SECTION A

BEAUFORTS DYKE DUMPING GROUND

Licensing Arrangements for Dumping Wastes at Sea

1. In 1972 agreement was reached on 2 International Conventions to control the dumping off materials at sea. The global convention is the Convention on the Dumping of Wastes at Sea is the London Convention. The regional convention for the North East Atlantic is the Convention for the prevention of Marine Pollution by Dumping from Ships and Aircraft, the Oslo Convention. Both Conventions include Annexes which list:

(a) substances which are prohibited from being dumped at sea and

(b) substances which require special care and which should not be dumped in significant quantities.

2. The requirements of these conventions were enacted in UK legislation by the Dumping at Sea Act 1974. Prior to that date the dumping of waste at sea in UK waters was not controlled or licensed by Government. The Dumping at Sea Act was repealed with the enactment of the Food and Environment Protection Act 1985, (FEPA) Part II of which covers "Deposits at Sea". FEPA is joint legislation, Ministry of Agriculture Fisheries and Food (MAFF) being the licensing authority for England and Wales, SOAEFD for Scotland and Department of Environment Northern Ireland in Northern Ireland.

3. The 1985 Act was amended by the Environmental Protection Act 1990 to include UK controlled waters within the scope of the legislation. The Deposits in the Sea (Exemptions) Order 1985 lists a number of operations that do not require a licence under FEPA eg because they are covered by other legislation. Such exemptions are now also covered by the Waste Management Licensing Regulations 1994, introduced in compliance with the EC Waste Management Directive.

4. Discharges into the sea from land and from offshore oil/gas installations are covered by the Convention for the Prevention of Marine Pollution from Land-Based Sources, the Paris Convention which is enacted in UK legislation by the Control of Pollution Act 1974. Policy responsibility for this Act within the Scottish Office rests with the Engineering Water and Waste Directorate.

5. When an organisation or an individual wishes to make a deposit in the sea in "Scottish" waters it must apply for a licence under FEPA. Applications are assessed and licences issued by staff at the Marine Laboratory, Aberdeen. The Department aims to issue licences within 2 months of receipt although complex cases involving novel works or a previously unlicensed disposal site may take longer to assess. The Ministry of Defence can claim Crown Immunity under the Act.

6. Low level radioactive waste was dumped at sea between 1949 and
1982 when such operations ceased. These operations were controlled throughout by the United Kingdom Atomic Energy Authority but it was not until 1974 that a formal licensing scheme was put in place. The Licensing Authority for the UK as a whole was MAFF, and an official of its Sea Fisheries Inspectorate accompanied every post-1974 dumping operation which, with one exception, took place in deep water in the Atlantic. The exception was the trial dumping operation in 1981 that was diverted to Beauforts Dyke because of bad weather at the intended disposal site. MAFF has confirmed that the materials dumped were 6 steel drums filled with clean concrete weighing a total of 9 tonnes. The licence was issued to enable a trial of new equipment designed for lifting such drums over the side of ships and placing them into the sea.

Commercial Dumping Activity in Beauforts Dyke

7. The Scottish Office Agriculture, Environment & Fisheries Department (SOAEFD) became the licensing authority for dumping at sea in 1974 with the enactment of the Dumping at Sea Act 1974 which, in turn, was repealed by the Food and Environment Protection Act 1985. SOAEFD has very little knowledge about sea dumping operations prior to 1974. The MOD is not bound by either Act as it has Crown Immunity.

8. Non-military waste disposals in Beauforts Dyke include:

50 tonnes of nitrocellulose sludge from the ICI/Nobels Ardeer explosives factory was disposed in Beauforts Dyke in 1971 under a licence from SOAEFD.

Dredge spoil from Stranraer, Cairnryan and Portpatrick harbours has been dumped in Beauforts Dyke or elsewhere in the North Channel on a regular basis since before 1974.

3213 tonnes of creamery waste from the Stranraer Creamery in 1978.

