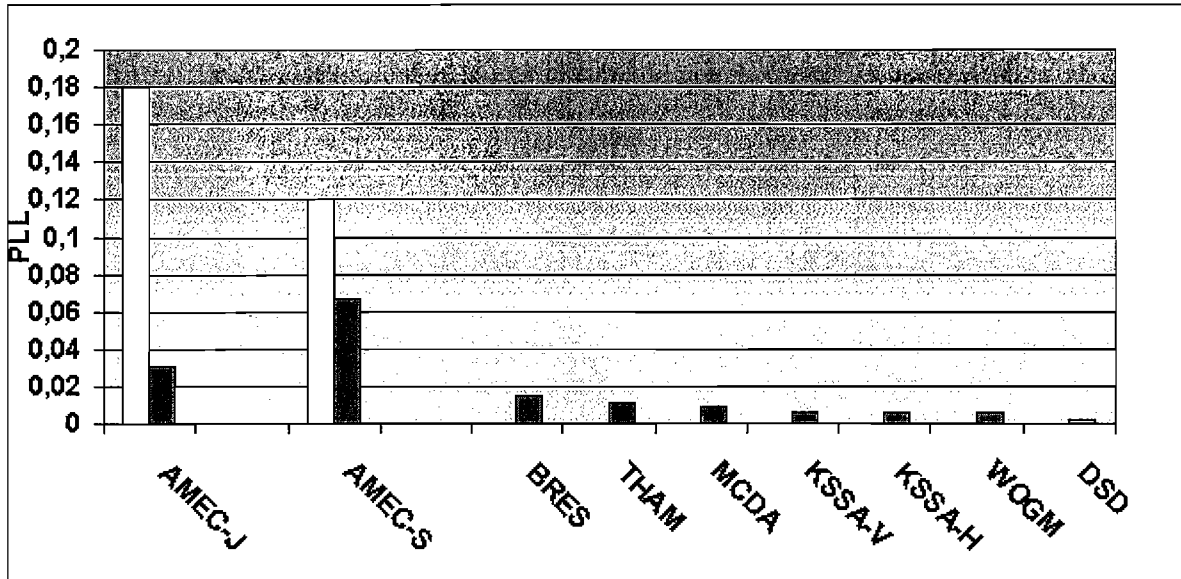
The DSD proposal could be completed with the lowest levels of estimated PLL. The low risk level achieved was mainly due to the relatively small number of man-hours that were required to complete the operation. The submissions from MCDA, BRES, KSSA, WOGM and THAM had risk levels that were more or less indistinguishable (in terms of PLL), from each other, and comparable to those in normal offshore construction operations. Average risks in the AMEC proposals would be considerably higher. In each case the main risks associated with the AMEC proposals arose from the large amount of rock handling that was required during reef construction and not from use of Spar itself.

The AMEC proposal using side-dump barges to place the rocks (AMEC-S) had the highest estimated PLL, but those risks were reduced if a jack-up rig was used to assist rock placement (AMEC-J). The AMEC proposals relied on one of the other contractors to raise the Spar and supply the ring sections. A nominal additional PLL had therefore been added to the AMEC results in the above graph to account for risks during the marine activity phase of the work.

The estimates of PLL presented in **Chart C** included major accident risks, however, major accidents had also been considered separately. Five types of major accident were considered: sinking of the Spar; dropped load during marine operations; dropped load during outcome/end-use phase of the work; loss of a towline during severe adverse weather conditions; and diving.

None of the proposals involved major accident risks that were judged intolerable. The risks associated with many accident scenarios were considered to be tolerable either because the likelihood of that scenario was low, or the consequences were low, or both were low. Nevertheless, it was clear that for the types of major accident considered DSD and the WOGM proposals involved the lowest levels of major accident risk.

