

The Disposal of Disused Oil Platforms

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This paper describes the background to the decision by Shell to dispose of the Brent Spar oil platform at sea. The decision was approved by the British Government, but was criticised by Greenpeace. This issue has been taken up in Germany where a widespread consumer boycott of Shell petrol is taking place, as a protest against the decision.

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A Introduction

The Brent Spar was commissioned in 1976. It is a cylindrical buoy, moored to the sea bed by six anchors and is made up of oil storage tanks at the bottom, buoyancy tanks toward the middle and a topside containing the offshore tanker loading equipment. It is 141 metres (463 feet) high, and weighs 14,500 tonnes. The Spar floats in around 140 metres of water, and is tethered to the seabed by anchor chains, fixed to six 1,000 tonne concrete gravity blocks. In 1991, it was decided, for economic reasons, that Brent Spar should cease operations. It was taken out of commission in September 1991. The operators, Shell UK Exploration and Production have recognised that the Spar is now obsolete and wish to abandon the structure in accordance with all regulatory requirements.

Shell considered several options for disposal of the Spar, concluding that deep water disposal was the Best Practicable Environmental Option, and the most economically efficient. After consultation with the Scottish Office and other government Departments, the Department of Trade and Industry formally approved the deep water option in February 1995¹.

However, Greenpeace opposed this option on environmental grounds, and occupied the platform. While there, they undertook various tests, on the basis of which they claimed that Shell had given inaccurate information to the Government, in order to obtain permission to dump the terminal at sea. In particular, they argued that the quantity of oil on the platform was much greater than that claimed by Shell. Shell denies this claim.

The issue has been taken up strongly in Germany, apparently as a consequence of the Greenpeace campaign. At first it seemed that initial fears had been calmed, when it was reported that the German environment Minister was satisfied after a meeting with her British opposite number (Mr Gummer)². However, Chancellor Kohl took up the cause, and raised the matter with Mr Major at the G7 Conference in Canada³, but they could not reach agreement. a widespread consumer boycott of Shell petrol in Germany has followed, supported by a wide range of leading German politicians. Many official vehicles are no longer using Shell petrol. Many consumer groups have joined the boycott. There has also been an arson attack on a petrol station in Hamburg.

¹ North Sea abandonment - Brent Spar disposal, Shell UK Ltd, February 1995

² Merkel akzeptiert versenkung von "Brent Spar", Reuter German News, 29 May 1995

³ Kohl und Major uber olplatform uneins, Reuter German News, 16 June 1995.

The Prime Minister expressed his support for Shell on Monday 19th June⁴.

I understand that many people seem deeply upset about the decision to dispose of Brent Spar in deep water. I believe that it is the right way to dispose of it. It will be disposed of in the Atlantic, in 6,000 ft of water. It is 150 yd tall and 30 yd wide, and the proposition that it could have been taken inshore to be disposed of is incredible. Shell has my full support to dispose of it in deep water.

The oil platform is currently being towed by two tugs and is expected to reach its destination on Wednesday 21st June.

B The Greenpeace case against disposal at sea

Greenpeace⁵ notes that Shell's successful application to the UK government for a licence to dump Brent Spar was supported by three main reports⁶.

These three reports are based on limited analysis of the contents of the Brent Spar done in 1991 and assumptions about the contents of the tanks. During the occupation of the Brent Spar by Greenpeace in early May, samples taken from several tanks were obtained and analysed. The depth of oil remaining in the tanks was also recorded and these indicate that there are at least 40,000 barrels or over 5,000 tonnes of oil still remaining on the Spar. The results of the analysis show that the inventory of materials given by Shell in their application to dump the Brent Spar are a gross under-estimation of the real contents of the Spar. It is clear that the dumping licence was issued on the basis of incomplete information about toxic chemicals and oil waste onboard the Spar. As a result the Government could not have made a true assessment of the likely impacts of dumping.