In 1981 MAFF allowed the dumping (under licence) of 6 steel drums filled with 9 tonnes of clean concrete in Beauforts Dyke. This cargo was originally destined to be dumped in deep water well to the west of Scotland but bad weather led to the change location. The dumping was designed to test the suitability of new equipment designed for sea-disposal operations.

1890 tonnes of rainwater contaminated with gas liquors from a number of dismantled Gas holders in 1985.

Dredge spoil from Board Gais Eirann pipe-laying operations in early 1993 was dumped under licence off Burrow Head (Wigtownshire).

Dredge spoil associated with current Premier Transco pipe-laying activities was dumped in Beauforts Dyke recently.

Fishing Activity in the Beauforts Dyke Area

9. Very few local vessels fish regularly in the North Channel and those who do generally fish with "Pelagic" or "Semi-Pelagic" gear.
This type of mid-water fishery takes place all year, although there is a slight increase in activity in the early summer months when the traditional cod fishery takes place. This is the favoured method of Northern Irish vessel fishing in the area.

10. As Beauforts Dyke lies in the East side of the Channel there is limited room to trawl with bottom gear, however the edge of the trench is fished by vessels using "hopper" gear. This heavy type of ground rig is a derivative of bobbin gear. This takes the form of the ground rope being made up of large rubber discs. The gear is able, therefore, to fish over small sea-bed obstructions such as rocky bottom and cope with small boulders etc. The main target species of this rig is skate and monk, although hake and cod are also taken. Although perhaps two or three local boats fish occasionally by this method in the North Channel, the main exponents of this method in the area tend to be English vessels usually from the port of Fleetwood.

11. Clyde nephrops trawlers do fish around the Corsewall Point area which lies to the North East of the Dyke. Although this area can be fished all year round, it generally only gets fished when nephrops are scarce on the grounds found further North in the Clyde as it is generally accepted that nephrops from Southerly grounds within Firth are of a poorer quality.

12. In general, fishing takes place all year round, although the main demersal season tends to be in the summer months.
SECTION B

BEAUFORTS DYKE - SEA-DUMPING OF MUNITIONS

Background.

1. Surviving official records from the period immediately after the First World War, when considerable quantities of munitions were surplus and some - particularly chemical warfare (CW) munitions - were hazardous to dispose of on land, confirm that sea-dumping was an internationally accepted method that was used by most nations to dispose of munitions and other surplus materials. The documents record that in allocating dumping sites, discussions were held with the appropriate shipping and fisheries bodies to ensure the sites selected did not pose a hazard.

2. Consideration of the method of disposal for surplus munitions had to take several factors into account: the direct safety of the public if the material was retained; the safety of personnel carrying out disposal tasks and the costs of storage or disposal by various means. Where munitions were surplus to Service needs, or were unserviceable, the following disposal options were available:

   a. when the constituent elements could be recycled safely and economically, munitions would be transferred to the appropriate factory for "breaking-down".

   b. unserviceable or dangerous munitions could be destroyed on land by demolition or burning provided this could be done safely.

   c. where the other two methods were considered unsuitable, sea-dumping was carried out.

4. The problem facing the Services can be gauged from the fact that at the end of the Second World War there was some 2,000,000 tons of Army ammunition in the UK and there was a need to reduce, quickly and safely, this tonnage down to the amount required for future Service use. The initial check of Army stocks identified some 1,200,000 tons as surplus. The RAF was faced with a similar problem with stocks of bombs in the UK totalling some 500,000 tons.

5. The decision that sea-dumping should be used as a means of disposal was endorsed at senior levels when the reduction of stocks of munitions was discussed in the period 1945-47.

