

Letter of Agreement

Berry Hill Operations
Royal air Force Spadeadam

Between
and

GL Industrial Services UK Ltd

RELATING TO

**OPERATING PROCEDURES BETWEEN ROYAL AIR FORCE SPADEADAM BERRY HILL
OPERATIONS AND GL INDUSTRIAL SERVICES UK LTD RELATING TO DNV GL
OPERATIONS CONDUCTED WITHIN THE RAF SPADEADAM DANGER AREA EG D510B AND
WITHIN THE DNV GL SUBORDINATE DANGER AREA EG D510C**

Effective: 1 Aug 18

1 PURPOSE

1.1 The purpose of this Letter of Agreement (LoA) is to define the terms and conditions designed to ensure the safe conduct of DNV GL managed operations (which include controlled explosions, demolitions, gas and pipe fracture testing) conducted within the confines of the RAF Spadeadam Danger Area (EG D510B) during air operations, and within the DNV GL subordinate Danger Area (EG D510C) at all other times, and to mitigate any Air Safety risks arising to Tolerable and ALARP¹ levels.

1.2 This agreement is underwritten by the Airspace Owner, the Battlespace Management Force Commander and is managed by the RAF Spadeadam Station Commander and the DNV GL Operations Manager. Day-to-day administration is the responsibility of the RAF Spadeadam Senior Air Traffic Control Officer (SATCO) and DNV GL Operations Control personnel.

2 GENERAL

2.1 RAF Spadeadam.

- a. RAF Spadeadam is an Electronic Warfare Threat Training Facility (EWTTTF) which is established to provide world-class, operationally-representative Electronic Warfare (EW) training and trials facilities to UK and Allied personnel.
- b. RAF Spadeadam's Operation Squadron conducts Battlespace Management (BM) duties for the EWTTTF; this includes the provision of radar services to air systems using EG D510A/B/C and its surrounding airspace.
- c. RAF Spadeadam BM may also provide an air traffic service (ATS) to civilian and military air systems wishing to transit EG D510A/B/C during periods of inactivity, or traffic transiting close to the confines of EG D510A/B/C during operating hours.

2.2 Det Norsk Veritas Germanischer Lloyd.

¹ ALARP is the Defence Safety Agency acronym for As Low As Reasonably Practicable: the impact or likelihood of the risk cannot be reduced any further without excessive resource being applied.

a. Det Norsk Veritas Germanischer Lloyd (DNV GL) is a technical advisor to the global oil and gas industry. The company provides services within technical and marine assurance and advisory, risk management and offshore classification, to enable safe, reliable and enhanced performance in projects and operations.

b. DNV GL carries out research and technical service work on specific areas within EG D510B/C, following approval from Berry Hill Operations during EWTTF operating hours and within EG D510C via liaison with RAF Spadeadam Military Provost Guard Service (MPGS) when EWTTF activity has ceased.

3 RAF SPADEADAM (EG D510A/B) DANGER AREA DIMENSIONS

3.1 EG D510B dimensions are outlined in the UK AIP, and are as follows:

a. 55 15 00N 02 52 56W – 55 15 00N 02 39 51W – 55 04 53N 02 17 43W – 55 04 17N 02 17 17W – 55 02 06N 02 16 40W – 55 00 00N 02 27 52W – 55 00 00N 02 42 35W – 55 01 12N 02 44 53W – 55 15 00N 02 52 56W;

b. up to an altitude of 5,500' AMSL (occasionally activated up to 18,000' AMSL by NOTAM).

3.2 EG D510A dimensions are outlined in the UK AIP, and are as follows:

a. 55 15 00N 02 52 56W – 55 01 12N 02 44 53W – 55 09 00N 03 00 00W – 55 15 00N 02 54 00W – 55 15 00N 02 52 56W;

b. up to an altitude of 5,500' AMSL (occasionally activated up to 15,000' AMSL by NOTAM).

4 DNV GL (EG D510C) DANGER AREA DIMENSIONS AND OPERATING LOCATIONS

4.1 DNV GL (EG D510C) dimensions are a circle with a 1.5nm radius centred on:

a. 55 02 43N 02 35 26W;

b. up to an altitude of 18,000' AMSL.

4.2 DNV GL operates from 3 sites:

a. **Test Site East (Main Site; R5/Pad B).** 55 02 43N 02 35 26W.

b. **Test Site West.** 55 02 48N 02 36 58W.

c. **R8.** 55 01 58N 02 35 04W.

5 POSITIONS AND DEFINITIONS

5.1 **Spadeadam Controller.** The Spadeadam Controller is the Duty Air Traffic Control Officer (DATCO) on watch who is authorised to control air systems within the Spadeadam Area of Responsibility, including the passing of traffic information, agreeing coordination and controlling of transit or penetration of EG D510A/B/C.

5.2 **Spadeadam Support Controller.** The Spadeadam Support Controller (Spt ATCO) is a qualified ATCO operating in support of the DATCO and is authorised to conduct duties on behalf of the DATCO, including those at Para 5.1.