As the decision was based on incomplete scientific information, Greenpeace believes the Government should reconsider their decision that dumping the Brent Spar is the Best Practicable Environmental Option...

Furthermore, the impact assessment is largely based on the assumption that the Spar will hit the seabed intact, so containing the majority of its waste. The AURIS report⁷ states that the "Spar has been damaged, and at present it is not

⁴ HC Deb 19 June 1995 c. 28

⁵ The Brent Spar - A load of toxic waste, 1995

⁶ A Safety and Environmental Assessment of the Options by Aberdeen University (AURIS report); an impact hypothesis; a report on the best practicable environmental option (BPEO)

⁷ A Safety and Environmental Assessment of the Options by Aberdeen University

known without a detailed survey and a structural analysis, whether it would be able to withstand the pressures to which it might be subjected during a reverse upending procedure". In contradiction to this Shell assume that the Spar can be sunk through 2,000 m of water, after blowing the ballast tanks, subjecting it to water drag loadings created by the possible sea anchor effects of the topside and that it will still hit the bottom intact. A full structural survey has not been carried out to justify this claim...Shell have stated that one concern about bringing the Spar to shallow waters is the danger of it breaking up and causing pollution in these areas. This is also inconsistent with the assumption that the Spar would remain intact during the dumping operation.

This report indicates that the Spar contains much more toxic material than the Scottish Office Agriculture and Fisheries Department was previously aware of. It is therefore appropriate, under section 8 of the Food and Environment Protection Act 1985 for the authority to now revoke the licence, pending a much more detailed investigation of the contents of the Spar which can more easily be done ashore where the wastes can be dealt with in a monitored, controlled and regulated environment.

A separate Greenpeace press release⁸ makes a more general criticism of the proposed dumping.

Marine ecosystems, notable of the North Sea, are in serious decline. Chemical pollution from industrial discharges, sewage, radioactive discharges, pesticide run-off, atmospheric pollution are all continuing to enter our seas.

Given these concerns it is particularly alarming that the UK Government should be allowing Shell to dump the Brent Spar. The pollution from the offshore Oil and Gas Industry remains poorly regulated by North Sea governments. The dumping of the heavily contaminated Brent Spar clearly shows a complete disregard for the health of the marine environment by the UK Government and the Oil and Gas Industry.

On Monday 19th June Greenpeace released a leaked document from MAFF, written in December 1993, at a time when the disposal options were being discussed. It contains a handwritten note saying "The bottom line is that the waste cannot be dumped at sea. The only option is to take ashore and treat". According to the Independent⁹,

⁸ April 1995

⁹ *Independent* 20 June 1995

The handwriting is believed to be that of Dr John Campbell, director of the ministry's fisheries laboratory at Burnham on Crouch. The memo is from Willie McMinn, one of his staff, and says "The chemistry of this water is such that it has to be considered very toxic to marine biota [life]. It should therefore be treated as hazardous waste and discharge should be prohibited"...

A spokesman for the Ministry of Agriculture said its scientists had been worried in December 1993 because disposal in situ, in the relatively shallow water of Shell's Brent oilfield was being considered. But in deep water there was less marine life to be harmed, and the toxic contaminants would be diluted to safe levels before they reached the surface and fisheries.. "This was a preliminary opinion based on information known at the time," he said. "The clear decision reached in the end was that deep-sea disposal would be in accordance with international conventions".

C The Shell case for disposal at sea

The recent Shell case includes denial of most of the arguments used by Greenpeace. Thus¹⁰,

Shell U.K. Exploration and Production totally refutes allegations from Greenpeace that over 5,000 tonnes of oil remains in the storage tanks of the Brent Spar. The contents of the storage tanks on the Spar were flushed out into a tanker in 1991 when the facility was decommissioned leaving only seawater. Samples of bottom lying silts were taken from the storage tanks through vents at the lowest deck on the Spar (M deck) and the results included in the submissions to the Government. These results have also been made public and have been widely reported.

