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West Africa Surveillance Program (WASP) Mobilisation and Logistics Guide

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Contents

| | |
|--|----|
| 1. Introduction | 4 |
| 1.1 Purpose | 4 |
| 2. Technical Specifications | 5 |
| 2.1 Flight Times | 6 |
| 3. Mobilisation | 7 |
| 3.1 Mobilisation Flowchart | 8 |
| 3.2 Aircraft Location..... | 9 |
| 4. Services Supplied | 10 |
| 4.1 Responsibility Matrix | 10 |
| 4.2 Potential Forward Operating Base's (FOB) | 11 |
| 4.3 Entry Permits and Visas | 11 |
| 4.4 Report supplied by OSRL..... | 12 |
| 4.5 BONN Agreement | 13 |
| 4.6 Spidertrack | 13 |
| 4.7 Communication Flow Chart | 14 |
| 5. Fees | 15 |
| 5.1 Annual fees | 15 |
| 5.2 Mobilisation fees..... | 15 |
| 6. Additional Information..... | 16 |
| 6.1 Exercise flights | 16 |
| 6.2 Table Top Exercises | 16 |
| 6.3 Training | 16 |
| 6.4 Further Information | 17 |
| Appendix 1 | 18 |

List of Figures

| | |
|--|----|
| Figure 1: Mobilisation process for WASP services | 8 |
| Figure 2: Example quantification log found in the report | 12 |
| Figure 3: Example of a WASP aircraft Spider Track during an exercise sortie | 13 |
| Figure 4: Graph showing the communication flow chart between the three parties | 14 |

List of Tables

| | |
|---|----|
| Table 1: Technical Specification | 5 |
| Table 2: Flight times | 6 |
| Table 3: Responsibility Matrix | 10 |
| Table 4: Showing the Bonn agreement codes | 13 |

1. Introduction

This supplementary Tier 2 service is available to all OSRL Members with Oil and Gas Exploration & Production (E&P) facilities in West and Central Africa waters. The West Africa Surveillance programme (WASP) provides regional aerial surveillance cover from the western boundary of Côte d'Ivoire in the north west to the southern boundary of Angola and the adjoining sea for a distance of 150 miles from the coast. Coverage for countries outside these boundaries may be considered for cover on a case by case basis.

The WASP service was established in response to requests to provide timely Tier 2 support for Members operating in the region. It offers a regionally located, fast and cost-effective response to oil spill incidents. WASP membership is available to OSRL's Members via an annual WASP subscription. This cost-effective regional response solution is provided by a dedicated Cessna 337G Skymaster aircraft with infrared and digital SLR camera surveillance equipment, satellite communications, and GPS tracking systems.

1.1 Purpose

This Mobilisation and Logistics Planning Guide is designed to provide clear guidelines with regard to the process of planning and mobilisation during the initial deployment phases of the WASP aerial surveillance service. This will help to ensure that operational capability is delivered as efficiently as possible to any spill site within the WASP region. The guide provides details on the following:

- Technical specifications
- Mobilisation instructions
- Flight times
- What OSRL will supply
- The support required from the member company

The aircraft operator and OSRL endeavour to provide a fast and efficient WASP service. However, provision by the subscriber, of a dedicated point of contact (preferably with aviation experience) to manage the various operational processes required by the WASP aircraft (clearances, handling, fuelling, etc) in the subscribers' country of operation will greatly enhance the speed and efficiency of a WASP response.

If the client requires further information or assistance with regards to the WASP OSRL service, they should contact the OSRL Duty Manager.

2. Technical Specifications


| | |
|--|--|
| Aircraft Type |  <p style="text-align: center;">Cessna 337G Skymaster</p> |
| Aircraft registration (and call sign) | F-BVIT/SE-KPF/F-HCOM |
| Operator | Action Air Environment |
| Bases | Lomé, Togo and Libreville, Gabon |
| Crew | 1 x Pilot, 1 x System Operator (SO) |
| Surveillance Range | See table 2 |
| Speed | Transit 150 knots at 500-8000ft altitude |
| On board Equipment | Digital SLR/FLIR Camera |
| Communication | Aviation Very High Frequency (VHF), High Frequency (HF), marine band VHF, satellite phone, Automatic Identification System |
| Other Information | Length: 9.07m Wingspan: 11.63m Height (fin): 2.84 Empty weight: 1427kg Max payload: 700kg Max fuel load: 570kg Max Take-off weight: 2120kg |
| Runway requirements | 900m (daylight) 1500m (at night) |

Table 1: Technical Specification

2.1 Flight Times

Caveat: These are indicative figures only; all details including speed and flight time are dependent upon operational circumstances including: temperature, altitude, weather and payload.

