Bonn Agreement
Accord de Bonn

Bonn Agreement Aerial Operations Handbook

PART 1: GENERAL INFORMATION

Table of contents

1 Introduction

The North Sea and its approaches is a sea area of high economic and ecological importance. Pollution of the sea by oil and other harmful substances may threaten the marine environment and the interests of Coastal States. Pollution can come from many sources. In view of the many dense ship traffic routes, and oil and gas installations in the North Sea, any casualty or other incident is of great concern. Also the daily operational discharges from vessels or production water from offshore oil installations are a great concern.

The Bonn Agreement was established (in 1969) to respond to oil pollution of the North Sea by active co-operation and mutual assistance. The Contracting Parties have also undertaken to conduct surveillance of the area as an aid to detecting and responding to pollution and to preventing violation of anti-pollution regulations, known as **MARPOL**.

Aerial surveillance plays an essential role in this task. Aircraft equipped with remote sensing systems have proved to be efficient in detecting and observing oil spills and other pollution as well as natural phonomena. However, it is only one means of detecting discharges of oil and other harmful substance. Satellite surveillance also plays a still growing important role in the detection of possible pollution at sea. Remote Sensing satellites carrying Synthetic Aperture Radar (SAR) have been identified as useful tools for aerial surveillance flight planning and optimisation. Although satellites have proved the technical capabilities to detect potential surface pollution, verification by aircraft or other means is necessary to unambiguously confirm that there is a pollution by mineral oil.

1.2 Aim of the Handbook

The Aerial Operations Handbook is designed to provide management and aircrew with brief but essential information for the planning and conduct of counter-pollution flights within the Bonn Agreement area. It describes not only Remote Sensing techniques and co-operation in flight operation, but specific response support flights are also addressed and obviously the reporting formats.

It is recommended that for detailed technical information on sensors and systems the interested reader should turn to the manufacterer.

2 General

2.1 Participating States

All the states adjacent to the North Sea and its approaches are party to the Bonn Agreement.

- Belgium
- Denmark
- France
- Germany
- Ireland
- The Netherlands
- Norway
- Spain
- Sweden
- The United Kingdom and Northern Ireland

The European Union is also a Contracting Party to the Bonn Agreement, but does not have the operational assets to conduct Aerial Surveillance Operations. However under EU/EMSA the Clean Sea Net system provides Member States with satellite images and readers are referred to EMSA's web-site and/or their national point of contact for Clean Sea Net.

2.2 The Bonn Agreement Area

For the purpose of this Agreement, the Bonn Agreement Area, and each contracting parties zones of responsebility is presented in the map, Figure 1.

2.3 Zones of Responsibility (Control Zones)

For the purpose of the Agreement, the area is divided into zones of responsibility. Since the revision of the BONN AGREEMENT in 2002 the boundaries of these zones coincide with the boundaries of the Exclusive Economic Zones of the Contracting Parties.For some contracting parties, only part of the EEZ is within the agreed zones of responsibility.

Article 6 of the Agreement provides that, if the sea in the zone of responsibility of one of the coastal states is polluted, or threatened by pollution, by oil or other harmful substances, and there is serious danger to the interests of one or more Contracting Parties, that coastal state shall make the necessary assessments of the state of the casualty, or of the type, quantity and behaviour of the pollution. Article 6A further provides that surveillance shall be carried out, as appropriate, by the Contracting Parties in their zones of responsibility or joint responsibility, and that Contracting Parties may make agreements or arrangements for co-operation in the organisation of such surveillance. A number of such arrangements and agreements are in force.

The responsible country shall then immediately inform all the other Contracting Parties through their competent authorities of its assessment and of any action taken. The system of communication is the POLREP system used through Safe Sea Net and CECIS.

Figure 1 Bonn agreement zones of responsibility

2.4 Aerial Surveillance

Article 1 of the Agreement provides that the Agreement also applies to surveillance conducted in the North Sea area as an aid to detecting/observing pollution, including the identification of the source and to preventing violations of anti-pollution regulations.

Responsible Authorities

Member States have appointed organisations responsible for acting within the framework of the Bonn Agreement. Some organisations have only one focal point for all aerial surveillance matters, whilst others may have separate management and operational contact points. Part 4 - National Information contains a list of responsible organisations together with relevant contact data.

Real-time Contact

Exchange of information on in-flight detection of pollution is, if necessary, to be conducted by radio to the appropriate focal point.

Normal Contact

Evaluated or processed data/imagery and photographs/videos may be forwarded either directly to the responsible authority or through the focal point.

2.5 Co-ordination of Aerial Surveillance

There is an annual rotation of Contracting Parties to act as the lead country for aerial surveillance. The lead country for aerial surveillance is responsible for preparing any major additions or new content for the Aerial Operations Handbook as necessary. The lead country will bring proposals on revision of the Handbook to the meeting of OTSOPA. Also the Bonn Agreement Joint Action Programme is prepared by the lead country for discussion and decision in OTSOPA. This program includes the Tour de Horizon flights, (Super) Cepco flight operations or other special events. The aerial surveillance data are summarised by the Contracting Parties themselves and annually presented in report form by the Secretariat. In close cooperation with HELCOM an annual map of all confirmed oil pollution is presented.

2.6 Remote Sensing

When dealing with oil or chemicals spilled at sea, it is essential to be able to “find” the slick and to identify the type of substance and to estimate the volume. The application of remote sensing equipment and techniques is of great value. All Contracting Parties have access to remote sensing facilities and have established an aerial surveillance organisation. A summary of the different types of sensors including a brief description of their application can be found in Part 2, Chapter 1 – Remote Sensing. Remote Sensing data, collected by various sensors in combination with visual observation by trained and skilled operators provide valuable information for the response organisation.

2.7 Aircraft

Details of the Contracting Parties’ marine pollution surveillance aircraft can be found in Part IV “National Information”.

3 Surveillance Flights

3.1 Purpose of Surveillance Flights

The purpose of surveillance flights is to detect, investigate, gather evidence and monitor spillage of oil and other harmful substances, whether the spillage is a result of an accident or caused deliberately in contravention of international conventions. The threat posed to the environment and coastlines within the Bonn Agreement area will dictate the degree of investigation and monitoring carried out. Routine patrolling for the detection of violations, also is the preparation of skills required for accidental spills with large volumes of oil.

Bonn Agreement participants have been instrumental in exploring collaborative aerial surveillance and reporting procedures to enhance operational efficiency. There is a free exchange of information on the development of remote sensing and other surveillance systems. The aim of co-operation between Bonn Agreement participants is to ensure a balanced surveillance coverage of the North Sea.

The purposes of aerial surveillance are also to deter potential polluters from spilling, to detect and track possible spills and in some cases, to catch polluters red-handed by combined use of satellite and aircraft. Satellite images are used for surveillance aircraft mission planning and statistics. Through the European Co-operation programme, chaired by EMSA, the Clean Sea Net, all satellite imagery (footprints) can be made available to the Member States. Again Bonn Agreement neighbouring countries explore ways to make efficient use of assets for the validation of satellite detections of possible slicks.

3.2 Flight Types

Various flight types have been developed under the auspices of the Bonn Agreement. These have been defined by the OTSOPA working group as follows:

- National Flights. Flights conducted by an individual country to cover its zone (EEZ).
- Regional Flights. Flights conducted under bilateral or multilateral agreements or plans between participating countries for the co-ordination of surveillance and/or assistance in areas of mutual interest.
- Tour de Horizon Flights. Flights conducted primarily to monitor the oil and gas industries in the North Sea. However, all pollution will be investigated and reported, whether from installations or ships. See Part 2, Chapter 2.
- (Super) CEPCO Flights. A Co-ordinated Extended Pollution Control Operation (CEPCO) can be defined as a continuous sequence of aerial surveillance flights if possible supported by sea borne law-enforcement assistance to ensure a permanent presence over a minimum of 24 hours in an area with a high likelihood of illegal or operational discharges of oil and/or other harmful noxious substances. CEPCO comes in various concepts. See Part 2, Chapter 3.
- Aerial Surveillance Exercise Flights. Flights conducted against known targets to check remote sensing systems and procedures. See Part 2, Chapter 4.

3.3 National Flights

All Contracting Parties plan national programmes to conduct aerial surveillance over their individual zones of responsibility or (part) of their Exclusive Economic Zone. These schedules need not be co-ordinated with neighbour states. All CPs may have other type of flights in their zone of responsibility e.g. border patrol; smuggling; fishery patrol; yacht patrol. These national flight types are not further explained in this Handbook.