Chart C



Source: Shell (U.K.) presentation of DNV findings of final short listed bids shown to the Way Forward dialogue group in London on October 15, 1998

Exhibit 5 Environmental Assessment

Of all four assessments, the environmental was the most stringent. It was based on eight issues:

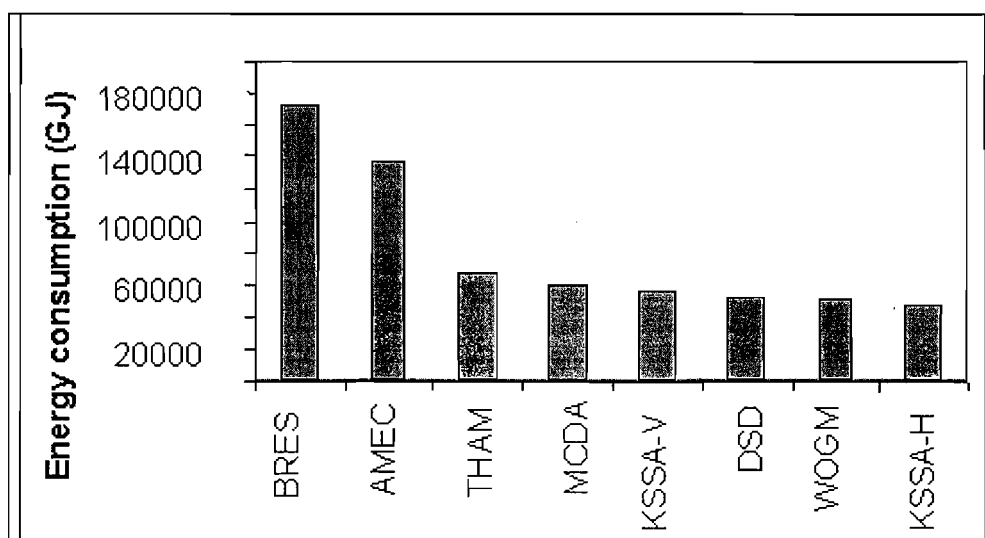
- Energy balance
- Emissions to air
- Resource consumption and waste disposal
- Containment
- Ecological effects
- Aesthetic impacts
- Impacts to local community/societal effects
- Environmental management systems

Two approaches were applied to assess the proposals and to perform a comparative ranking with regard to energy balance. The approaches were:

- *The straight-forward comparison*, a comparison and ranking based on the energy requirement for carrying out the different proposals, and with boundaries limited to the operations described in the proposal;
- *The net benefit ranking*, which considers the balance between the Spar reuse/recycling and a conventional construction project, carried out without the use of Spar elements. The boundaries are thus wider, including issues of global rather than project perspective.

The results from the straightforward comparison are illustrated in **Chart D**, represented by consumption of between 50,000 and 170,000 GJ. This shows that the solutions proposed by BRES and AMEC had an energy requirement more than twice that of the other proposed solutions, mainly due to high degree of vessel operations. The differences between the other solutions are insignificant.

Chart D

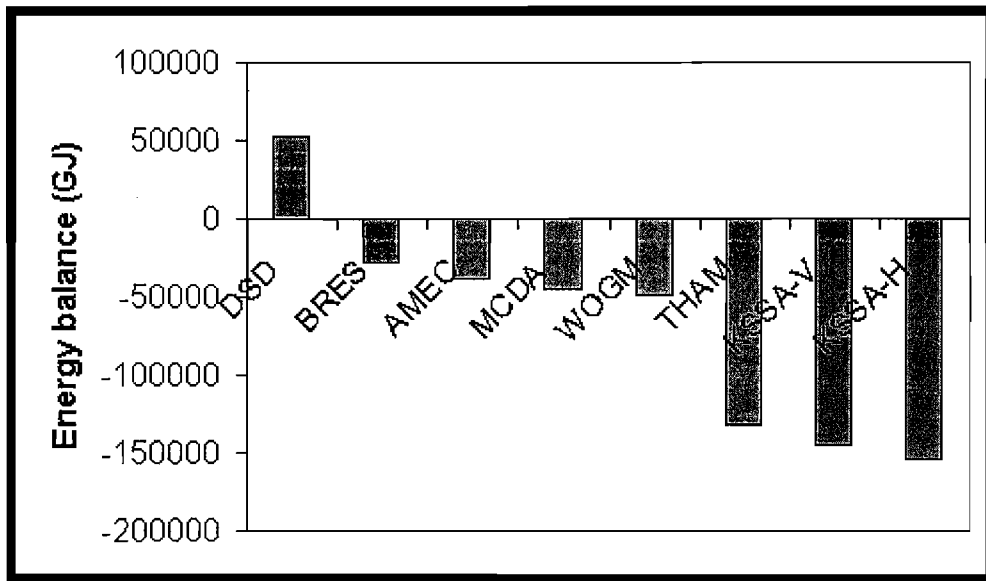


The findings of the net benefit approach are shown in **Chart E**, which combines the consumption Charts with potential savings. The results vary from net energy costs of 50,000 GJ to net energy savings in the order of 150,000 GJ.