Table 2: Flight times

| BASE | DESTINATION | DISTANCE (Nm) | FLIGHT TIME |
|-----------------|---------------|---------------|-------------|
| Libreville | Sao Tome | 162 | 1h 25 |
| Libreville | Douala | 220 | 2h |
| Libreville | Malabo | 205 | 1h 50 |
| Lome | Abidjan | 318 | 3h |
| Libreville | Port Gentil | 70 | 0h 35 |
| Lome | Lagos | 132 | 1h |
| Lome/Libreville | Port Harcourt | 355/346 | 2h 45 |
| Libreville | Luanda | 595 | 4h 50 |
| Libreville | Soyo Angola | 430 | 3h 30 |
| Libreville | Cabinda | 390 | 3h |
| Libreville | Pointe Noire | 345 | 2h 50 |
| Lome | Takoradi | 192 | 1h 30 |
| Lome | Warri | 275 | 2h 10 |
| Lome | Escravos | 240 | 1h 50 |

3. Mobilisation

OSRL WASP Supplementary service subscribers may mobilise the WASP Service by calling Oil Spill Response at the Southampton number provided.

Notify *Oil Spill Response* Duty
Manager: +44 (0) 23 8033 1551

Mobilisation and Notification Forms

The Duty Manager will request that all relevant information be added to the 'Notification' form. The 'Mobilisation Authorisation' form will also be requested if the aircraft is required as this acts as the formal financial authority and therefore must be signed by a member's nominated authority. A delay in providing these forms may delay the response.

Early notification of an ongoing or potential incident will allow the OSRL duty manager to proactively conduct the initial planning. The air contractor will be informed and will be able to conduct preparatory activity without affecting flying hours or incurring costs. If the incident escalates, requiring an aerial surveillance, the service subscriber then only needs to inform the duty manager and sign the mobilisation form or if the incident deescalates OSRL will stand down with no costs incurred.

Duty Manager contacts the Aircraft Operator

The Duty Manager will promptly call the air contractor to inform them of the incident. OSRL will produce a flight tasking based on information received on the notification form provided. The flight tasking will provide details such as: location, type of mobilisation, and other pertinent information relating to the surveillance mission. Note, the notification form alone does not constitute financial authorisation to mobilise equipment or personnel.

Mobilisation Time

During daylight hours dedicated aircrews are on standby at Lomé, Togo and Libreville, Gabon with each dedicated aircraft. OSRL will task the aircraft within 30 minutes (i.e. inform the crew of the requirement to conduct an aerial surveillance flight) once the completed mobilisation form has been received from the service subscriber. The mobilisation time for wheels up will be within 4 hours (during daylight operating hours). These timings may be affected by operational constraints such as weather conditions, the issuance of the requisite enroute flight and destination landing permits. The aircraft will not depart until OSRL has received a signed mobilisation form. If the incident has the potential to continue beyond a verification flight, OSRL will endeavour to send an OSRL surveillance specialist to join the pilot and surveillance operator to assist with taskings