Reports on spillages detected are normally made to national administrative authorities only. An annual overview on performed flight hours and detected and observed pollution is reported to the Bonn Agreement OTSOPA working group.

For statistical purposes, navigation points (way points) and/or flight tracks normally remain in force for a number of years.

In the case of a detection of a pollution in the zone of the neighbouring contracting party close to the border between the two member states, the observing crew will report the pollution to the authorities of the other state preferably directly in air.

3.4 National Navigation Points

Participants, with the exception of the United Kingdom, have established navigation points in their zones for the purpose of national flights. Aircraft of other nations are recommended to use the same navigation points. This has the benefit of relating observed pollution to specific points for reporting purposes. National navigation points are listed and shown on charts by country in Part 4 – National Information.

Any changes in navigational points are to be notified to the lead country for aerial surveillance so that the Aerial Operations Handbook may be updated.

3.5 Regional Flights

Bilateral and multilateral plans between Contracting Parties have been established for mutual assistance in response operations and in aerial surveillance. Examples are the agreements/operational plans between Denmark, Germany and The Netherlands (DenGerNeth-plan) and Norway/United Kingdom (NORBRITPLAN).

Such plans may make more effective use of available resources. Close co-operation in aerial surveillance will require the careful co-ordination of flight programming and planning.

National navigation points are normally utilised during Regional Flights. However, a few mutual navigation points have been established. For example, there are some joint German/Netherlands navigation points.

3.6 Tour de Horizon Flights

Contracting Parties have adopted a plan for all coastal states to conduct both periodic and random surveillance flights for the detection of spillages in the offshore oil and gas industry areas in the North Sea. Irrespective of the main aim, all other suspected polluters are also to be identified and reported.

The program for Tour de Horizon flights is prepared by the lead country for discussion and agreement by the OTSOPA meeting.

An annual report on executed TdH flights is compiled by a lead country and presented to OTSOPA the following year.

3.7 Co-ordinated Extended Pollution Control Operation (CEPCO)

The Contracting Parties have agreed a program of Co-ordinated Extended Pollution Control Operations (CEPCO). Two regional CEPCOs, one in the north and one in the south are programmed every year. Those Contracting Parties in the region will normally take part, however a general invitation to participate is sent to all Contracting Parties.

The aim of the operation is to enhance the enforcement of discharge provisions at sea, to optimise prosecution of illegal offenders and to increase the deterrent effect of aerial surveillance activities.

In the OTSOPA meeting parties may decide to organize a Super CEPCO surveillance period that will last up to 10 days and will cover a specific sea area. It was agreed with HELCOM that the organisation of a Super-Cepco would rotate between BONN and HELCOM annually.

Additional (smaller) CEPCOs may be organised by neighbouring countries, on a voluntary basis, during which a common area is continuously over flown for 24 hours or more. During these smaller CEPCOs participating aircraft will use their normal national operating airports. The CEPCO Guidelines are at Part 2, Chapter 3.

3.8 Aerial Surveillance Exercise

Contracting Parties agreed to increase co-operation by participating in counter-pollution exercises and each Contracting Party agreed to collaborate to the best of their abilities. However, exercises as such are integrated into (Super) Cepco operations, special seminars. Intercomparision exercises no longer exist. Changes in the program are subjects for discussion at annual OTSOPA meetings.

The organising country is required to set up suitable trials to test remote sensing systems and aircrews and to provide all participants with the opportunity to compare results and experience. Participants collaborate to the best of their ability and provide all collected comparison data to the organising country, which presents a full report to the following OTSOPA working group meeting.

The organising country drafts a report to all participants and a final report, including the results of the evaluation meeting, is submitted to OTSOPA.

BONN CP have agreed to task an ad-hoc working group to the OTSOPA meeting to coordinate national exercises and trials for Bonn Agreement Contracting Parties to participate. The objective is to use every opportunity for concerted action, especially when real mineral oil is released into the marine environment.

4 Standard Reporting System

4.1 The Need for a Standard Reporting System

A surveillance aircraft over flying the North sea area in its national zone of responsibility may detect and observe a possible violation of MARPOL regulations in the area of the adjacent country. The crew of the detecting aircraft will report illegal pollution to the national focal point of the coastal state in whose zone of responsibility the violation was observed. The responsibility for initiating prosecution of the suspected polluter lies with another country having jurisdiction over that part of the continental shelf. In the case of an oil slick affecting the two countries, co-operation on the response operation may be required and the aircraft could be asked to stay in the area for further observations and guidance.

There is a standard reporting system called BA-POL within the Bonn Agreement for reporting detected pollution. All surveillance flights will be concluded with a standard report which is forwarded to the responsible national authorities, other Contracting Parties as appropriate and to the lead country on a monthly basis for collation purposes.

4.2 Reporting to Responsible Authorities

During an operational surveillance flight, the system operators / observers will try to contact the appropriate focal point immediately by radio to report a detected pollution and suspected polluter if applicable.

A completed BA Pollution Observation Log is to be forwarded to the national authority under whose responsibility a surveillance flight was performed. The responsible authority will compile the summary data in accordance with the standard reporting format (see Para 4.5 and Annex E to this Chapter) for submission of the data, annually, to the Bonn Agreement Secretariat.

All relevant log sheets, data tapes, imagery, video tapes, photography and radio circuit recordings are made available to national administrative authorities as evidence in prosecution cases and can be made available to another Contracting Party if the prosecution is to take place within its jurisdiction. (See North Sea Manual on Martime Oil Pollution Offences by the North Sea Network for Investigators and Prosecutors.)

4.3 Bonn Agreement Pollution Observation Log

The Bonn Agreement Pollution Observation Log (BAPOL) is for recording all detected and observed pollution and it has been agreed that it will be used for all types of flights. It is to be completed as an official record of a surveillance flight even when no pollution was observed. The Log is shown at Annex A to this Chapter.

The agreed guide to the compilation of the BAPOL is at Annex B to this Chapter. Special attention should be paid to the columns indicating coverage and appearance since an estimate of quantity can be made based on the observed dimensions of the pollution together with coverage and appearance.

Litter, garbage and objects should also be included in the reporting and according to the following definitions:

- **Garbage (GAR)** is to be used for observations of MARPOL Annex V substances at sea, defined thereunder as ‘Garbage’, that can be clearly identified as from a ship-source and most likely resulting from an operational discharge. This will mostly be a MARPOL Annex V observation with polluter.
- **Litter (LIT)** is to be used for observations of solid waste that cannot be attributed with certainty to a ship-source, or an operational discharge thereof. Examples are floating plastics, garbage of an unknown source, but also ghost nets (which can have been accidentally lost at sea).
- **Floating Objects (OBJ)** are objects floating at the sea surface that either pose a maritime safety risk, or are known to be materials released as a result of an accident/incident. Examples are: packaging materials, floating wood, floating containers, or industrial pipes, etc.

4.4 Other Reporting Formats

Within the framework of the Bonn Agreement another format is in use as follows:

- Pollution Observation Report on Polluters and Combatable Spills Annex C

4.5 Reporting to the Secretariat

Contracting Parties have agreed to provide all national reports on detected and identified pollution and suspected polluters to the Bonn Agreement for data processing in order to draft the annual overview consisting of:

- Result of all Surveillance Flights, to be sent to the Secretariat to compile the annual report.
- Result of CEPCO Flights, to be sent to the hosting Contracting Party to compile a full report.
- Result of Tour de Horizon Flights, to be sent to the lead country for producing an annual report.

Guidelines for the standard content of the annual reports to the Secretariat on the results of aerial surveillance are contained in Annex E to this chapter.