As indicated in **Chart E**, the proposals THAM, KSSA-V and KSSA-H had a significantly better energy balance than the other proposals; an energy balance in the range of 200,000 GJ better than the DSD option. This was mainly due to energy saving by recycling at a particularly efficient Norwegian plant. All proposals, with the exception of the DSD option, had however documented a net energy saving.

To put the amount of energy required to dispose of the Brent Spar in perspective, consider that 200,000 GJ may be expressed as equivalent with the energy needed for 5,000 normal family cars running for one year, or the annual energy consumption of 1,300 persons.

Chart E



Emissions to air were assessed both quantitatively and comparatively, following the same methodology approach as for the energy balance. For this assessment CO₂, NO_x and SO₂ were considered.

Charts F shows that the total emissions of these gases from the different proposals were in the range of 2,500-9,000 tonnes CO₂, 35-171 tonnes NO_x and 2,1 to 8,4 tonnes SO₂. Two proposals had significantly higher emissions than the others; BRES and AMEC. This was mainly due to a high degree of vessel operations.

Chart F

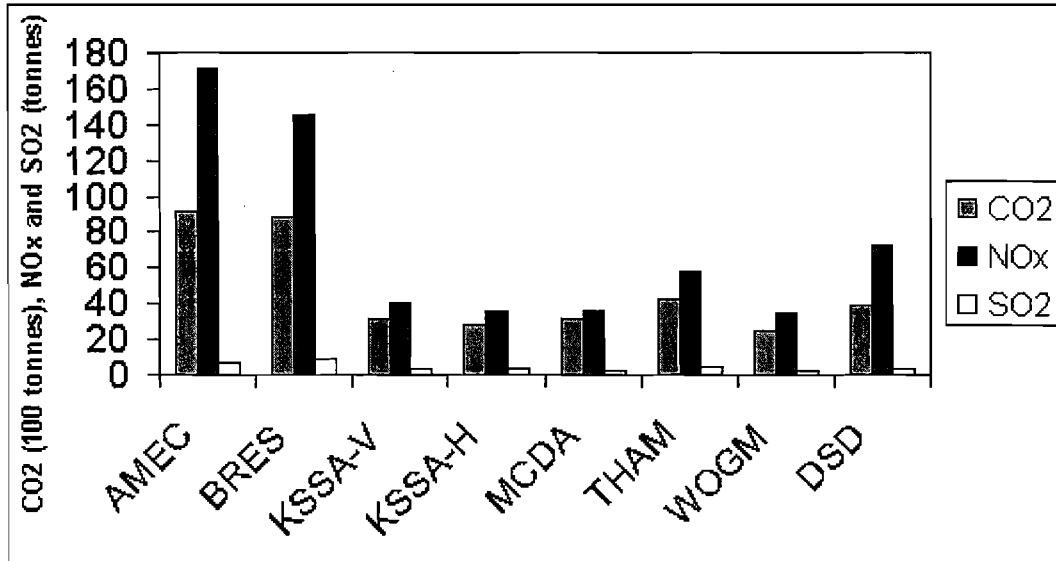
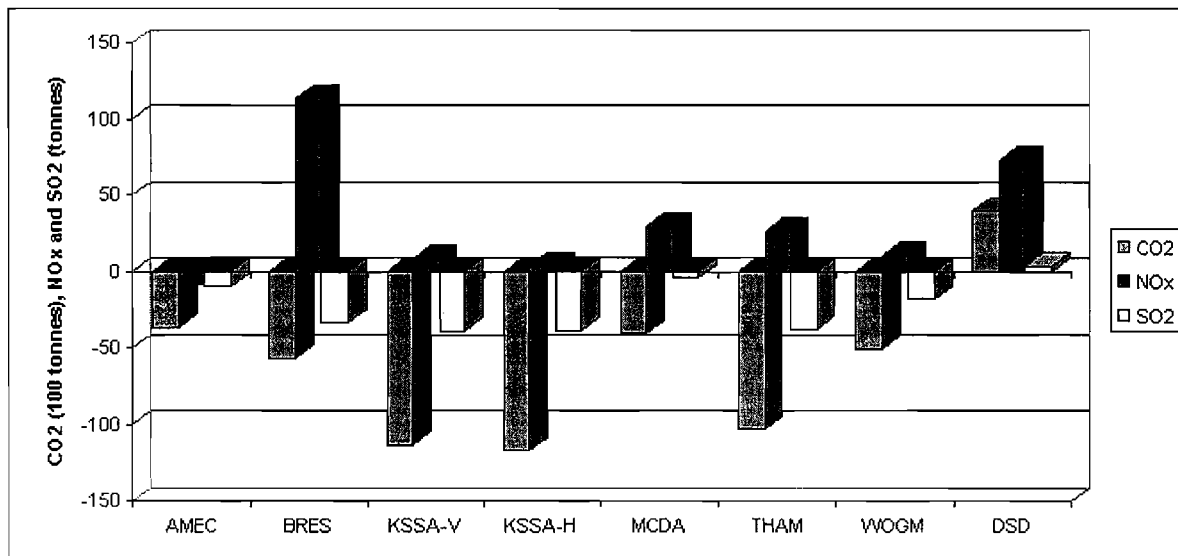