3.1 Mobilisation Flowchart

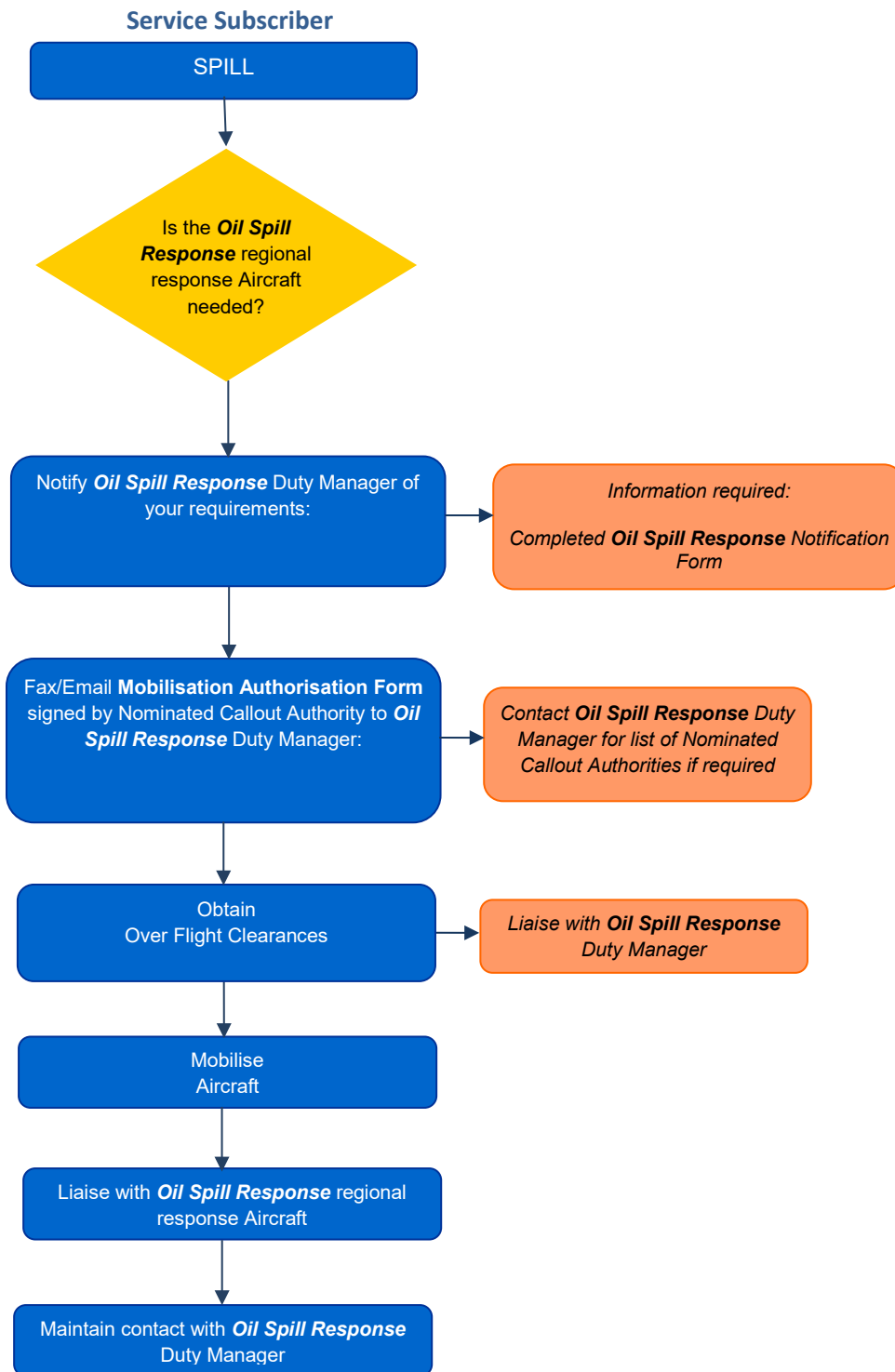


Figure 1: Mobilisation process for WASP services

3.2 Aircraft Location

The aircraft's 'home' bases are:

Lomé - Tokoin International Airport, Lomé, Togo

Léon-Mba International Airport, Libreville, Gabon

Lomé, and Libreville, Airport is a 24-hour licensed airport.

In the event of any planned maintenance on the dedicated aircraft the second aircraft will be used. In the event of emergency breakdown/maintenance best endeavours will be made to restore the service.

4. Services Supplied

4.1 Responsibility Matrix

| Task | OSRL | Aircraft Operator (AAE) | Service Subscriber (mobilising party) |
|---|------|-------------------------|---------------------------------------|
| Notification of Incident | | | X |
| Notification form & Signed mobilisation form | | | X |
| Generate flight tasking and work order | X | | |
| Transit flight clearances/landing permits | | X | |
| In-country operating permits(Civil Aviation ND/OR Military as required) and surveillance flight clearances at scene | | | X |
| Airport handling & refuelling (inc payments) | | | X |
| Obtain entry visa/work permits for non aircrew (OSRL aerial surveillance specialist) | X | | X |
| Maintenance of aircraft | | X | |
| Spider track coverage of flights | X | | |
| Verbal Report | | X | |
| Geo referenced photographs | | X | |
| Formal Report | X | | |
| Booking of any commercial flights and for air crew and observers | X | | |
| Provision of accommodation for air crew and observer | | | X |
| Modelling support for tracking spilled oil | X | | |
| FOB (forward operating base) location | X | | X |
| Supply of crew to maintain service delivery | | X | |
| Supply of daily cost sheets and invoicing | X | | |
| Training of Surveillance system operators | X | | |
| Trained and experienced observers | X | X | |
| Demobilisation from the incident including signed demobilisation form | | | X |
| Provide Purchase Order | | | X |
| Invoicing | X | | |
| Paying OSRL (within 30 days of invoice date) | | | X |
| Paying the operator | X | | |
| No Notice drills | X | | |
| Assurance and Audit | X | | |