5 Surveillance Evidence

5.1 Surveillance Evidence - The Present

Aircrew must continue to be guided by the unilaterally developed guidelines set by their own countries for the collection and handling of aerial surveillance evidence. There are, however, some basic principles, which seem to transcend the requirements of individual countries. These are as follows:

- It is paramount that full and proper evidence is collected against a suspected polluter who is detected or observed to be discharging oil or other harmful substance or ship borne generated waste in contravention of international conventions (MARPOL).
- The observers have to act to the best of their abilities to provide the responsible authorities with reports and evidence as follows:
    - Bonn Agreement Pollution Observation Log
    - Pollution Report on Polluters and Combatable Spills
    - SLAR/IR/UV /FLIR imagery both in tape and hard copy form
    - Photography
    - Video tape
    - Tape recording or transcript of any radio contact
    - Signed official reports or statements
    - Oil samples, in compliance with national legislation
    - Any other type of data that could serve as a part of the evidence
- The official report should contain the essential information recorded on the Pollution Report Form on polluters and it should cross refer to the imagery and photography hard copy annexed to the official report.
- Where systems with such facilities are fitted, imagery and photographic hard copy should bear data blocks giving date, time and position.
- Photographs should show clearly the name and registration of the suspected polluters (best taken at bow and poop) as well as the pollution itself. It is important to show that the sea surface ahead of a suspected polluter is clear of pollution. Both oblique angle and downward looking photographs appear to be acceptable as evidence in court.
- There are countries, also Bonn Agreement members, whose which judicial systems require a sample proving the detected/observed discharge consisted of mineral oil. Oil sample buoys have been developed that can be dropped from aircraft, provided permission is pre-arranged with civil aviation authorities. A vessel or a helicopter should be directed to the area to pick up the buoy and then the instrument should be taken to the laboratory for sample analysis. The outcomes can be made available to the authorities initiating proceedings.

5.2 Surveillance Evidence

BONN, in close co-operation with the North Sea Network of Investigators and Prosecutors have produced a North Sea Manual on Maritime Oil Pollution Offences designed for use by the legal profession. This manual is an integration of the former manual Oil Pollution At Sea – Securing Evidence on Discharges from Ships and the manual Oil Pollution At Sea – Part 2 – Effective Prosecution of offenders – Guidelines on International Co-operation.

6 Diplomatic Clearance

6.1 Diplomatic Clearance

Whilst some individual countries do operate a block clearance for aerial surveillance for counter-pollution purposes, others do not. It follows that to be on the safe side, it would be prudent to obtain prior clearance, diplomatic or otherwise, before venturing over another country's territorial sea or territory.

In the case of providing assistance by one Contracting Party to another Contracting Party because of a large scale pollution, the Assistance Requesting Country shall take care of administrative requirements for the aircraft to operate in the zone of responsibility. Any Closed Air Space measures should be lifted for the assisting aircraft.

It is essential to follow the procedures set in the EU/ HOST NATION SUPPORT. Although the HNS primarily focusses on the assistance in emergency situation, it is advised to provide training in the procedures where ever possible during exercises.

7 Pollution Response support

7.1 Introduction

When during a routine patrol flight a pollution is observed and the assessment of volume and threat results in advising authorities to prepare for counter pollution activities, the aircraft can be ordered to provide guidance. The observed pollution can be monitored for some time in order to study further developments. Weathering of the oil is the term used for the process of evaporation, dispersion and dissolution of oil into the related compartiment (air, watercolumn)

In order to catch a polluter red-handed it may be necessary to overfly the area for a period of time in order to keep a close eye on the suspected polluter and to monitor the behaviour of the oilslick and the polluting vessel.

7.2 Monitoring oil slick behaviour

After completion of the first assessment of the oil slick the operator will consider the weather forecast to take into account whether rapid changes in the conditions at sea will hamper response measures. If the conditions deteriorate monitoring the behaviour could be the only option in order to establish and record the time required to totally naturally disperse the oil slick.

Communications with the response authorities, or the Coastguard, may lead to the descision to revisit the slick after some hours in order to register the behaviour of the slick. This could be repeated a number of times. Results of the monitoring would preferably be compared with the computer prediction model(s).

Another purpose for revisiting the slick is to observe possible birds in the area and/or passing vessels discharging their bilge because of the presence of oil at sea surface. Also satellite imagery can be compared with the actual situation.

7.3 Guidance to response vessels

If the responsible authority decides to mobilize response unit(s) for the recovery of the oil, the aircraft should be over the area on arrival of the response vessel for proper guidance. Recalling that after some time 90% of the oil is in 10% of the covered surface and recognizing that mechanical recovery is most efficient and effective when deployed in the thicker parts, the aircrew will provide guidance.

It is important to note that after completion of the first observation and assessment, and the ETA of the response vessel(s) is known, the aircraft should revise the flight plan so that the aircraft returns in time for guiding the response unit.

Further technical details on the procedure to provide the guidance should be obtained from the response authorities at national level.

7.4 Manoeuvring

Aircrew need to understand the at sea response operation in order to guide the response vessels in their recovery activities. A single vessel sailing through an oil slick with deployed equipment has a low sailing speed. Guiding the vessel into the thicker parts of the oil – that is the main aim of the recovery - requires patience.

A combination of vessels and oil booms, e.g. a so-called Open-U configuration will only move at a speed of 1 to 1.5 knots and as it is recommended to collect as much oil as possible, at a certain point the configuration may have to turn around. The 180° back track takes time.

Also, especially where a ship is operating side sweeps, the crew will monitor a loss of oil passing under the sweep, which may be due to a too high sailing speed in relation to the current.

7.5 Aerial Dispersant Application

7.5.1 Introduction

For many, mostly smaller, oil spills the best response option is to leave the oil to disperse or degrade naturally. The mechanical action of the sea can break down oil into small droplets, some of which are dispersed and diluted by the movement of the water. Mechanical or chemical dispersion assist this process by reducing the interfacial tension between the oil and water, so creating a larger number of smaller droplets that will stay in the water column and not refloat and coalesce again. These provide a greatly increased surface area that accelerates the degradation of the oil by marine micro-organisms.

The use of dispersants is dependent on the national response strategy. In determining whether dispersant use is appropriate a judgement has to be made between the possible impact of the option and the likely consequences of allowing the oil to disperse naturally. The objective is to take the most appropriate action to minimise the effects on the environment and economic activity, after careful consideration of all the relevant factors. Operational experience over a

number of years and incidents has shown that aerial application of dispersant can be a fast, efficient and effective response option when the strategy and procedures have been fully developed and practiced.

This section of the Aerial Operations Handbook outlines the generic requirements of the aerial dispersant application and the operational procedure.

7.5.2 The Oil

Any decisions on whether or not to use chemical dispersant should take into account the type and state of oil involved in the incident. Dispersants can and have been used to successfully treat crude oils, light industrial fuel oils and lubricating oils. However it is unlikely to be fully effective when used on heavy residual fuel oils. It is important to remember that many oils can quickly become resistant to treatment due to weathering. If there is any doubt, a 'test' spray, using a small amount of dispersant, should be carried out to determine and / or confirm the effectiveness of the treatment.

Light oils such as middle distillates (gasoline, kerosene and diesel fuels) should **not** be treated with dispersants. If dispersed into the water column rather than left to evaporate there is a greater likelihood of harm to marine organisms.

The oil slick needs to be in a position to allow safe aerial operations and of sufficient size and quantity to enable efficient targeting by the control aircraft.

7.5.3 Weather and Sea Conditions

Ideal conditions for maximising dispersant effectiveness are a surface wind of 7-12 knots, with scattered, breaking waves, this creates the mechanical motion in the sea needed for the dispersant to work. Application is not recommended when the surface wind is more than 30 knots and a sea state rough to very rough: above these levels the oil will normally be overwhelmed by wave action and the dispersant will be blown away.

For safe, efficient and effective aerial spraying operations under the guidance of surveillance aircraft the horizontal visibility needs to be at least 5 miles and the cloud base 1500 feet.

7.5.4 The Dispersant

The dispersant has to be approved for use by the relevant nation (or international) Licensing Authority. The product must be tested for its effectiveness and any possible toxic effects on marine species: the labelling must correctly indicate how and when the product can be used.

7.5.5. Aerial Dispersant Aircraft / Helicopters

Several types of both helicopters and fixed wing aircraft have been used to deliver oil spill dispersant. They should be capable of operating at low level at relatively low speed (50 – 150 knots) and exhibit good manoeuvrability. Other considerations include weight limitation verses payload requirement and operating range.

The aircrew must be trained, practised and if possible experienced in dispersant application operations.

7.5.6 Aerial Dispersant Spraying Equipment

The typical components of a system include a pump (wind-driven or electrical) that draws dispersant at a controlled rate from one or more tanks to feed spray booms. The dispersant is released through nozzles spaced at intervals along the boom; they generate droplets within the required size range (normally around 600 micrometers to minimise wind drift, possible evaporation and so that they reach the oil / water interface).

The system can be permanently fitted to the aeroplane but are more normally a module, roll-on/roll-off. Most helicopter systems are under-slung from the cargo hooks by wire strops. The capacity of the 'fixed wing' system can vary from 1,000 to 21,000 litres and for helicopter 400 – 3,000 litres.