Chart G illustrates the net emission balance and shows that three proposals were significantly better for CO2 (THAM, KSSA-V and KSSA-H), two proposals had significantly higher emissions than the others for NOX (BRES and DSD) and four proposals had emissions that were significantly lower than the others for SO2 (BRES, THAM, KSSA-V and KSSA-H).

Chart G



The emission net savings are illustrated by comparison with a daily day activity such as driving a car, in addition to comparison with annual emissions in the United Kingdom. The CO2

savings potential correspond to about 3,400 cars driven for one year, the NOX savings to about 240 cars, and the SO2 savings to about 63,900 cars. Compared with U.K. national emission data the savings are in the range of 0.0004-0.002-%

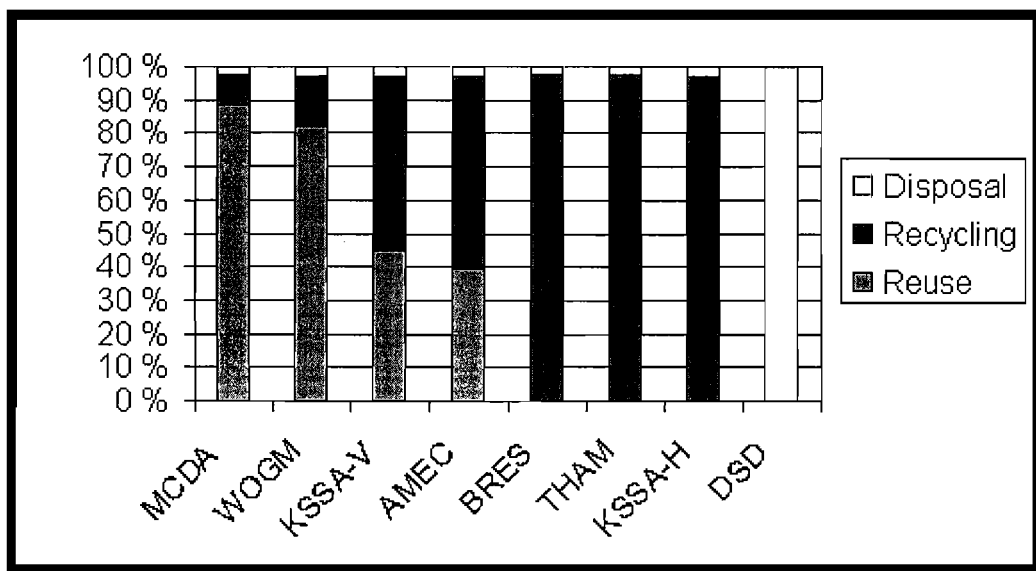
The approach for evaluating the resource consumption was based on principles of modern waste management strategy, namely to minimize waste disposal and consider Spar wastes as resources in accordance with the following hierarchy: reuse, recycling, waste and disposal. The boundary between reuse and recycling is not straight forward, and is expressed as follows: Reuse is when a material is used directly for the purpose it is created, or replacing the need for another material. Recycling is re-processing materials, or reusing materials for purposes they are not originally made (e.g. composting marine growth, or burning wax as fuel). Both reuse and recycling opportunities proposed anyway indicate a sound waste management philosophy.