Table 3: Responsibility Matrix

4.2 Potential Forward Operating Base's (FOB)

The aircraft will initially fly out of Lomé or Libreville airport, during in-field operations OSRL will determine where the aircraft will land. The FOB is dependent on the spill location which will determine the most efficient transit times to and from the survey site. The choice of appropriate FOB may also be influenced by the weather. Flight permissions on route to the destination country will be applied for by the aircraft operator. Entry permits for the destination country and airport ground handling should be arranged by the service subscriber in conjunction with the aircraft operator.

4.3 Entry Permits and Visas

Upon initiating the mobilisation of the aircraft, the aircraft operator will submit a flight plan and request for the necessary over flight permits and clearances. The aircraft and crew can initially enter most countries under a General Declaration (GenDec). GenDec allows the aircraft and crew to stay for up to 72 hours. If the aircraft is foreseen to be required for longer than 72 hours, then appropriate visas must be applied for. To help facilitate an ongoing service the service subscriber will be requested to provide assistance in obtaining the appropriate permits and/or visas for aircrew and supporting OSRL staff.

Visa information for each country can be found from <https://cibtvias.co.uk/> or any other visa provider

Landing permits and authorisation to operate in country will be required prior to or upon arrival and it is expected that the client/local subsidiary will liaise with the relevant authorities to assist with the necessary permits where possible.

4.4 Report supplied by OSRL

A verbal sighting report will be delivered after leaving the survey area in the form of the 9 liner report. The following outputs will be delivered upon landing:

- Spill quantification
- Flight track (figure 3)

| Oil Spill Response | | AERIAL SURVEILLANCE OBSERVER LOG | | | | | | | | | | | |
|--------------------------|-----------------------------|----------------------------------|----------------|----------------------|------------------------------|-----------------------------|---------------------------------|---------------------------------|-------------------------------------|--|----------------|-------------|-------------|
| Incident | 0 | Date | 01/01/1904 | | Observers | 0 | | | | | | | |
| Aircraft Type | 0 | Call Sign | 0 | | Area of Survey | 0 | | | | | | | |
| Survey Start Time | 0 | Survey End Time | 0 | | Average Altitude (feet) | 0 | | | | | | | |
| Wind Speed (knots) | 0 | Wind Direction | 0 | | Notes | 0 | | | | | | | |
| Cloud Base (feet) | 0 | Visibility (nm) | 0 | | | | | | | | | | |
| SLICK DETAILS | | | | | | | | | | | | | |
| Slick | TIME UTC | OIL POSITION (CENTRE) | | SLICK ORIENT Degrees | OIL SLICK LENGTH DISTANCE km | OIL SLICK WIDTH DISTANCE km | AREA | AREA COVER | OILED AREA | | | | |
| | | LAT North/South | LONG East/West | | | | km ² | % | km ² | | | | |
| A | 0 | 00°00'00.0" | 00°00'00.0" | 0 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | |
| B | 0 | 00°00'00.0" | 00°00'00.0" | 0 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | |
| C | 0 | 00°00'00.0" | 00°00'00.0" | 0 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | |
| D | 0 | 00°00'00.0" | 00°00'00.0" | 0 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | |
| E | 0 | 00°00'00.0" | 00°00'00.0" | 0 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | |
| Slick | OIL APPEARANCE COVERAGE - % | | | | | | MINIMUM VOLUME - m ³ | MAXIMUM VOLUME - m ³ | TYPE OF DETECTION (etc. visual, IR) | THE BONN AGREEMENT OIL APPEARANCE CODE (BAOAC) | | | |
| | 1 | 2 | 3 | 4 | 5 | OTH | | | | No | OIL APPEARANCE | MIM. VOLUME | MAX. VOLUME |
| A | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0.00 | visual IR UV | 1 | SHEEN | 0.04 | 0.3 |
| B | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0.00 | visual IR UV | 2 | RAINBOW | 0.3 | 5 |
| C | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0.00 | visual IR UV | 3 | METALLIC | 5 | 50 |
| D | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0.00 | visual IR UV | 4 | DISCONTINUO | 50 | 200 |
| E | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0.00 | visual IR UV | 5 | TRUE COLOUR | 200 | >200 |
| Total Oil Volume Sighted | | | | | | | 0.00 | 0.00 | | | | | |

Figure 2: Example quantification log found in the report

4.5 BONN Agreement

The Bonn Agreement Oil Appearance Code (BAOAC) is a European agreed approach used to quantify the minimum and maximum oil observed over water. The BAOAC is widely recognised as industry good practice and its use is recommended by IPIECA good practice guide.