7.5.7 On Scene' Control / Guidance Aircraft

For aerial dispersant application it is strongly recommended that control / guidance is provided by an aircraft overhead. The aircraft should normally be a marine pollution surveillance aircraft with a full remote sensing and communication suite as described in this handbook. The aircrew must be trained, practised and if possible experienced in dispersant application control operations.

The 'control' aircrew act as the 'on scenes co-ordinator' responsible for the following tasks:

- Provision of advice to the responsible national authority on the establishment of the safe operating area (geographic limits, heights, no-go areas, times, etc),
- Control and surveillance of the safe operating area,
- Maintenance of flight safety and communications for all spray aircraft within the operating area,
- Location of the thickest oil,
- Direction of the spraying aircraft to ensure efficient delivery,

- Determination of dispersant effectiveness,
- Provision of advising on cessation of spraying when sufficient dispersant has been applied (1 tonne of dispersant per 10 tonnes of oil is the initial recommendation but should be adjusted after determination of effectiveness), when the dispersant is no longer effective (due to oil weathering) and when delivery cannot be carried out efficiently (due to the oil breaking out into small windrows that cannot be targeted effectively),
- Communications with the 'control' centre, passing regular situation reports on progress, dispersant used and effectiveness etc.

7.5.8 Flight / Operational Safety

Based on flight safety parameters and the area required for dispersant spraying applications; prior to operations commencing the responsible national authorities should be requested to establish Restrictions of Flying Regulations to prevent unauthorised aircraft entering or operating in the area. Similarly an Exclusion Zone, covering the area of operations, should be requested in order to keep shipping clear of the oil and spray aircraft.

An initial area of 10 miles in radius and 3000 feet in height is recommended, using the centre of the oil slick as a datum. These dimensions will be adjusted, as the slick moves, dispersant spraying operations progress and other factors, such as maintenance of safety zones around a damaged tanker are factored into the equation. Monitoring the development of the slick as a result of natural weathering and the affect of the dispersants is also required.

Surveillance aircrew should conduct detailed surveys of dispersant spraying area(s) before, and during delivery to ensure they are clear of all obstructions. The oil should be clear of land, ideally by 5 miles, offshore installations (oil/gas rigs, wind farms and aerials etc), surface craft (including where possible the casualty and response vessels in or near the oil) and other aircraft / helicopters involved in any response.

7.5.9 Aerial Dispersant Application

Once the surveillance aircraft has confirmed the targeted area is free of all possible obstructions, the operation can start. Normally a test spray would be conducted. Under the direct control of the surveillance aircraft, the spraying aircraft will accurately deliver a small amount of dispersant (1,000 litres) onto the thickest oil.

The surveillance aircrew assess the effectiveness of this initial dispersant application, both visually and by observing changes in sensor imagery. They look for a rapid spread of oil, followed by a plume or cloud of dispersed oil appearing below the slick; as the dispersant may take a while to work, these features become more apparent with time.

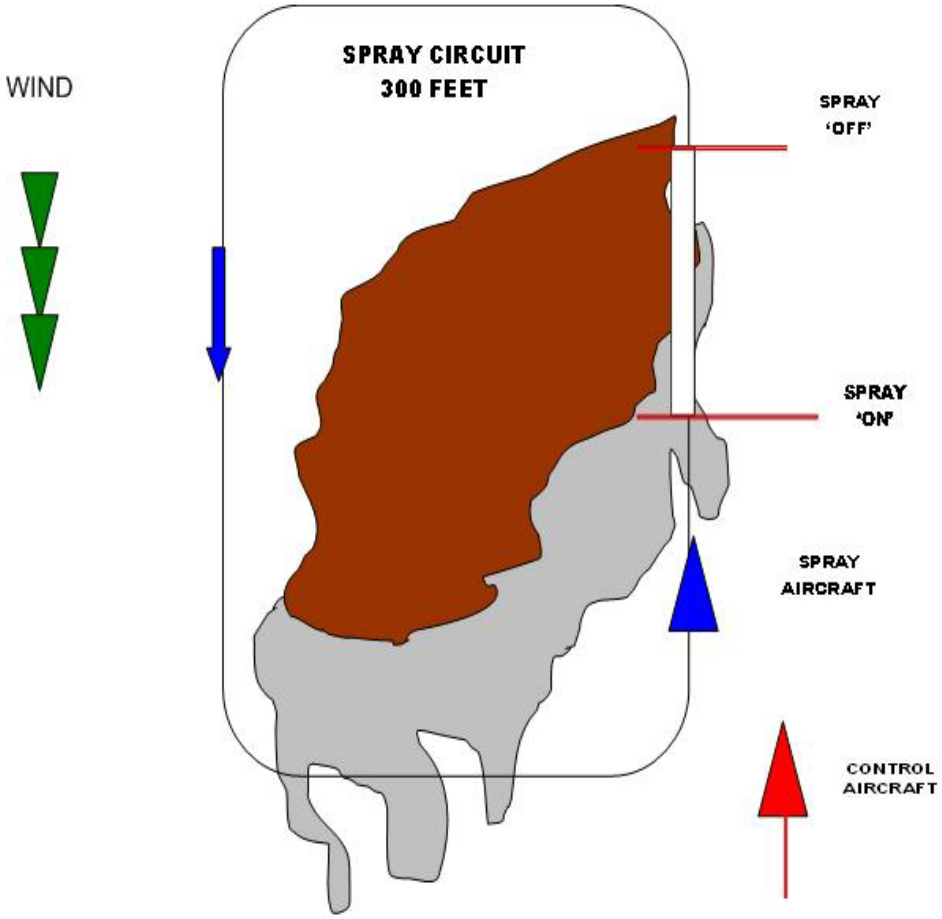
Provided the assessment is positive, indicating that the dispersant is working, a full application of dispersants can commence only when approval is confirmed by the responsible national authority. Spray efforts will be concentrated on the leading edge of the thickest portion of the slick and any thick oil that threatens sensitive areas. The oil is normally targeted *visually* by the control aircraft aircrew; they will also use IR data to confirm the target area.

The most efficient and effective application is achieved by spraying into the wind at low level to maintain the integrity and form of the falling droplets. When flying with the wind the deformation of the spray (by a following wind) can interfere with the desired depositional accuracy. Crosswind application is not recommended because the dispersant can drift too far off target.

During the basic procedure the *spray aircraft* is flown to maintain a 300 foot circuit until it is lined up with the oil (into wind); the aircraft is then descended to 'spray' height at 50 feet and levelled. Minor heading adjustments (which are made with 'flat' turns) and the 'Spray On' and 'Spray Off' instructions are passed by the *control aircraft*. Following the 'Spray Off' instruction the spray aircraft climbs straight ahead to 300 feet before turning left onto the circuit. The second run will be to the left of the first by the width off the spray and so on.

During dispersant application the *control aircraft* crew maintain visual contact with the spray aircraft and the oil at all times; normally by positioning their aircraft above (around 700 feet) and to the right of the *spray aircraft*.

AERIAL DISPERSANT DELIVERY BASIC PROCEDURE



7.5.10Additional Information

Aerial dispersant application is the primary response to major oil spills in UK waters. The use of dispersants is often a more effective response to oil pollution in the turbulent seas around the UK than ship-borne oil recovery systems which have limitations in such sea conditions.

The UK has successfully used dispersants on a number of occasions notably during the Sea Empress incident when 72,000 tonnes of crude oil was spilt of which 37,000 tonnes (52%) was deemed to have dispersed: 10,000 tonnes naturally and 27,000 tonnes through the aerial application of dispersants.

Further information on the strategy, organisation and procedures can be obtained from the UK Maritime and Coastguard Agency. Contact details are given in the national chapter of this handbook.

8 Flight Safety

8.1 Flight Safety in General

Aircrew are responsible for their own flight safety and for safe navigation. Since flight-plans are filed with the civil aviation authorities, it is assumed that the appropriate responsible authorities will be aware of take-off time, endurance, routing and the number of persons on board.

8.2 Safety in Surveillance Related to Chemical Incidents

Special safety considerations arise where an emergency requires aerial surveillance and that emergency results from the release of chemicals (HNS) to the environment, since these may volatilise and pollute the air over the site of the emergency and its surroundings. Attention is needed to protect aircraft and aircrew in such circumstances.