All six proposals submitted by the independent contractors had a reuse/recycling proportion in the range of 96%-97%. The MCDA and WOGM solutions have the highest reuse proportion. The DSD option of Shell resulted in disposal of 99.8% of Spar materials.

The DNV inventory study (October 1995) showed that the content of harmful substances in Brent Spar was limited. The BRES, KSSA-V and KSSA-H proposals included repair of the damaged tanks before the Spar was moved from Erfjord, Norway, reducing the probability of unplanned discharge of tank water. MCDA would repair the damage prior to tow, while THAM and WOGM would do the repair during the final stage of dismantling. Only the DSD option would result in a major release of contaminate liquids from the Spar.

Ecological impacts from planned operations as well as unplanned events were considered. As the Spar contained only a limited amount of harmful substances, and as all the proposals generally had kept all liquids contained during the operations, no situations were identified giving rise to very severe ecological consequence (see Chart H). Most solutions had only the potential for minor, low or moderate ecological severity of consequence. The only aspect assessed in the category of high ecological severity of consequence was associated with disposing marine growth at sea in an area suffering from high organic load (THAM).

Chart H



A risk-based approach was used to evaluate the unplanned major accident scenarios. From an environmental point of view, an eventual loss of the Spar during tow was in general found to result in low to moderate severity of consequence. Given the probability for such events, the towing operations were assessed as acceptable with regard to environmental risk. Loss of the Spar during dismantling or upending was relevant to some solutions. This could lead to loss of containment, and discharge of oily residues and contaminated water in near-shore waters. Taking into account the oil spill contingency systems proposed in the bid documents, these events were assessed as with tolerable environmental risk (see **Chart I**).

Chart I

Category	Description	Proposal
1	Minor ecological severity of consequence	BRES, MCDA
2	Low ecological severity of consequence	
3	Moderate ecological severity of consequence	AMEC, WOGM, KSSA, DSD
4	High ecological severity of consequence	THAM
5	Very high ecological severity of consequence	

Only noise was found to be an issue with minor to moderate impacts. Noise levels from most of the solutions would be similar. The crucial factors were ambient noise level, distance to dwellings and recreational areas, time of day of activities and duration of elevated noise levels. Based on these factors the THAM solution was assessed as having the greatest potential for impacts, assessed as moderate impacts. The AMEC, BRES and WOGM solutions are assessed as having a potential for minor noise impact. Noise from other solutions was considered as negligible.

The impact of disposing of the Brent Spar on society were assessed on two different levels:

- Negative effects to the local community because of dismantling, construction and infrastructure work in the operational phase; and
- Positive long-term effects on the society as a result of the Spar end use.

Effects during the operational phase were in general found to be minor or negligible. Only minor construction work was planned as part of the solutions, and temporary minor societal effects were identified as related to increased local road traffic, and activities associated with the presence of the work force. No significant difference was identified between the proposals.

Positive societal effects in the long-term perspective would be gained from the reuse solutions, compared with the "do nothing" option. From a societal point of view the solutions with the highest potential for positive effects were AMEC, MCDA, WOGM and KSSA reuse options.