6. A study of Parliamentary Questions and Debates for the period from May 1945 until the 1950s, including coverage of matters relating to fishing, reveals several questions concerned with surplus ammunition, but these questions relate almost exclusively to requests for more speedy disposal of stocks. In response to a question asking for reassurance that the dumpings posed no threat to shipping or to persons on the beaches of Scotland, the Under
Secretary of State for War replied:

"...Steps are taken to ensure that all packages sink within 3 seconds of entry into the water and they are dumped in a depression in the seabed specially selected for this purpose. The area provides the maximum precaution against the subsequent movement of ammunition due to tidal currents and the possibility of any packages being thrown up on the beaches...It is only dumped [at sea] when we are satisfied that it is non-acceptable for breaking down. That would be because it was uneconomical to do so or unsafe..."  (Hansard, Cols 973 to 974 dated 1 May 1951 - Annex A)

Beauforts Dyke - Dumping Operations Post 1945

7. Beauforts Dyke was probably used before 1945, possibly as early as 1920, and disposal may not have been restricted to the area as defined by Notice to Mariners No 4095 issued in 1945. There are no records which refer to this period of use, nor are there any charts which indicate where the dumping took place.

8. The Military Port at Cairnryan, built during WW2 to provide reserve capacity should southern and eastern coast ports be closed by enemy action, became a focal point for Service ammunition sea-dumping activities. It was particularly suitable for this because not only could ocean-going shipping - required for dumpings and vessel scuttlings in very deep water in the Atlantic - use deep-water berths away from commercial traffic, but it was also sited quite close to the Beauforts Dyke Explosives Dumping Ground. The port was administered by the War Office for all three Services. A small RAF detachment was based there for a number of years, together with US troops involved with stocks of US forces' munitions stored in the UK.

9. The recently published history of the Royal Army Service Corps (RASC) Fleet notes:

"The port of Cairnryan was an ideal...location from which to carry out munition dumping operations...It was within comfortable distance of the area selected for dumping, the Beaufort Dyke, a chasm about midway between County Down and the south-west coast of Scotland. This trench was about 7 miles long, 2 miles wide and 144 fathoms at its deepest point."  ("The Unknown Fleet", R Cooley, Published 1993)

10. The MOD does not hold detailed records covering every dumping operation at Beaufort's Dyke. Once the immediate administrative need for such records had passed they were destroyed in accordance with standard MOD practice. The only detailed records which have survived relate to the dumping activities in the late wartime and immediate post-war period up to the autumn of 1946. This is because the special "War Diaries" created in wartime are automatically preserved for the Public Record Office as historical documents.
11. However, it is possible to establish from the surviving records the pattern of movements by Army controlled vessels of the Royal Army Service Corps' (RASC) fleet which, in conjunction with the Royal Army Ordnance Corps' Explosives Disposal Unit, undertook sea-dumping at Beauforts Dyke.

12. The first mention in official records of the use of Cairnryan for the throughput of defective ammunition comes in May 1945 shortly after the end of the war with Germany. The War Diaries for No 1 Explosives Disposal Unit (EDU) and for No 2 Military Port, Cairnryan for 1945 [publicly available at PRO at Kew] report that the EDU was established in March 1945 with the task of dealing with surplus munitions:

"The Demolition Sections are to destroy by burning or demolition, stocks of surplus or unserviceable ammunition unsuitable by reason of condition or nature for dumping at sea." (EDU War Diary 1945: PRO Ref WO166/17392)

13. In mid-June 1945 a Company of the EDU went to Cairnryan to begin sea-dumping and the first recorded operation took place on the 12 June when 242 tons of 4.2" mortar bombs were loaded on one of the Landing Craft Tanks (LCT 1119 - later re-named Ammunition Dumping Craft (ADCs)) which on 16 June went to sea and "dumped in Beaufort's Dyke". The records state that the dump area was: "at sea in approximately 100 fathoms at the north end of Beaufort's Dyke at approximately Lat. 54°56'N; Long. 05°20'W".

14. Further trips by LCTs took place throughout June 1945 with a total of 1501 tons being dumped by UK personnel. The LCTs were also used by US forces engaged in moving munitions from their stocks in the UK and for dumping US munitions.