In establishing such protection, the following points should be considered:

- Where an incident may involve releases of hazardous chemicals to the environment the briefing of the aircrew should include such information as is available on the nature of the risks that may arise;
- Unless and until clear information is available on the nature of the chemical released and its possible impact on aircraft and aircrew, over flying of the site should be restricted. As a general rule, and where appropriate protection is not provided, keeping aircraft upwind of the release will be prudent, unless the wind is more than 15 knots, in which case over flying may be acceptable at an altitude of not less than 1 000 feet. The extent of such restrictions must be made clear to the authorities managing the response to the emergency;
- As soon as clear information is available on the nature of the chemical released and its possible impact on aircraft and aircrew, that information should immediately be given to the air personnel involved;
- Response plans should include arrangements to obtain forecasts of the movement of air volumes that have been contaminated by the release of a hazardous chemical. Scientific advice on the dilution of the air contamination over time will be needed as well as meteorological input;
    - Specialists will provide aircrew with the plume shape and extension from the casualty based on the meteorological input;
    - Response plans should include arrangements to provide appropriate protection for aircrew. Such arrangements could include: advance provision of masks and goggles with air/oxygen supply specifically for the response aircraft. For helicopters, portable oxygen containers will be needed;
- To speed up the acquisition of information on the nature of the chemical released and its possible impact on aircraft and aircrew, response plans could include specific arrangements for liaison between authorities charged with response to chemical emergencies at sea and those responsible for similar emergencies on land.

8.3 Flight Procedures

There are no set Bonn Agreement procedures for the conduct of surveillance flights because aircrew alone are responsible for their own flight safety and safe navigation. Aircrew will normally remain in contact with the appropriate ATC as the flight progresses.

9. Communications

9.1 Communications

Aircrew detecting or observing pollution should pass the information by radio-communication to the appropriate focal point. Criteria for reporting in-flight during a Tour de Horizon have been established formally (See Part 2, Chapter 2). In other cases common sense will dictate whether or not to report by radio. For example, pollution which poses a threat to the environment and is in urgent need of counter pollution activity, or when observing a deliberate and ongoing discharge in violation of MARPOL obviously require an immediate response from the country concerned, therefore the focal point should be informed by radio. Focal points are listed at Part 4 – National Information, and Coastal Stations with frequencies in use are listed at Annex A to this Chapter.

CALLSIGNS, FREQUENCIES AND TELECOMMUNICATIONS

Belgium:

MIK=Maritime Information Crosspoint
Maritime VHF Channel 27
Call Sign: **Ostend Radio**
(procedure: call Ostend Radio on Ch. 27 and ask connection with MIK)

Denmark:

Joint Rescue Coordination Centre (JRCC DENMARK)
HF Day 4703/6651 kHz
Night 4577/3053 kHz
UHF 379.525 MHz
Call Sign: **DANISH RESCUE**
(HF availability is subject to prior coordination on tel: +45 72850450 (0381)

Maritime Operations Centre North
UHF 356.300
Call Sign: **CRYSTAL PURPLE**

Maritime Operations Centre South
UHF 356.300
Call Sign: **CRYSTAL PINK**

Lyngby Radio
Maritime channel 16
Call Sign: **LYNGBY RADIO**
For contact with Duty Officer JRCC,
tel: +45 72850450

France:

Maritime VHF: Channel 16
HF BLU 2182
Call Sign: **CROSS (MRCC)**
GRIS NEZ (northern area) / JOBOURG (central area)
CORSEN (western area)

Federal Republic of Germany:

Maritime VHF Channel 16 for call
Call sign: **GERMAN MARITIME EMERGENCY COMMAND**
Airborne VHF 135.225
Call Sign: **HAVARIEKOMMANDO CUXHAVEN**

Netherlands:

Maritime VHF channel 73 or 16
Airborne VHF freq.: 123.1
HF freq.: 6550 kHz or 5438 kHz
Call Sign: **COASTGUARD CENTRE**

Norway:

Maritime VHF channel 16 for call.
Call Sign: **Tjoeme Radio**
Rogaland Radio
Floroe Radio

Spain:

Maritime VHF channel 16 for call.
Call Sign:
Eastern Area **MRCC Bilbao**
MRCC Santander
MRCC Gijón

Western Area **MRCC A Coruña**
MRCC Finisterre
MRCC Vigo

Sweden: Maritime VHF channel 16 for call,
Call Sign:
Swedish Coast Guard Härnösand (Northern area)
Swedish Coast Guard Stockholm (Estern area)
Swedish Coast Guard Karlskrona (Southern area)
Swedish Coast Guard Gothenburg (Western area)

Direct contact with a Coastguard vessel: Maritime VHF 16 for call.
Call Sign: **Swedish Coast Guard Vessel at Position: XXYY**

Direct contact with a Coastguard Aircraft: Maritime VHF 16 or VHF 122,875 Mhz, AM.
Call Sign: **Swedish Coast Guard Aircraft.**

United Kingdom: Maritime VHF channel 16 for call,
Working channel 10.
Call Sign:

Shetland Coastguard

Aberdeen Coastguard

Forth Coastguard

Humber Coastguard

Yarmouth Coastguard

Thames Coastguard

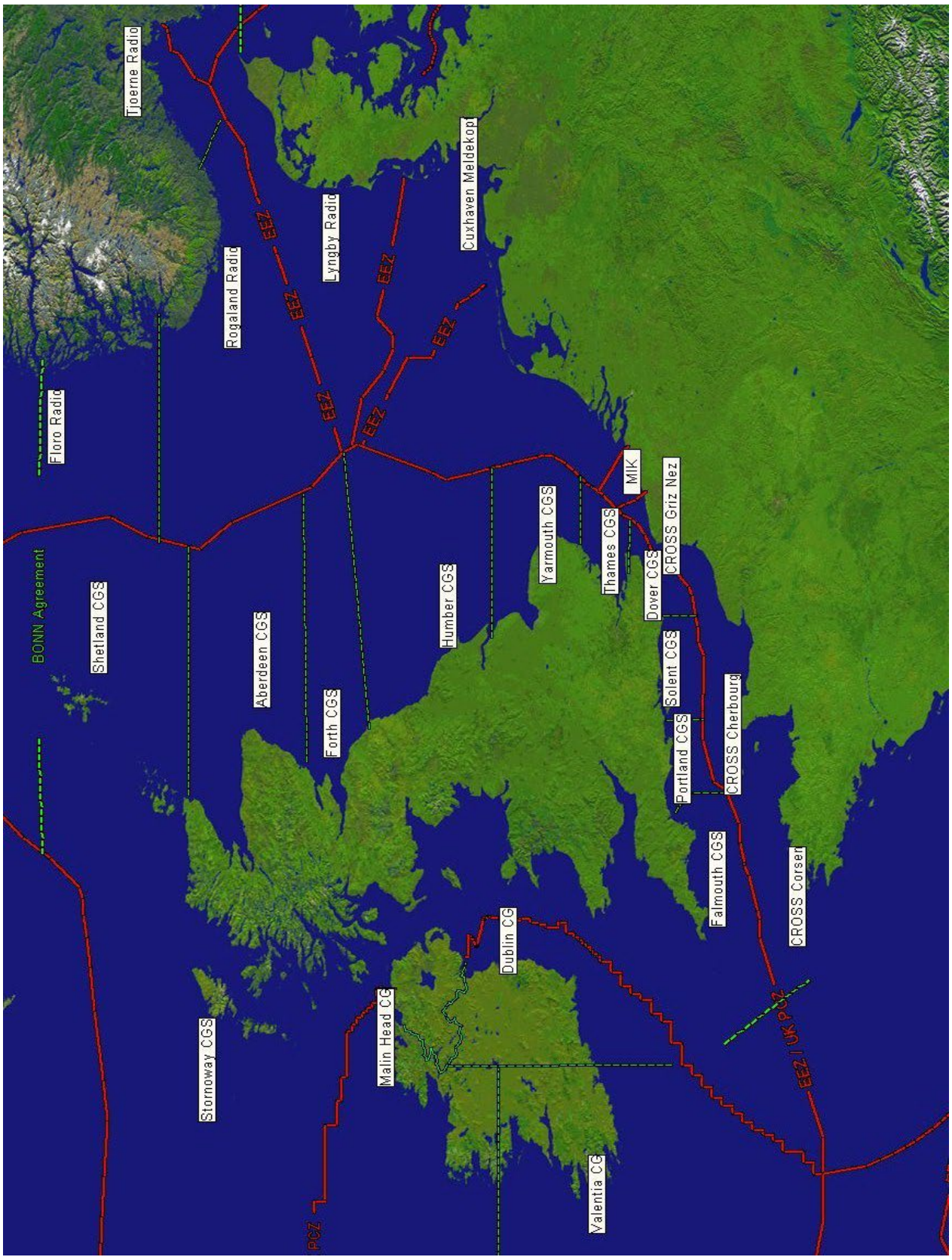
Dover Coastguard

Solent Coastguard

Portland Coastguard

Brixham Coastguard

Falmouth Coastguard


Tjoerne Radio
Floro Radio
Rogaland Radio
Lyngby Radio
Cuxhaven Meldekopf
EEZ
EEZ
EEZ
EEZ
EEZ
BONN Agreement
Shetland CGS
Aberdeen CGS
Forth CGS
Humber CGS
Yarmouth CGS
Thames CGS
MIK
Dover CGS
CROSS Griz Nez
Solent CGS
Portland CGS
CROSS Cherbourg
Falmouth CGS
CROSS Corsen
EEZ / UK PCZ
Dublin CG
Malin Head CG
Stornoway CGS
Valentia CG
PCZ