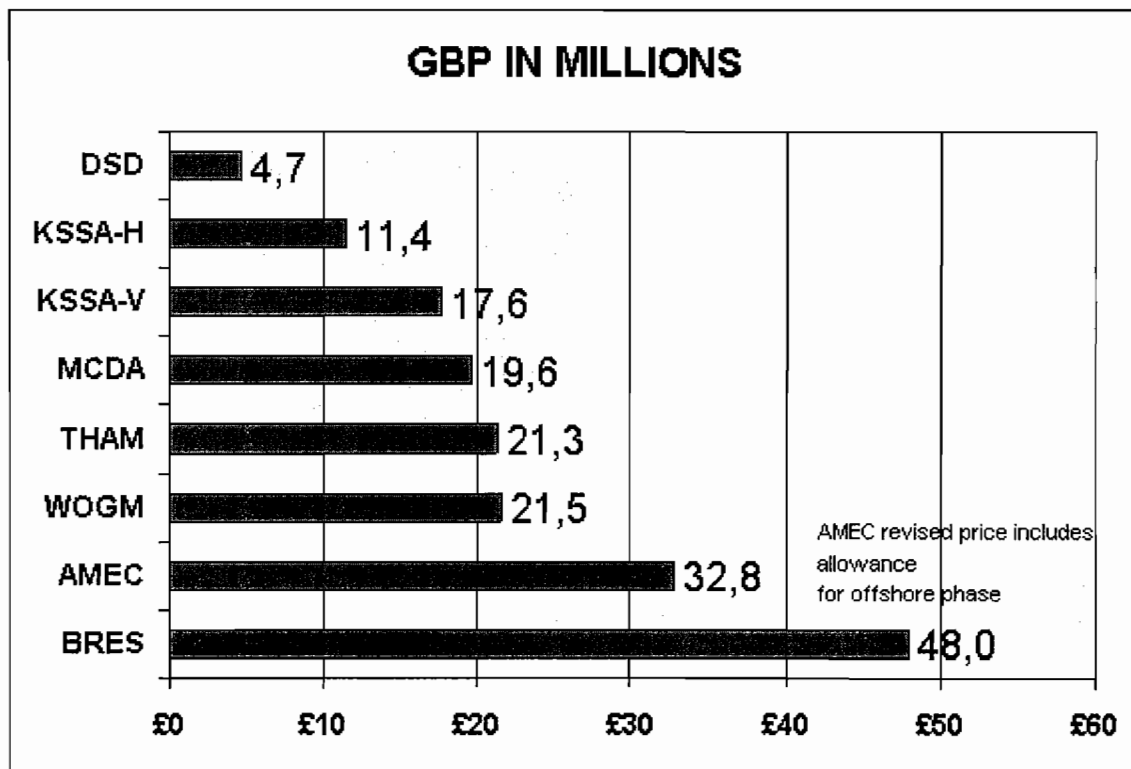
The AMEC solution was distinctive with regard to societal gain, as it protected existing environment against flooding and beach erosion. The MCDA, WOGM and KSSA-V reuse proposals could have benefits that accrued from industrial development.

Implementing and enforcing environmental management systems would be important issues to safeguard the success of the chosen solution in the execution of the Spar proposal. A comparative evaluation had, however, not been carried out at this stage, as the environmental management system would have to be further detailed, and its quality checked through actual audits.

Exhibit 6 Price Comparison of Proposals

The commercial evaluation of the tenders received, had been performed by Rider Hunt International. DNV has performed a verification of this report. The price for Deep Sea Disposal had been based on an update of the original proposal. The price estimates summarized in Chart J shows that Deep Sea Disposal has the lowest price of £4.7 million (\$7.5 million). The other proposals were in the price range of £11.4 million (\$18.2 million) to £48 million (\$76.8 million).

Chart J



Source: Shell (U.K.) presentation of DNV findings of final short listed bids shown to the Way Forward dialogue group in London on October 15, 1998

Note: Rate of Exchange £1=\$1.60.



MICHAEL WATKINS

SAMUEL PASSOW

Sunk Costs: The Plan to Dump the Brent Spar (D)

In the Spring of 1997, while the Way Forward dialogue was still going on, Greenpeace activists once again mobilized its forces and occupied another mobile oil rig in the North Atlantic. This time, the target was a structure owned by British Petroleum (BP) in the Foinaven Field, an energy exploration area known as the Atlantic Frontier, 60 miles west of Shetland Island.¹

The BP platform, known as the Stena Dee, was occupied by the activists for eight days while it was being towed from Norway. As a result, it arrived at its destination five days late. Greenpeace protested² against exploration in the area as part of its campaign against the burning of fossil fuels, which it says, would lead to irreversible climate change. The environmentalists also claimed that the oil and gas exploration licenses granted by the British government were in breach of European Union directives that protected seabirds and coral reefs.

Unlike Shell, BP made no effort to remove the activists once they occupied the Stena Dee, or swam in the waters around the platform as it was being pulled by the tugs. The incident received little publicity. There were no dramatic visuals on television. BP claimed that that the confrontation came to an end when police, who had been stationed on board the platform, quietly served an injunction from a Scottish Court in Edinburgh and arrested four of the activists for "breach of the peace" when the rig arrived at its destination.

Greenpeace claimed that it decided to end the occupation because it feared forecasted bad weather could threaten the safety of its activists. According to Chris Rose, deputy executive director of Greenpeace. "Our activists are exhausted and materials are at their limits after operating continuously in the north-east Atlantic since April. We have done as much as we can here without compromising the safety of our activists or others."³

On August 18, 1997, BP sued Greenpeace for \$2.3 million dollars in damages and obtained a court order to freeze Greenpeace U.K.'s bank account, as well as the private bank accounts of four of their

¹ BP was one of 22 firms awarded exploration licenses for the "Atlantic Frontier" area by the British Government, then controlled by the Conservative Party, in April 1997.