Shell has summarised its case in a series of points¹¹.

UK policy and regulation for the disposal of redundant offshore oil and gas installations comply fully with the highest international standards.

¹⁰ Shell Refutes Greenpeace Allegations, Media Information 17 June 1995

¹¹ Disposal of the Brent Spar - Key Facts, 7 June 1995

The Spar disposal plan, entailing painstaking analysis of the options; responsible balancing of all environmental, safety, health and economic factors; and extensive consultations with interested parties including fishermen and environmentalists, reflects best international oil industry practice.

Future disposals will be decided, case-by-case, in the same rigorous way and onshore recovery is generally foreseen - and already practised.

The exceptional choice of deepwater disposal for Spar was made because numerous studies have shown that while there would be no environmental benefit in onshore disposal, safety and occupational health risks would be six times greater.

On safety grounds, there are risks that having been damaged in operation and possibly overstressed during installation, the Spar might break up while undergoing the technically difficult task of upending for onshore disposal. On occupational health grounds, the very low radioactivity scale in the Spar could be dangerous if inhaled as dust during scrapping - left as it is, it poses no risks.

The carefully surveyed and selected disposal site is 150 miles out in the Atlantic (not the North Sea) in a water depth of around 7,800 ft (2375 metres or about 1.5 miles).

Contamination to the sea bed is independently assessed to be negligible, very localised and inaccessible to the food chain because at this depth marine life feeds off organic debris sinking from above. To the last light bulb, all sources of contamination which can be removed safely are being recovered before disposal of the Spar.

The 100 tonnes of sludge (highest estimate) consists of 90% sand, and 10% stable, heavy oil residues - not dissimilar from the bitumen on roads. The tiny proportion of heavy metals in the sludge is not significantly different from that which would be found naturally in the same weight of plankton or marine sediments.

The very low level radioactivity from scale inside the Spar (highest estimate 30 tonnes) is equivalent to that from a group of granite houses in Aberdeen; 2kg of scale equates to the radiation from a domestic smoke detector.

The benefits of recycling the metal from Spar have been evaluated. The analysis shows that there is no significant benefit in terms of overall energy and resource savings.

Consultations with fishermen and environmentalists before the deepwater disposal was approved indicated support in this case. None of the European governments notified by HMG under the Oslo Convention queried the plan before the Greenpeace action.

Removal of redundant offshore installations is not a universal regulatory requirement. The US Government, for example, supports the careful placing of redundant structures, in some cases, to create artificial reefs which are attractive to marine life and benefit fishermen in a suitably responsible way.

D The Report of the Energy Select Committee

The background was described in a report by the Energy Select Committee in 1991¹², which described the four main options for dealing with offshore installations after the abandonment of a field (para 5) : leaving the entire structure in place; partial removal and toppling (depositing the upper parts of the installation on the seabed); wholly or partially removing and dumping the installation in a deep-water trench; and wholly or partially removing the installation and taking it to shore.

The report pointed out that the 1990 UK Government guidelines were stricter than the requirements of international agreements, and would require the total removal of 110 of the 155 fixed installations on the UK Continental Shelf. The estimates they cited showed that total removal would be far more expensive than other options. The UK Offshore Oil Operators Association (1988 prices) estimated the cost of entire removal from site at £4.4 bn. The cost of partial removal from site according to IMO guidelines was put at £2.9bn. The cost of partial removal, combined with the toppling of 22 installations was put at £2.4 bn. The report also quoted Department of Energy figures (in 1989 prices) which were higher and also suggested less difference between the options. The cost of entire removal from site was put at £5.5 bn. Partial removal was put at £4.5 bn and partial removal, combined with toppling of 22 installations was put at £4 bn¹³.

The environmental impact was then considered.