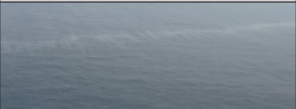

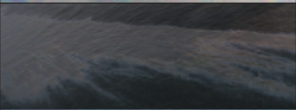


| Code | Description/ Appearance | Layer Thickness Interval (Microns) | Litres per km ² | Typical Appearance |
|------|----------------------------------|---------------------------------------|----------------------------|---|
| 1 | Sheen (silver/grey) | 0.04 - 0.30 | 40 - 300 |  |
| 2 | Rainbow | 0.30 - 5.0 | 300 - 5000 |  |
| 3 | Metallic | 5.0 - 50 | 5000 - 50.000 |  |
| 4 | Discontinuous True Oil Colour | 50 - 200 | 50.000 - 200.000 |  |
| 5 | Continuous True Oil Colour | >200 | >200.000 |  |

Table 4: Showing the Bonn agreement codes

4.6 Spidertrack

Spidertrack is a programme that OSRL use to track the WASP aircraft. The service subscriber can be given access to the site to observe the live status of the aircraft.



Figure 3: Example of a WASP aircraft Spider Track during an exercise sortie

4.7 Communication Flow Chart

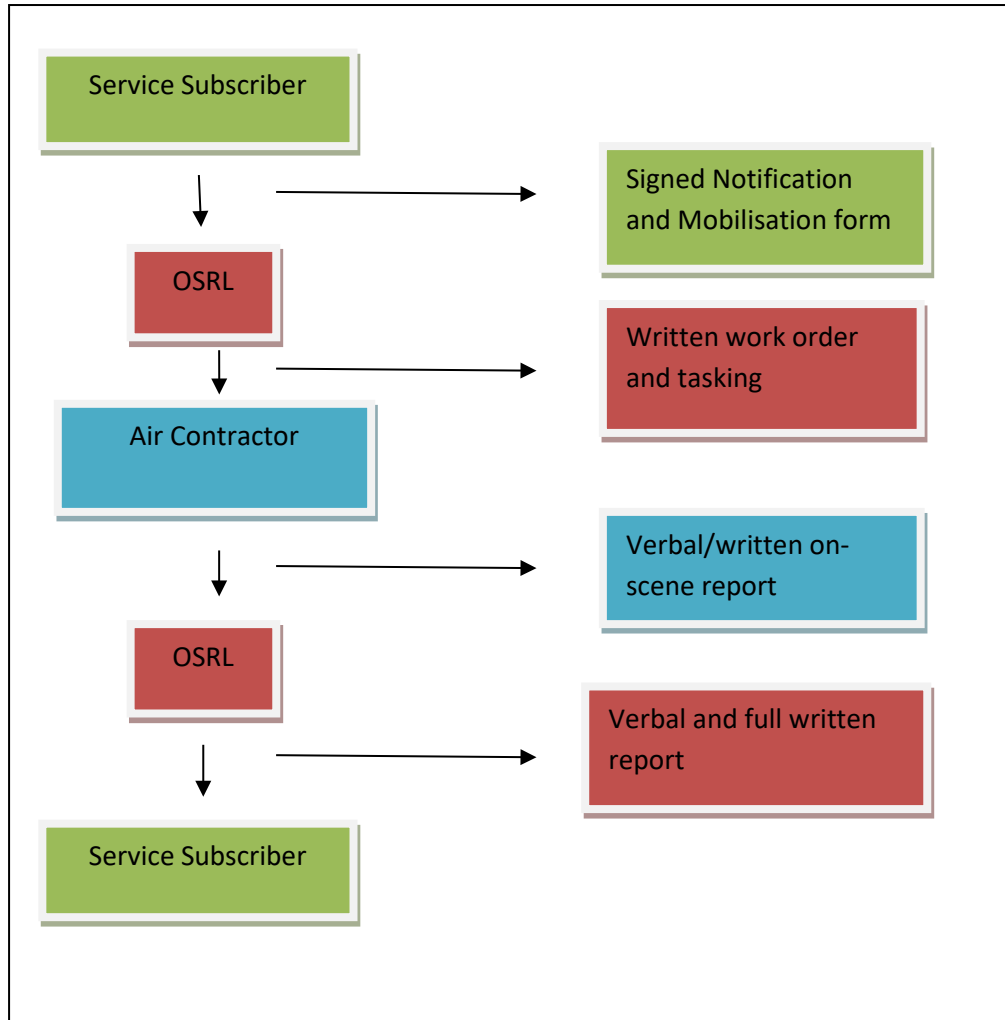


Figure 4: Graph showing the communication flow chart between the three parties

5. Fees

5.1 Annual fees

Annually the overall WASP costs are divided between the anticipated subscribers for that year. These costs are incurred whilst maintaining the service in a state of readiness to respond. Each year each subscriber declares the number of bands they require. The overall cost for the WASP service is divided by the total number of bands required by all subscribers. Each subscriber then pays for the number of bands they have requested.

- 1 band = one named country covered
- 2 bands = two named countries covered
- 3 bands = complete coverage across the West and Central Africa region

Band Calculation:

$$\text{Per band cost} = \frac{\text{Total cost (OSRL Costs and Contractor Costs)}}{\text{Total number of Bands}}$$

5.2 Mobilisation fees

Mobilisation fees are charged to cover the costs of a mobilisation. This includes scrambling fees, flying (block) hours¹ and stand-by fees for when the aircraft is mobilised to an FOB but is not actually required to fly. A full list of the mobilisation fees can be found in Appendix 1. In addition to the mobilisation fees the direct costs from a mobilisation (airport fees, refuelling, crew accommodation, etc) will also be passed to the mobilising service subscriber.

¹ Block hours are defined as the time interval between removal of the wheel 'blocks' before takeoff and replacement of those wheel blocks following landing.

6. Additional Information

6.1 Exercise flights

The aircraft is available for use on exercises at normal operating rates. No-notice and planned exercises utilising the aircraft are encouraged, as these 'test' country entry procedures, support crew competency and maintain communication links between subscribers, OSRL and the aircraft operator.

In the event of a potential incident an exercise would be cancelled as any developing incident would take precedence.

6.2 Table Top Exercises

During any table top exercise, the service subscriber can call through to the duty manager to get real time flight information to any platform/area within the West and Central Africa region. Data provided will be:

Flight Route:

Estimated time to scene (inclusive of any technical stops and crew rest):

Time on scene:

Time back from scene/to FOB:

6.3 Training

OSRL are responsible for the technical surveillance training of their aviation contractors as they perform the initial verification and quantification of oil on water. The training includes:

- The use of the BONN agreement
- Use of surveillance equipment
- The use of remote sensing in aerial surveillance
- Discrimination of false alarms
- Data management

The training is backed up with practice flights overseen by trained observers, exercises, and no notice drills to ensure their level of understanding of what is expected and their ability to produce the deliverables within the time frame agreed between OSRL and the contractor.

6.4 Further Information

Flying with additional observers

The aircraft operates under Special Operations (SPO); this allows the possibility of the carriage of a trained task specialist on board the aircraft on any surveillance flights. The carriage of the additional person may impact flight times dependent on incident location, weight restrictions may apply.

Multiple spills

In the event of multiple incidents occurring at the same time OSRL will make best endeavours to supply suitable aircraft although the WASP aircraft will be prioritised dependent on the incident details. OSRL will work in conjunction with the aircraft operator to come up with best possible solution to all parties.

Flight Hours Restrictions

The aircraft services are bound by the FTL (flight time limitation) as required by the aviation authorities. This limits the total number of flying hours per calendar day and may mean on a multi-day operation that crew may need to be exchanged or rested. Typical crew requirements are one days' rest on the seventh day in a seven day period and a further two days rest on the thirteenth and fourteenth day in a fourteen day period. The aircraft operator will make OSRL aware of the potential requirement for crew rest or changes. If crew changes are required to maintain services, the aircraft operator will make these arrangements passing the cost on to the service subscriber.

Extended Mobilisations

The contract allows for the primary aircraft to be contracted by one service subscriber for an incident. In the event of an extended mobilisation over days/weeks OSRL will endeavour to assist in identifying alternative platforms for use as required. This will allow the aircraft to be response ready for any subsequent mobilisations.

Appendix 1

Costs

In the event of a mobilisation fees will be charged in accordance with the OSRL Scale of Fees, these costs are:

- Response flights - applicable on days where flights are carried out - charged on an hourly basis (excluding fuel). Subject to a minimum charge of the daily standby fee
- Standby fee - applicable on days where flights are not carried out - charged on a daily basis

Direct operating costs will be charged as incurred to Members, including but not limited to fuel and handling charges.