☐ HELCOM ☐ BONN AGREEMENT **STANDARD POLLUTION OBSERVATION / DETECTION LOG** ☐ NO POLLUTION DETECTED

REPORTING AUTHORITY	AIRCRAFT REG	MISSION No	CAPTAIN	CO PILOT	OPERATOR	OBSERVER	DAY	DATE	MONTH	YEAR

FLIGHT TYPE	ROUTE / AREA				TIME OVER THE SEA DAY		TIME OVER THE SEA NIGHT		TOTAL TIME OVER THE SEA	
					hrs	mins	hrs	mins	hrs	mins

No	AREA CODE	TIME UTC	POSITION		DIMENSIONS		AREA COVER	OILED AREA	OIL APPEARANCE COVERAGE (PERCENTAGE - %)						MINIMUM VOLUME	MAXIMUM VOLUME	COMBAT
			LATITUDE 'NORTH'	LONGITUDE 'EAST/WEST'	LENGTH Km	WIDTH Km	%	Km^2	1	2	3	4	5	Oth	m^3	m^3	Y / N

Nog g	POLLUTION TYPE	DETECTION AND DOCUMENTATION									WEATHER							SATELLITE CONFIRM			
		SLAR	IR	UV	VIS	MW	LF	PHOTO	VIDEO	FLIR	WIND		CLOUD		VIS (km)	SEA STATE	Wx	Mineral oil	Other pollution	Natural phen.	Nothing found
											DEG	KTS	TYPE	BASE							
											°			FT							
											°			FT							
											°			FT							
											°			FT							
											°			FT							

No	REMARKS

OIL APPEARANCE TABLE			
No	OIL APPEARANCE DESCRIPTION	MINIMUM VOLUME m^3 / km^2	MAXIMUM VOLUME m^3 / km^2
1	SHEEN	0.04	0.30
2	RAINBOW	0.30	5.00
3	METALLIC	5.00	50.0
4	DISCONTINUOUS TRUE COLOUR	50.0	200
5	TRUE COLOUR	200	>200

ANNEX B

STANDARD POLLUTION REPORTING LOG COMPLETION GUIDE

HELCOM: Tick HELCOM Box if the flight is in HELCOM Area

BONN AGREEMENT: Tick BONN AGREEMENT Box if flight is in BA area

NO POLLUTION DETECTED: Tick NO POLLUTION DETECTED if no pollution is detected

REPORTING AUTHORITY: National Authority Responsible for Pollution Control.

AIRCRAFT REG: Aircraft Registration Letters / Numbers.

MISSION No: Nationally Assigned Mission Number.

FLIGHT TYPE: National Designation for Flight Type as follows:

NAT - National
REG - Regional
EXER - Exercise
OPS - Operational Flight.
RIG - Oil Rig Patrol
SHIP - Shipping Patrol
TDH - Tour de Horizon Flight
CEPCO - Co-ordinated Extended Pollution Control Operation

CAPTAIN OF AIRCRAFT: Name of Captain

CO PILOT: Name of Co Pilot

OPERATOR: Name of Operator

OBSERVER: Name of Observer

DAY: Number Assigned to the Day of the Week as follows:

Monday - 01
Tuesday - 02
Wednesday - 03
Thursday - 04
Friday - 05
Saturday - 06
Sunday - 07

DATE/MONTH/YEAR: Two number designation for each of date/month/year of Flight

ROUTE / AREA: Flight Route or Area

TIME OVER THE SEA – DAY: Time over the Sea during Daylight

TIME OVER THE SEA – NIGHT: Time over the Sea at Night

TOTAL TIME OVER SEA: Total time between Coasting Out and Coasting In.

No: Number allocated to pollution detection.

AREA CODE: The international telephone code for the country (Area) in which the pollution is located:

Bonn Agreement

Belgium	32	Denmark (+ Helcom)	45

France	33	Germany (+ Helcom)		49
Ireland	353	Netherlands	31	
Norway	47	Sweden (+ Helcom)		46
United Kingdom	44			

Helcom

Estonia	372	Finland	358
Latvia	371	Lithuania	370
Poland	48	Russia	7

TIME UTC: Time of pollution detection.

POSITION: Latitude and longitude of pollution (degrees, minutes and seconds // WGS / 84 Datum).

DIMENSIONS: Length and width of pollution in kilometres.

AREA COVER %: Observer's assessment of the percentage of the boxed dimensioned area (length x width), covered with pollution.

OILED AREA: Oiled Area covered with pollution; calculated by multiplying length, width and cover %

Example:

Length x Width x Cover %

2 Km x 1 Km x 50%, gives...

[2.0] x [1.0] x [0.5]

= Oiled Area = 1 Km^2

OIL APPEARANCE COVERAGE %: Allocation of Percentage of the `Oiled Area' to the Appearance of the pollution.

Example:

1/2 cover – Rainbow - Column 2 = 50%

1/4 cover - Metallic - Column 3 = 25%

1/4 cover - True Colour - Column 5 = 25%

MINIMUM VOLUME: Minimum Quantity of Oil Pollution in cubic metres.
Calculated as follows:

[Oiled Area] x [Appearance Code Minimum Thickness Value] X [Decimal Percentage of Appearance].

[1 Km^2] x [0.3 m^3/km^2] x [0.50] = 0.15 m^3

[1 Km^2] x [5.0 m^3/km^2] x [0.25] = 1.25 m^3

[1 Km^2] x [200 m^3/km^2] x [0.25] = 50 m^3

Minimum Total Quantity = [0.15] + [1.25] + [50] = 51.4 m^3

MAXIMUM VOLUME: Maximum Quantity of Oil Pollution in cubic metres.

Calculated as follows:

[Oiled Area] x [Appearance Code Maximum Thickness Value]

X [Decimal Percentage of Appearance].

[1 Km^2] x [5.0 m^3/km^2] x [0.50] = 2.5 m^3

[1 Km^2] x [50 m^3/km^2] x [0.25] = 12.5 m^3

[1 Km^2] x [>200 m^3/km^2] x [0.25] = > 50 m^3

Maximum Total Quantity = [2.5] + [12.5] + [>50] = > 65 m^3

No: The same number as previously allocated to the pollution detection.

POLLUTION TYPE: Pollution Type as follows:

	OIL	- Oil
	CHEM	- Chemical
	FISH	- Fish Oil or Waste
	VEG	- Vegetable Oil or Waste
	OTH	- Other (Amplify in Remarks, Grarbage, Litter)
	UNK	- Unknown

DETECTION: Detection Sensor.

SLAR	- Radar
UV	- Ultra Violet
IR	- Infrared
VIS	- Visual
MW	- Microwave
LF	- Laser Fluorosensor

PHOTO: Photographs of pollution

VIDEO Video of the pollution

FLIR Forward Looking Infrared of the pollution

WEATHER: Weather at the time of pollution observation / detection

Surface Wind:	Direction and Speed (knots or beaufort as required by national authorities),
Cloud:	Coverage in Octas or aviation description (scattered / overcast)) and Base in feet,
Visibility:	Nautical Miles or Kilometres
Sea State:	Using the description code given in the Abbreviations
Weather:	Rain, Snow, Haze, Mist etc

REMARKS: Any Amplifying Remarks.