16. The major environmental issues that were suggested to us were, first, the decay of a partially-removed or dumped installation; secondly, the dispersal of

¹²*Decommissioning of oil and gas fields*, 1990/91 HC 33

¹³para 12

oil from the drill cuttings piles, the mixture of rock and the lubricating drilling mud, anything up to 35 metres high, at the base of oil production facilities; thirdly, the possibility of the widespread leakage of the toxin polychlorinated biphenals (PCBs) into the sea...

The Committee was assured that there were no PCBs on platforms on the UK Continental Shelf.

18. The question of the disturbance of cuttings piles presents more difficulty. As BP told us, "any effort to remove the cuttings pile is likely to result in more widespread contamination on the seabed and give little or no environmental benefit". This is an argument for partial abandonment, particularly of enormous installations such as Mobil's Beryl Alpha with cuttings piles of up to 35 metres. It also suggests that the entire removal of installations where required is likely to have a major environmental impact with the dispersal of cuttings piles. We recommend the introduction of guidelines on this subject.

19. On balance, therefore, we believe that environmental interests favour partial abandonment where the Department's requirements permit, and are not an argument against deep-sea dumping. Shell and Esso told us that complete removal to shore and subsequent on-shore disposal at suitable landfill sites would, on the other hand, have a considerable environmental impact. We believe that onshore disposal would have an environmental impact, and, where complete removal is envisaged, the comparatively high environmental risk should be recognised.

20. We are satisfied that little environmental risk is presented by a safeguarded, partially abandoned, toppled, or deep-water dumped rig. We consider that there is little danger of decay of such rigs, and that, if anything, environmental considerations alone are an argument in favour of partial abandonment where permissible and deep-water dumping where total removal is anticipated. It was repeatedly suggested to us that rigs in fact benefit the environment. They encourage, it was said, the fish population by acting as artificial reefs. Deep Water Recovery and Exploration Ltd told us that "their complete removal would be 'harmful' in so much as it would remove the structures that confer this benefit"...

The Committee does not seem to have considered any serious environmental criticisms of dumping at sea, except from the objections of the Scottish Fishermen's Federation. It may be that such criticisms do not exist, or it may be that the people who know most about the issue are the oil companies operating in the North Sea. They may be perfectly correct, but it is not necessarily easy for outsiders to study and research the matter thoroughly, partly because of cost.

E Government Policy and International Obligations

(1) The basic British government position

The Government issued in May 1995 a consultative document on the decommissioning of oil platforms¹⁴. This stated their basic policy and their interpretation of the international obligations.

1.1.1 Government will seek via a case-by-case approach to achieve effective and balanced abandonment solutions which are consistent with international obligations, and have a proper regard for environment, other uses of the sea and cost considerations.

The measures provided in an abandonment programme¹⁵ will be : proportionate; cost effective; consistent with international obligations. The will have regard to : the precautionary principle; best available techniques and best environmental practice; other users of the sea; the need to ensure that the requirements of health and safety law are satisfied. Subject to international obligations, all feasible options will be considered. These include : entire removal; deep sea disposal of some installations or parts thereof after removal; partial removal including toppling; maintaining some installations in place. There are also some post-abandonment requirements.

9.1 The persons who own an installation or pipeline at its abandonment will normally remain the owners of any residues. Any residual liability remains with the owners in perpetuity. Owners will also be responsible for complying with any conditions attached to the approval of the abandonment programme.

9.2 Any remains of installations or pipelines will be subject to monitoring at suitable intervals specified in each abandonment programme and may require maintenance or remedial action in the longer term.

9.3 Any compensation arising from any effects at sea of the abandonment of an offshore installation or pipeline will be a matter for the owners and affected parties.

¹⁴ Abandonment of offshore installations and pipelines under the Petroleum Act 1987 : guidance notes for industry : consultative document, May 1995, Library Deposited paper 3/1620

¹⁵ op. cit. Appendix A

(2) The basic Norwegian Government position

Norway has not yet reached the stage of abandoning oil platforms, but no decisions have been taken as to exactly what to do with the existing ones. Norway is party to the same international conventions as the UK and much the same policy will probably be adopted. The two main differences are that each abandonment decision will require Parliamentary approval and that the Norwegian Government, as partial owner, will accept liability.