15. On 23 July 1945, the first consignment of chemical warfare (CW) ammunition was received at Cairnryan. The records note that LCTs 1119 & 643 loaded with Bombs 'U' [unrotating] 5-inch filled "G" [phosgene gas]. This and subsequent loads of these rockets were dumped between 26 and 31 July. The dumping of CW ammunition continued daily at rate of 2 LCTs per day continued until October. In total 14,600 tons of CW rockets were been dumped as individual rounds. These are the only CW munitions known to have been dumped in Beauforts Dyke. At the same time other LCTs were dumping high explosive and other types of munitions and during November 1945 two more LCTs arrived for RAF use. RAF dumping commenced on 1 December 1945 with a capacity to dump 500 tons per day. Subsequently, two coasters (SS Malplaquet & Sir Evelyn Wood) joined the fleet at Cairnryan to carry out dumpings.

16. The types of munitions recorded in the 1945-46 records as having been disposed of in Beaufort's Dyke cover a wide range of
Army munitions plus some RAF items:

- 29" spigot mortar bombs;
- Generators Smoke Nos 5, 8 & 14;
- Mines shrapnel;
- Small Arms Ammunition (SAA) .303 (incendiary);
- Ammunition .50 incendiary;
- 3" mortar bombs smoke; 2" mortar smoke.
- 40mm Light Anti-Aircraft (LAA) gun shells (Bofors);
- 20mm LAA shells;
- Fuzes percussion No 101E;
- Grenades hand No 79 smoke;
- Fuzes Instantaneous Detonation Mk3;
- Rockets 'U' 3" Type 'K' (Anti-Aircraft with parachute & wire);
- Rockets 'U' 5" Type 'G1' (Phosgene);
- Drums GTM 2D 40 galls;
- USAF 500lb HE bombs;
- RAF bombs 9lb;
- RAF Clusters No 17, 500lb

In addition, surplus naval items will have been dumped but no
detailed records have survived. These may have included any enemy
munitions such as torpedoes, and machine gun ammunition from
German U-Boats that surrendered themselves to British ports.

17. The RASC Fleet History describes how the LCT fleet grew until
there were at least 8 LCTs plus four coasters, the latter
transporting mainly material of a reasonable stable - ie non-
cylindrical - nature such as small arms ammunition and rockets.
The history emphasises the importance of accurate positioning
before dumping could commence with fixes being taken from visible
landmarks and the water depth being checked by sounding equipment.
The manner of dumping varied according to the cargo. The loads
were disposed of either by rolling or shoving the loads down the
lowered main ramp, or over the side by using special gravity
rollers where smaller types of ammunition were concerned (Military
Operational Research Unit (MORU) Report 13, dated 14 June 1945;
PRO Ref WO291/956).

18. Dumping continued throughout 1946 and by 30 September the Army
had sea-dumped 102,802 tons and the RAF some 77,419 tons. We do
not have figures for the remaining Army stocks identified for
disposal, but the RAF had some 5,000 tons of bombs earmarked for
dumping, including 4,000lb, 8,000lb and 12,000lb types. In
addition, there was a further 19,742 tons of USAAF stocks in the
UK awaiting disposal by sea dumping.

19. During 1947 dumping of RAF and Army stocks continued with
monthly totals of RAF bombs rising as high as several thousand
tons. In March 1948, due to lack of personnel in the
Transportation Service, Cairnryan was closed and dumping
activities were shifted to the port of Silloth on the Solway Firth
in Cumbria. As a result the average weekly dump rate for the RAF
dropped from 1,000 tons to 300 tons and Army levels of dumping
were similarly affected.
20. Records from this period and onwards do not usually identify the dump sites used, but it is almost certain that the bulk of these conventional disposals took place in Beaufort's Dyke. Surplus Army ammunition disposed of by being broken down, dumped at sea or destroyed by demolition, totalled 135,000 tons at the end of 1948 with a further 70,000 tons earmarked for dumping at sea. In addition, 98,000 tons were to be broken down in Ministry of Supply factories and 2,000 tons demolished. Overall RAF disposals totalled some 266,000 tons, of these some 128,199 tons had been sea-dumped. This left some 50,000 tons still awaiting disposal.