Note: **For all Detections / Observations Boxes write:**

'Y' Sensor used and pollution detected

'N' Sensor used but pollution not detected

'-' Sensor was not used or not available

ANNEX C

POLLUTION OBSERVATION / DETECTION REPORT ON POLLUTERS AND COMBATABLE SPILLS (IMO)

1. REPORTER:
   a. Reporting State: : .....
   b. Observer (Organization/Aircraft/Platform) : .....Call Sign.....
   c. Observer(s)(Family Name(s)) : 1..... .....2.....

2. DATE AND TIME:
   a. Date (yymmdd) b. Time of Observation (UTC) : Date..... Time.....UTC

3. LOCATION OF THE POLLUTION:
   a. Position of the Pollution (Lat/Long) : Begin.....N,
   .....W/E
   : End.....N, ...W/E
   b. Inside/Outside Territorial Waters: **O** Inside **O** Outside

4. DESCRIPTION OF THE POLLUTION:
   a. Type of Substance Discharged : .....
   b. Estimated Quantity : .....m^3
   c. Length (km) d. Width (km) e. Coverage (%) : Length.....km Width.....km Coverage.....%
   f. Oiled Area ($km^{2)}$: Oiled Area.....($km^{2)}$
   g. Percentage of Oiled Area by Appearance (%) 1:.....% 4:.....%
   1=Sheen 2=Rainbow 3=Metallic 2:.....% 5:.....%
   4=Discontinuous True Colour 5=True Colour 3:.....% Other:.....%

5. METHOD OF DETECTION AND INVESTIGATION:
   a. Detection (Visual, SLAR, IR, UV, Video, MW : **O** Visual **O** SLAR **O** IR **O** UV **O** Video **O** MW,
   LFS, Identification Camera, Other) : **O** LFS **O** Video **O.** Ident.Cam **O** Other
   b. Discharge Observed c. Photographs Taken : Observed: Yes / No Photos Yes / No
   d. Samples Taken e. Need of Combating : Samples: Yes / No Combat: Yes / No
   f. Other Ships/Platforms in Vicinity (Names) : .....

6. WEATHER AND SEA CONDITIONS:
   a. Wind Direction b. Wind Force c. Visibility : Direction.....Degrees Force.....Bft/Kts Vis.....kms
   d. Cloud Coverage e. Wave Height : Cloud.....Octa Wave Ht.....m
   f. Current Direction : Current Direction.....Degrees

OBSERVATION OF A DISCHARGE OF HARMFUL SUBSTANCES BY A SHIP UNDER ARTICLE 6(3) OF MARPOL 73/78

7. SHIP INVOLVED:
   a. Name : .....
   b. Callsign c. Flag State : Callsign:..... Flag State:.....
   d. Home Port : .....
   e. Type of Ship : .....
   f. Position (Lat/Long) : .....N, ...W/E .....UTC
   : .....N, ...W/E .....UTC
   g. Heading h. Speed : Heading.....Degrees Speed.....kts
   i. Colour of the Hull : .....
   j. Colour of the Funnel and Funnel Mark : .....
   k. Colour / Description of Superstructure : .....
   l. Vessels IMO Number : .....

8. INFORMATION BY RADIO CONTACT:
   a. Radio Contact b. Means of Communication : Contact: Yes / No Means VHF / Teleph, ...Ch / Freq
   c. Last Port of Call : .....
   d. Cargo e. Last Cargo : .....
   f. Next Port of Call, ETA (yymmdd) : .....ETA.....
   e. Statements of Captain/Officer on Duty : .....

OBSERVATION OF A DISCHARGE OF HARMFUL SUBSTANCS BY AN OFFSHORE INSTALLATION

9. OFFSHORE INSTALLATION INVOLVED:
   a. Platform Name : .....
   b. Position (lat/long) : ..... N .....W/E
   c. Type of Platform (Production/Drilling etc) : .....
   d. Company Name : .....

10. INFORMATION BY RADIO CONTACT:
   a. Radio Contact b. Means : Contact Yes / No Means VHF / Teleph, ...Ch / Freq
   c. Contact with (position) : .....
   d. Statements : .....
   : .....

---

11. REMARKS AND ADDITIONAL INFORMATION:
   .....
   .....

Instructions for filling in the joint Bonn Agreement/HELCOM annual reporting format on illegal discharges observed during aerial surveillance

Reporting format

The Contracting Parties will report on their entire annual surveillance activity in the reporting year. This is data obtained during flights over their National Exclusive Economic Zone and outside their responsibility zone e.g. (Super) CEPCO or Tour de Horizon. Note format explanations and data standards should be used to complete the attached MS Excel reporting sheet – meeting the outlined standards is of the utmost importance to ensure inclusion of Contracting Parties data in the Bonn Agreement Aerial Surveillance database.

Data reported to the Bonn Agreement Secretariat should include only those spills that are inside the reporting Contracting Party's own national EEZ.

Each Contracting Party will send (using Table 2) a compilation of the spills detected in other Contracting Parties' EEZs to the Contracting Party in question at the end of February of the following year. The receiving Contracting Party will compare the data with their annual national data, delete any duplicates and complete their national data where needed. By doing so, all Contracting Parties will be able to obtain a full annual national dataset containing all spills inside their EEZ – inclusive of those detected by other Contracting Parties – and report this dataset (reflected in table2) to the Bonn Agreement Secretariat.

Reports deadlines
The deadlines for the submission of aerial surveillance data are:
a. the end of February for reporting data on spills in the EEZs of other Contracting Parties to the Contracting Parties concerned; and
b. the end of March for the submission of full national data sets to the Secretariat.

Please:
do not remove, add or adjust any columns or calculations included in the MS Excel reporting sheet.
only fill out the reporting sheet as it is delivered to you each year, do not use old versions. They may appear to be replicas but subtle variations are present due to the on-going streamlining of the reporting process at the Secretaria

PART 1: FLIGHT-RELATED DATA

Table 1. Flight effort data - National + regional flight data

Country	Year	Flight Type	No. of flight hours			No. of flights (TdHs and (Super)CEPCOs only)	Remarks
			Daylight	Darkness	Total		

Column Header	Format Example	Explanation
Country	Netherlands	Full country name the reported data applies to (reporting Contracting Party)
Year	2013	The year that the reported data applies to
Flight type	N	For each flight type reported, a different row should be added: National flights – "N" ➔ **These national flight data should be completed for flights conducted in the EEZ/waters of the reporting Contracting Party** Regional flights: - Tour d'Horizon – "TDH" - CEPCO or Super CEPCO – "C" or "SC" ➔ **TdH flight data should be completed by each participating Contracting Party performing a specific TdH mission.** ➔ **(Super) CEPCO flight data should be added by the Contracting Party organizing the (Super)CEPCO.**
No. of flight hours – Daylight	136:24	The number of flight hours and minutes carried out in daylight - From 30 minutes after Morning Civil Twilight, until 30 minutes before Evening Civil Twilight as given in the Air Almanac – shown as a colon separated value. No decimal values
No. of flight hours – Darkness	86:23	The number of flight hours and minutes carried out in darkness - From 30 minutes before Evening Civil Twilight, until 30 minutes after Morning Civil

		Twilight as given in the Air Almanac – shown as a colon separated value. No decimal values
No. of flight hours – Total	222:47	= (No. of flight hours - Daylight) + (No. of flight hours – Darkness) – shown as a colon separated value. No decimal values
No. of flights (**TdHs and (Super)CEPCOs only**)	5	Number of flights performed during the annual TdH mission and/or during the CEPCO operation.
Remarks		Any additional textual information to inform on particular situations

Table 2. Observed/detected spills (during national and (Super)CEPCO flights)

Multiple slicks obviously originating from a single spill should not be reported separately but should be combined and the centre point reported as the location (for further explanation see §6 in the introduction)

Country	Year	Spill ID	Flight Type	Day/Night	Date	Time	Wind speed	Wind direction	CP Area ((Super)Cepcos Only)	Latitude	Longitude	Length	Width	Area	Spill/Pollution category	If OIL: Estimated min. volume	If OIL: Vol. Category	If OS or GAR: Type of substance spilled	Polluter/Source	Remarks