A Norwegian government official in a recent speech¹⁶ stressed that every possible option was open for consideration and decision.

Now, what does this mean in practice ? First of all, this implies that the Norwegian government has not taken the view that one abandonment alternative is preferable in comparison to others. According to this, installations which have become redundant can be wholly or partly left in place, toppled or removed for scrapping on shore or dumping...Many installations will most likely be left in place, either to be maintained at a level where its integrity is preserved, or left to be gradually disintegrated by the forces of nature...

(3) International Obligations

The various international obligations are complex, partly because the topic has appeared in international conventions, long before the time when oil platforms reached the end of their useful lives and were decommissioned.

1.2.1 Article 5(5) of the 1958 Geneva Convention on the Continental Shelf stipulates that "Any installations which are abandoned or disused must be entirely removed." The UK is a party to this Convention which is still in force. However, the accepted view is that this provision has to be interpreted in a way which is consistent with the object and purpose of the Convention and as far as possible with customary international law. The purpose of the Convention is to exploit natural resources without unjustifiable interference with other uses of the sea. Further, when the provisions were drafted offshore

¹⁶ Dag Erlend Henriksen, "An Explanation of Norwegian abandonment policy" Institute of Petroleum conference, 16 February 1995

oil exploration was at an early stage in its development and the technical and practical considerations in the removal of installations were very different. The Law of the Sea Convention has not been ratified by the UK and is not yet in force. However, it is accepted that Article 60(3) of this Convention (and not Article 5(5) of the 1958 Convention) represents the customary international law on abandonment. The competent international organisation for the purposes of article 60(3) is the IMO and accordingly the accepted international standards are the IMO Guidelines and Standards.

1.2.2 The disposal at sea of installations or parts of installations, including any hazardous or non-hazardous materials or substances they contain, falls within the provisions of the London Convention of 1972 which applies to all marine waters world-wide and the regional Oslo Convention of 1972 which applies only to specific sea areas of the North East Atlantic, including the North Sea, and parts of the Arctic Ocean. The provisions of the Oslo Convention will be subsumed by the new Convention on the Protection of the Marine Environment of the North East Atlantic (the OSPAR Convention) when this enters into force.

The provisions of these two conventions are described in further detail.

5.4.11 Both Conventions prohibit the dumping of certain hazardous substances as listed in Annex I to the Conventions. Dumping of other less hazardous substances, as defined in Annex II to the Conventions, requires a specific permit. More generally no substances or materials may be dumped without the approval of the appropriate national authority, although exemptions are provided for. In addition, the Oslo Convention requires bulky wastes, which may present a serious obstacle to fishing or navigation, to be dumped in not less than 2000 metres of water and not less than 150 nautical miles from land.

DISPOSAL METHOD	OSLO CONVENTION	LONDON CONVENTION
Leave in situ	Not addressed	Practice confirmed as dumping. Special permit required (using DTI legislation). Issue of the permit must be notified to the LC'72 Secretariat.
Topple at site	Case for dumping rests on contaminants present , the case that no serious obstacle to navigation would result , 2 and 4 and the general provisions of Annex III.	As above
Move to side and dispose	As above	As above
Remove & sink in shallow water location	As above	As above
Remove and sink in deep water location	As above, but if dump site is at least 150 nautical miles from shore and depth not less the 2000m, no need to consider 'interference issues.	General permit required (as no serious obstacle to navigation or fishing would result) subject to satisfying 'contamination' criteria.

The 1992 OSPAR Convention, which is not yet in force, will replace the Oslo and Paris Conventions, and will introduce the following requirements¹⁷.