21. In March 1949, Cairnryan re-opened and once again became the port for sea-dumping. There are only occasional references to the types of munitions involved: 40mm(LAA) (Bofors) and 20mm(LAA) ammunition. Incendiary munitions and rocket motors were usually dealt with by breaking down at Ministry of Supply factories. By the end of 1949, the RAF had sea-dumped a total of some 137,767 tons.

22. By mid-1950, the Army had disposed of by demolition, breakdown or sea-dumping over 1,000,000 tons of munitions. The RAF had reduced its current surplus to some 60,000 tons awaiting disposal, much of which was not destined for sea-dumping.

23. As the quantities of munitions to be disposed of declined, the retention of Cairnryan was discussed in 1952 by the Chiefs of Staff. The relevant paper noted that, apart from the use of the port for normal transit purposes of stores and ammunition, the War Office had a maximum annual amount of 25,000 tons of munitions annually and the Air Ministry noted a requirement to dispose of a further 5,500 tons annually for sea dumping.

24. Sea dumping operations continued via Cairn Ryan into the mid-1950s with the last of the surplus RAF 4,000lb, 8,000lb & 12,000lb bombs being dumped in 1956. It should be noted that incendiary munitions were still being disposed of by Ministry of Supply/RAF "break-down". Total RAF sea-dumpings in 1954 amounted to more than 27,000 tons, including 2,000 of the 4,000lb HE bombs. A further 15,000 tons of RAF munitions were sea-dumped in 1955.

25. From the beginning of January 1955 to the end of 1957 42,553 tons of Army ammunition was disposed of by sea dumping. Also, by 1957, the RAF detachment had been withdrawn from Cairnryan after the completion of the RAF sea dumping programme. The Army continued to handle any small scale sea dumpings. The Army's requirements had also reduced and by July 1957 only some 8,340 tons were awaiting sea dumping.

26. Cairnryan port closed in 1960 and, although sea-dumping in Beaufort's Dyke continued for some years to come, the quantities of munitions disposed of per annum were far smaller than those of the major post-1945 dumping programme. By the 1970s the Army's annual dumping of munitions had shrunk to some 3,000 tons per annum.
27. In a Memorandum to the Royal Commission on Environmental Pollution, the MOD said in April 1972:

"The general policy followed by the Ministry of Defence in the disposal of wastes is to conform to general national policy and the statutory regulations, consulting other Departments such as DOE, MAFF, AEA etc, as appropriate.

It follows from this general policy that sea-dumping is the last rather than the first resort....In practical terms this policy means that sea dumping is now restricted to conventional ammunition and to ammunition, moreover, whose disposal on land or by other means...is uneconomic, impracticable or undesirable either on grounds of public safety or because disposal might itself give rise to further pollution...."

28. By 1973, the sole approved MOD dump site was a circular radius of 15 miles central on a position 48°20'N; 13°40'W some 400 miles West of Lands End. The anticipated annual disposals at this time were: Royal Navy 1500-2000 tons; Army 2200 tons (including 1000 tons ex-BAOR); RAF 3000 tons.
SECTION C

BEAUFORTS DYKE SPOIL GROUND

Symbols used to Delineate Spoil Grounds on Admiralty Charts

1. The earliest reference to the charting of dredging and spoil grounds on Admiralty Charts appears on the Admiralty Chart 5011 (Symbols and Abbreviations used on Admiralty Charts) New Edition dated 30 July 1954. This is the first time that a specific symbol for dredging and Spoil grounds was adopted both nationally and internationally.