² Greenpeace occupied the Atlantic islet of Rockall for 48 days, disrupting seismic testing by the oil companies. Its ship, the MV Greenpeace was also patrolling in the area.

³ "Greenpeace ends protest on rig." *The Financial Times*, August 18, 1998, p. 4.

Samuel Passow (Kennedy School of Government '96), Head of Research at the Center for Dispute Resolution (CEDR) in London, prepared this case under the supervision of Professor Michael Watkins. This case was developed from published sources. HBS cases are developed solely as the basis for class discussion. Cases are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective management.

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leading activists.⁴ The calculation for damages was based mainly on the \$166,000-a-day it cost the oil company to hire the *Stena Dee*. The BP lawsuit claimed "Their [Greenpeace's] actions were unlawful. . . . They interfered with our legitimate business and caused us to suffer financial losses."⁵

Greenpeace U.K. claimed that it only had assets of \$298,000 and that the BP suit would bankrupt it. Tony Juniper, campaigns director at Friends of the Earth (U.K.) said his group would back Greenpeace because he was "concerned over the threat to non-violent protest if BP won its action."⁶ Nick Harvey, campaigns and communications chairman of the Liberal Democratic Party in the United Kingdom accused BP of an unjustified overreaction. "This is another example of a major multinational company using its massive legal muscle to crush legitimate opposition."⁷

Steven Thomson, Finance director of BP contended that Greenpeace had previously paid out only "odd thousands" in damages resulting from legal actions by companies. "Nobody pursued anything on this scale before."⁸

The impetus for this audacious plan seemed to be inspired from a decision by the new Labour government under Prime Minister Tony Blair, who two weeks earlier had joined forces with the oil companies and blocked a move by Greenpeace to legally contest the licenses in the English High Court. The environmental group could go to the European Court of Justice in Luxembourg, which could delay or halt any exploration for at least two years—or end it, if Greenpeace won the case.⁹

Faulds watched the drama with keen interest. Shell had a 28 percent stake in the Foinaven development, which had an estimated 300 million barrels of oil in reserve.¹⁰ Though Shell was consulted, the final decision to seek damages was taken by the management of BP.

⁴ The four Greenpeace members were Chris Rose, campaigns director; Sarah Burton, company secretary, Liz Pratt, oil team campaigner, and Jon Castle, captain of the *MV Greenpeace*. The last two were involved in the campaign against the *Stena Dee*.

⁵ Peel, M., "BP to sue Greenpeace for £1.4m; Pressure group says oil company action may put it out of business." *Financial Times*, August 19, 1997, p. 6

⁶ Nuttall, N., "Greenpeace offered olive branch by BP." *The Times*, August 20, 1997.

⁷ Peel, M., "BP backs down on £1.4m claim: Damages threat against Greenpeace dropped in face of hostile reaction." *Financial Times*, August 20, 1997, p. 6.

⁸ Peel, M., "BP to sue Greenpeace for £1.4m; Pressure group says oil company action may put it out of business." *Financial Times*, August 19, 1997, p. 6.

⁹ The decision to block Greenpeace's legal appeal seemed in complete contrast with Labour's election manifesto entitled "In Trust for Tomorrow," which contained the strongest environmental policy statement ever produced by a mainstream party. It included a pledge to give green groups a role on legal challenges to potentially damaging actions.

¹⁰ This would account for only 0.5 percent of the U.K.'s annual oil output.



MICHAEL WATKINS

SAMUEL PASSOW

Sunk Costs: The Plan to Dump the Brent Spar (E)

On January 29, 1998, the management of Shell Expro (U.K.) decided on the WOGM plan for reusing the Brent Spar as a quayside development in Mekjarvik near Stavanger in Norway. Faulds claimed that key factors in the choice had not only been feedback from the Way Forward dialogue process, "but it is a solution that was not available to us when we first considered decommissioning the Spar in 1991. It is based on a particular opportunity that permits the use of cable lifting barges especially suitable for the Spar, improving our technical confidence that it could safely be raised from the water."¹ He later added, "we found a solution which on balance was at least as good as deep sea disposal."²