Column Header	**Format Example**	**Explanation**
Country	Belgium	Full country name the reported data applies to (reporting CP)
Year	2013	The year that the reported data applies to
Spill ID	BE-01	A unique code which will enable each individual spill to be individually identified (*) Note: in case of a spill consisting of several slicks (multiple slicks clearly originating from 1 spill), only 1 spill ID should be added (and not x '(partial) slick' IDs). In this case, the centre point should be reported as location. For spills recorded by other CPs (e.g. Denmark) within a countries waters (e.g. Norway) the spill ID should start with the country where the spill occurs, followed by the spill ID from the country that made the observation separated by a backslash "/" i.e. NO/DK-31.
Flight Type	N	The type of flight the detection was made during: National = "N" CEPCO = "C" **– To be added by Contracting Party organizing CEPCO** Super CEPCO = "SC" **– To be added by Contracting Party organizing Super CEPCO**
Day/Night	D	Whether the detection was made during the day or night: Day = "D" or Night = "N"
Date	27/03/2013	The date of the individual detection
Time	08:20	The time of the detection (in UTC)
Wind speed	2	The wind speed (in m/s) at the time of the detection (if needed, use conversion table to change from Kts to m/s).
Wind direction	210	The wind direction in degrees at the time of the detection

CP area (**(Super)CEPCOs only**)	Norway	The Contracting Party in which EEZ/waters the detection was made
Latitude	51,3683	The latitude of the detection in decimal degrees, using WGS84 - See also Note under 'Spill ID' above for spill consisting of several slicks. (if needed, use conversion table to change from degrees-min.-sec. or degrees-decimal min. to decimal degrees.)
Longitude	2,6733	The longitude of the detection in decimal degrees, using WGS84 - See also Note under 'Spill ID' above for spill consisting of several slicks. (if needed, use conversion table to change from degrees-min.-sec. or degrees-decimal min. to decimal degrees.)
Length	2,3	The length of the detection in kilometres
Width	0,1	The width of the detection in kilometres
Area covered	0,092	The area of the detection in square kilometres (km^2)
Spill/pollution category	OIL	The category the detection falls into from: Mineral Oil = "OIL" Other Substance = "OS" (other noxious liquid substance; MARPOL Annex II) Unknown = "UNK" (not visually verified spill) Garbage = "GAR" (MARPOL Annex V substance) Litter = "LIT" (Observed 'litter' in general terms – cf. OSPAR def.) Floating objects = "OBJ" (Observed floating objects – e.g. wood, containers, floating industrial pipes, etc.)
If oil: Estimated min. volume	0,015	Volume of the detection confirmed/observed as mineral oil as calculated using the Bonn Agreement Oil Appearance Code using the lower figure (BAOAC minimum) in m^3
If oil: Vol. Category	1	The Vol. category (1, 2, 3, 4 or 5) that the detection falls into: <0,1m^3 = "1" <0,1-1m^3 = "2" 1-10 m^3 = "3" 10-100 m^3 = "4" >100 m3 = "5"

If OS or GAR: Type of substance spilled	Palm oil	Product name or type of OS or GAR substances that could be identified (in case of known polluter, or via visual identification - cf. BAOAC Atlas). - Examples for OS: vegetable oils (palm oil sun flower oil, soya oil etc.), fish oil, molasses, various chemicals (methanol, biodiesels/FAME, toluene, paraffines etc.); - Examples of GAR: solid cargo residues (e.g. coal residues), plastics, fish nets, … OR Unknown – "UNK" (in case the type of substance could not be identified)
Polluter/source:	Other	Type of polluter or source: Offshore Installation = "RIG" Vessel = "SHIP" Other Polluter or source (e.g. land based source) = "OTHER" Unknown = "UNK" (in case of an "orphan" spill that cannot be linked to a polluter)
Remarks	Case pending	Any additional information to inform on particular situations Description of marine litter sightings

Table 3. Observed/detected spills (during Tour d'Horizon (TdH) flights)

Multiple slicks obviously originating from a single spill should not be reported separately but should be combined and the centre point reported as the location (for further explanation see §6 in the introduction)

Country	Year	Date	Time	Wind speed	Wind direction	Latitude	Longitude	CP Area	Length	Width	Area covered	Daylight or Darkness	Spill category	If OIL: Min. volume	If OIL: Max. volume	If OS or GAR: Type of substance spilled	Polluter/Source	Source ID	In flight report	Post flight fax sent	Post flight email sent	Reporting made to	Remarks

Column Header	**Format Example**	**Explanation**
Country	Belgium	Full country name the reported data applies to (Reporting country)
Year	2013	The year that the reported data applies to
Date	27/03/2013	The date of the individual detection
Time	08:20	The time of the detection (in UTC)
Wind speed	2	The wind speed (in m/s or Kts) at the time of the detection (if needed, use conversion table to change from Kts to m/s).
Wind direction	210	The wind direction in degrees at the time of the detection
Latitude	51,3683	The latitude of the detection in decimal degrees, using WGS84 (if needed, use conversion table to change from degrees-min.-sec. or degrees-decimal min. to decimal degrees.)
Longitude	2,6733	The longitude of the detection in decimal degrees, using WGS84 (if needed, use conversion table to change from degrees-min.-sec. or degrees-decimal min. to decimal degrees.)
CP Area	Norway	The Contracting Party in which EEZ/waters the detection was made
Length	2,3	The length of the detection in kilometres
Width	0,1	The width of the detection in kilometres
Area covered	0,092	The area of the detection in square kilometres (km^2)
Daylight or Darkness	Daylight	Detection in Daylight or darkness
Spill category	Oil	The category the detection falls into from: Mineral Oil = "OIL" Other Substance = "OS"

		Unknown = “UNK” Garbage = “GAR” Litter = “LIT” Floating objects = “OBJ” (for definitions: See Table 2)
If Oil: Min Volume	0.073	Minimum spill volume in m³
If Oil: Max Volume	0.545	Maximum spill volume in m³
If OS or GAR: Type of substance spilled	Palm oil	Product name or type of OS or GAR substances that could be identified (e.g. in case of known polluter, or via visual identification – cf. BA OAC Atlas).(Examples: see above) OR Unknown – “UNK” (in case the type of substance could not be identified)
Polluter/source type	RIG	Type of polluter/source: Offshore Installation = “RIG” Vessel = “SHIP” Other Polluter or source (e.g. land based source) = “OTHER” Unknown = “UNK” (in case of an “orphan” spill that cannot be linked to a polluter)
Source ID	Platform Alpha	The name of the Rig (or Ship) if identifiable
In Flight Report	Y	Has an in Flight Report been undertaken Y or N
Post flight Fax sent	N	Has a post flight fax report been sent Y or N
Post flight Email sent	Y	Has a post flight email report been sent Y or N
Reporting made to	National Contact Point	Who has the post flight report been sent to: national focal point or other? (specify)
Remarks	Case pending	Any additional information to inform on particular situations Description of marine litter sightings

Table 4. TdH and (Super)CEPCO Flight Routing

Date	Flight Number	Waypoint Code (Incl. Airports)	Position (only if waypoint not in Aerial Operations Handbook)

Column Header	Format	Explanation
Country	Belgium	Full country name the reported data applies to (Reporting country)
Date	27/03/2013	The date of the start of the flight
Flight Type	TDH	The type of flight during for which the flight routing is reported: Tour D'Horizon – "TDH" CEPCO or Super CEPCO – "C" or "SC"
Flight Number	NL: 1046, BE: 13046, UK: Endurance 446, Etc.	The number of the TdH or (Super)CEPCO Flight
Way Point Code (Including Airports)	T10, T11, T12, EGNT	The Waypoint codes for the flight taken from the Aerial Operations Handbook including Airports
Position	N XX0 XX,XX' E/W XXX0 XX,XX'	The position of the flight route ➔ **In case of TdH: only if different from the TdH waypoints in the Aerial Operations Handbook** ➔ **In case of (Super)CEPCO: Waypoint positions to be completed by organizing Contracting Party.**

PART 2 – SATELLITE-RELATED DATA

Table 5. Satellite detections and confirmations

To be completed by NORWAY and UK (satellite data for the other Bonn Agreement countries will be taken directly from the EMSA CleanSeaNet report)

Country	Year	Detected	Confirmed mineral oil	Confirmed other substances	Confirmed unknown spills	Confirmed natural phenomena	Nothing found

Column Header	Format Example	Explanation
Country	Norway	Full country name the reported data applies to (reporting Contracting Party)
Year	2013	The year that the reported data applies to
Detected	215	The number of satellite detections inside national EEZ/waters
Confirmed mineral oil	7	The number of satellite detections confirmed as mineral oil
Confirmed other substances	3	The number of satellite detections confirmed as other substances
Confirmed unknown spills	2	The number of satellite detections which could not be visually verified
Confirmed natural phenomena	1	The number of satellite detections confirmed as natural phenomena
Nothing found	202	The number of verified satellite detections where nothing could be found