2. Prior to 1954 various areas were delineated by a variety of means. Usually this was a dotted or dashed line on the chart joining the geographical positions of the designated area together with a note, inserted within the area, stating the nature or use of the area. An example of this is Admiralty Notice to Mariners (NM) 4095/45 which is the originating NM for the Beauforts Dyke Dumping Ground (Annex A).

3. It is official policy to show, on Admiralty navigational charts those areas in which ammunition or explosives are dumped. However, when such area becomes disused they are not deleted from the charts but are marked "(Disused)". This practice is designed to ensure that anyone engaged in anchoring or trawling or in other submarine or sea-bed activities is made aware of the location where possible danger from ammunition or explosives exists. The application of this policy to Admiralty Charts is fully in accord with the International Hydrographic Organisation.

Charting History From 1900

4. As part of its Public Record Office duties the Hydrographic Office (HO) holds, in its archives, copies of all the Admiralty Charts published since the office was formed in 1795. These are known as the "Old Copy Bundles" and they contain copies of the chart as published and corrected for NM's during the life of the chart.

5. The most convenient scale Admiralty Chart covering the area of Beauforts Dyke, North Channel, Scotland - West Coast was in this period, Chart 45. This chart was first published by the HO on 7 October 1890 and is referenced as series B number 1. Chart 45 remained in force, amended as necessary by Notice to Mariners, until it was cancelled by a new chart of the same number dated 25 February 1955.

6. All copies of Chart 45, in the Old Copy Bundle, have been examined from 1900 for any reference regarding the delineation on the chart of a dumping ground in the area of the North Channel and particular the Beauforts Dyke. The first appearance of a Dumping Ground shows on copy referenced B21 which covers the period between 1945 and 1954. Examination of the NM's shows that the originating notice was numbered 4095/45 (Annex A).

7. Notice to Mariners 4095/45 was instigated by the HO on receipt
of a signal from the then Commander in Chief Western Approaches (CinC WA) referenced 291820B/May (Annex B). This NM encompassed extreme extent of the three areas now referred in the HO as J, K and R. A letter from the CinC WA dated 11 August 1942 (Annex C) was in response to a request by the Ministry of Agriculture and Fishery dated 13 July 1945 (Annex D), to amend the limits stated in the NM. This reply from CinC WA quoted that "... (it was) impossible to find out what part of Beauforts Dyke was used for dumping". Therefore the limits remained as published.

8. On 19 February 1946 NM 648/46 (Annex E) was published amending the limits of the dumping ground. The northern part was to be deleted. This NM was cancelled by NM938/46 dated 12 March 1946 (Annex F) reinstating the original limits and legend. It appears that explosives were dumped over the whole of the original area and the fact that they were to be dumped in a more restricted area did not concern the chart user who required to know the maximum extent of the dumping ground.

9. The area originally defined by NM4095/45, was divided into three to avoid any dumping on telegraph/telephone cables passing through the areas, allowing the northern and southern parts to be continued to be used for dumping. This was clarified by the publication, on 18 December 1946, of 4089/46 (Annex G).

10. In September and October 1966, reports were received in the HO from shipping on passage in the vicinity. These reports stated that underwater explosions had been heard. As a consequence NM 2021/66 was published on 9 November 1966 (Annex H).

11. In 1973, the routine use of Beauforts Dyke munition dumping ground was discontinued and DCI(T) 114/73 (Annex I) confirmed that the only approved ammunition and explosive dumping site was HO Area T off the continental shelf and defined as an area 15 mile radius centred on a position Lat 48°20'N, Long 13°40'W. It added that "... the word "disused" would be added to all (other) explosive dumping grounds in the UK... waters." The policy of the HO, after protracted correspondence with the Ministry of Agriculture, Fisheries and Food, was to annotate the charts with the word "(Disused)" after the legend. The opportunity to do this was taken at the publication of a the next new chart or new edition.

12. The HO charting policy, for the delineation of ammunition and explosive dumping grounds, remains as it stood in 1978.