Greenpeace welcomed Shell's decision, but criticized the company for taking so long to come to the "obvious conclusion."³

On July 18, 1998, the new Labour government of Prime Minister Tony Blair announced that it would join its OSPAR partners and abide by the Oslo Convention. "The government's new position is no dumping and no toppling of large steel installations . . . there will be a complete ban on the dumping of steel installations," said Michael Meacher, the Environment Minister.⁴ Six weeks later, the Energy Minister, John Battle approved the Shell plan on the BPEO criteria after negotiating with the government of Norway to allow for the Spar's disposal in its territorial waters.⁵

In December 1998, Mark Moody-Stuart, who took over as chairman of Shell Transport (U.K.) a year earlier, replaced Cornelius A. J. Herkstroter as chairman of the committee of managing directors of Royal Dutch Shell. His first move was to scrap the business committees and appoint chief executives to run the oil products and the exploration and production divisions.⁶

¹ Shell U.K. press statement, January 29, 1998.

² Eric Faulds at Brent Spar public meeting in London on September 1, 1999.

³ Greenpeace press release, January 29, 1998.

⁴ Parker, G., "UK to call for ban on dumping of oil rigs at sea." *Financial Times*, July 18, 1998, p. 8.

⁵ The British Government guaranteed the Norwegian Government that it would be responsible for removal of any toxic waste from the Spar which was later brought back to the United Kingdom for disposal. Source: Eric Faulds at Brent Spar public meeting in London on September 1, 1999.

⁶ Parsley, D., "Shell slashes costs to beat oil price slump." *Sunday Times*, December 13, 1998.

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On July 10, 1999, Shell Expro completed the dismantling and disposal of the Brent Spar. The engineering project took eight months or the equivalent of 330,000 man-hours without a single injury.

The total amount of oil finally found in the Spar after it was broken up was 152 tons. This compared with the 5,500 tons estimated by Greenpeace and 50 tons claimed by Shell.

The final outcome took its toll on the ecology. It had a net energy balance of +48,000GJ's—not a saving as promised in all the alternatives to DSD. It had an energy consumption of 115,000 GJ's (the equivalent of approximately 875,000 gallons of gasoline) and was 2.5 times more than the original estimate of the WOGM proposal or the DSD option. It resulted in the emission of 11,086 ton of CO₂ into the atmosphere—higher than any of the projected estimates.

The real cost for the WOGM project was \$65.6 million compared with original estimate of \$34.4 million.

The total cost to Royal Dutch Shell to achieve both a commercial and socially acceptable outcome to dispose of the Brent Spar was \$97.6 million—\$83.2 million more than they originally planned for.⁷

In September 1999 Shell (U.K.) held a final public meeting on the Brent Spar. Although invited, no one from Greenpeace attended. When asked what lessons the company had learned from the experience, Faulds identified 10:

1. The views of “experts” are no longer accepted without challenge.
2. Technical arrogance must be avoided. That engineering logic has been applied to a problem does necessarily make an answer correct.
3. Sound science and regulatory compliance are not in themselves sufficient to secure public support.
4. There is a need to inform people about the issues involved in making such decisions, to reduce misconceptions, resolve misunderstandings, and to illustrate the difficulties in finding a balance amongst social, environmental, economic and safety issues.
5. Engineers and other “technical experts” must be able to communicate the complexities of an analysis, so that “non-experts” can understand and meaningfully contribute before a decision is made.
6. The importance of external perception should never be underestimated. The views of a wider public may be based more on perceptions than on facts.
7. Public perception of what is “safe enough” may be quite different from the view of an expert trained in logical risk analysis.
8. Avoid DAD (Decide-Announce-Defend). Instead adopt DDD (Dialogue-Decide-Deliver). Dialogue should start as early as possible in the decision making process
9. The days when companies were judged solely in terms of economic performance and wealth creation have long disappeared. Today, companies have far wider responsibilities to the environment, to local communities and to a broader society. These are not optional extras.
10. Listening, dialogue, more open communications, greater social accountability—and new ways of building these into the ways that business is done—are all here to stay.⁸

⁷ Total cost breakdown: original DSD plan—£9m (\$14.4 million), Way Forward Programme £11m. (\$17.6 million), WOGM £41m (\$65.5 million). Exchange Rate £1=\$1.60.

⁸ Eric Faulds at Brent Spar public meeting in London on September 1, 1999.