1 No disused offshore installation or disused offshore pipeline shall be dumped and no disused offshore installation shall be left wholly or partly in place in the maritime area without a permit issued by the competent authority of the relevant Contracting Party on a case-by-case basis. The Contracting Parties shall ensure that their authorities, when granting such permits, shall implement

¹⁷ Ministerial Meeting of the Oslo and Paris Commissions, Paris September 1992, Annex III Article 5

the relevant applicable decisions, recommendations and all other agreements adopted under the Convention.

2 No such permit shall be issued if the disused offshore installation or disused offshore pipeline contains substances which result or are likely to result in hazards to human health, harm to living resources and marine ecosystems, damage to amenities or interference with other legitimate uses of the sea.

3 Any Contracting Party which intends to take the decision to issue a permit for the dumping of a disused offshore installation or a disused offshore pipeline placed in the maritime area after 1st January 1998 shall, through the medium of the Commission, inform the other Contracting Parties of its reasons for accepting such dumping, in order to make consultation possible.

4 Each Contracting Party shall keep, and report to the Commission, records of the disused offshore installations left in place in accordance with the provisions of this Article, and of the dates, places and methods of dumping.

IMO Guidelines and Standards currently in force are also summarised in the Government consultation paper.

5.1.2 The UK has accepted that abandonment of installations on the UK Continental Shelf should be in accordance with the International Organisation Guidelines & Standards for the Removal of Offshore Installations & Structures on the Continental Shelf 1989 (IMO Guidelines)...It is important to note that IMO Guidelines do not apply to pipelines.

5.1.3 The basic requirement is that in water depths less than 75 metres, all installations weighing less than 4,000 tonnes in air should be entirely removed. For installations emplaced on or after 1 January 1998, that requirement is extended to water depths of less than 100 metres. Installation weight is defined as excluding the deck and superstructure.

5.1.4 For installations which are in over 75 metres of water, or weigh more than 4,000 tonnes in air, partial removal is permitted, subject to a requirement for 55 metres of clear water above any submerged remains, and to maintenance of any exposed remains to prevent structural failure.

5.1.5 In addition, the standards provide for circumstances under which a coastal State may determine that an installation may be left wholly or partly in place...

5.1.6 After 1 January 1998 no installation should be placed on the UK Continental Shelf unless its design and construction is such that entire removal upon abandonment would be feasible.

5.1.7 The IMO guidelines propose that the determination of any potential effect on the marine environment should be based on scientific evidence taking into account : the effect on water quality; geological and hydrographic characteristics; the presence of endangered or threatened species; existing habitat types; local fishery resources; and the potential for pollution or contamination of the site by residual products from, or deterioration of, the offshore installation or structure.

5.1.8 The standards to be taken into account when a decision is made regarding the removal of an offshore installation recommend that removal should be performed in such a way as to cause no significant adverse effects upon navigation or the marine environment. The means of removal or partial removal should not cause a significant adverse effect on living resources or the marine environment, especially threatened or endangered species.

The recent North Sea Conference brought criticism of the UK for dumping at sea. The relevant paragraph (54) in the Ministerial Declaration of the Fourth International Conference on the Protection of the North Sea (June 1995) was rejected by Norway and the UK totally, while being considerably qualified by France.

The Ministers are AWARE that an increasing number of offshore installations in the North Sea are approaching the time of their decommissioning. Even if the offshore installations are emptied of noxious and hazardous materials, they might still if dumped or left at sea, pose a threat to the marine environment. Disposal of such installations on land by recycling recyclable materials and by ensuring safe and controlled disposal of unavoidable residues would be in accordance with generally agreed principles of waste management policy.

The suggestion that the abandonment of oil installations at sea is environmentally unacceptable, even if they are emptied of toxic substances appears to represent a stricter approach than in the current international agreements. In the earlier agreements, the option of dumping at sea is accepted in general, provided that it does not damage the marine environment. The North Sea Conference assumes that such damage is inevitable, even if toxic substances are removed.