5.3 Spadeadam Operations Assistant. The Spadeadam Operations Assistant is a qualified Flight Operations Assistant (FOA) who is authorised to conduct routine operational liaison calls but not to pass or receive traffic information regarding air systems or to grant approval to transit or penetrate EG D510A/B/C. The FOA is only authorised to pass an approval for DNV GL to conduct activities that has been granted by a qualified ATCO.

5.4 Spadeadam Electronic Warfare Threat Director. The Spadeadam Electronic Warfare Threat Director (EWTD) is responsible for the control and management of all Electronic Warfare (EW) training and trials. The EWTD is not authorised to grant approval for DNV GL to conduct their operations when D510A/B/C is active, but must be briefed in order to ensure all EW ground personnel are informed.

5.5 Spadeadam Plans and Coordination Cell. The Spadeadam Plans and Coordination Cell (PCC) is responsible for the coordination of all long and short term activity including NATO and UK training, exercises and trials being conducted in D510A/B/C.

5.6 Spadeadam Military Provost Guard Service. The Spadeadam military Provost Guard Service (MPGS) platoon operates from the Main Guard Room on a 24/7 basis. MPGS personnel are to be contacted and informed of DNV GL activity when Spadeadam Operations is unmanned. MPGS personnel do not have access to ATC radar information and as such, they cannot guarantee that D510C is clear of air systems. MPGS personnel can provide information on ground personnel locations and activities, and make information tannoys to warn stn personnel.

5.7 DNV GL Operations Control. DNV GL Operations Control is responsible for the coordination of all DNV GL activity and will make formal requests to the DATCO for authorisation of activity via published landline telephone numbers. When Spadeadam Operations is unmanned, DNV GL Operations Control are to notify Spadeadam MPGS of activity within D510C.

6 DNV GL OPERATIONS CATEGORIES AND DEFINITIONS

6.1 DNV GL Explosive Definitions.

- a. **Small Explosion.** TNT equivalent is 30kg or lower.
- b. **Medium Explosion.** TNT equivalent is between 31kg and 100kg.
- c. **Large Explosion.** TNT equivalent is greater than 101kg.
- d. **Frag/No frag.** Whether any fragmentation would be disseminated as a result of an explosion.

6.2 DNV GL Explosion Categories.

- a. **Category 1.** No physical effect² outside of the DNV GL fence line to a height of 20m.
- b. **Category 2.** Physical effect to a maximum of 100m from the DNV GL fence line to a height of 150m.
- c. **Category 3.** Physical effect to a maximum of 300m from the DNV GL fence line to a height of 400m.

² Physical effect will include blast to 15mbar and fragmentation.

- d. **Category 4.** Physical effect to between 300m and 800m from the DNV GL fence line to a height between 400m and 1000m.
- e. **Category 5.** Physical effect to between 800m and 1300m from the DNV GL fence line to a height of between 1000m and 1300m.
- f. **Greater than Category 5.** Any test which falls outside of Category 5 parameters must be discussed with RAF Spadeadam ATC personnel to determine whether EG D510B is to be activated, and/or the airspace extended to 18,000' AMSL.
- g. **Containment of explosive testing.** In order to enable DNV GL to conduct explosive testing within the RAF Spadeadam range, the MOD is satisfied that all hazardous activity will be contained within the proposed new segment of airspace, or will be facilitated iaw Para 6.2.f. above.

7 PRINCIPLES OF OPERATION – AIRSPACE PROCEDURES

7.1 During EWTTF activity, EGD510A/B/C will be activated, with EGD510C being unavailable for demolition activities during flying operations. At all other times when EGD510C is required, it is to be activated by NOTAM by the FOA on behalf of DNV GL, with an entry made in the FOA logbook.

7.2 Where practicable, all DNV GL activity should be conducted when D510B/C is active and Spadeadam Operations is manned and able to mitigate any risk to air systems (military or civilian). In the event that there is no EWTTF traffic operating and Berry Hill Operations is closed, EGD510B and EGD510A are to be deactivated, and EGD510C activated by NOTAM and the airspace handed over to DNV GL with an entry in the FOA logbook.

7.3 The FOA is to liaise with the Notice to Airmen (NOTAM) office to ensure a NOTAM is issued to reflect that EGD510C is notified as active and under the control of DNV GL Operations; this NOTAM should reference that EGD510C is active from surface to an altitude not exceeding 18000ft AMSL and should include a contact number for DNV GL Operations.

7.4 DNV GL Operations Control is to:

- a. Ensure a NOTAM is issued via the NOTAM office when they are conducting any activity outside the guidelines emphasised at Para 7.3. This NOTAM is to include vertical restrictions, details of activity and a contact number.
- b. Liaise with Spadeadam Operations when testing is planned which would present a higher risk than can be resolved by the procedures in Para 7.4.a. A mutually agreed NOTAM will be requested by DNV GL and issued by the NOTAM office to ensure that all DA and surrounding airspace users are given appropriate warning. DNV GL Operations Control is to ensure the following email addresses are included in email correspondence to the NOTAM office:
 - i. [REDACTED]
 - ii. [REDACTED]
 - iii. [REDACTED]

- c. DNV GL exclusion zones³ differ for each type of test and a small blast may have a larger exclusion zone than a large blast depending on whether any fragmentation is produced. Explosive Health and Safety Testing Procedures are signed off for all tests and the exclusion zone is calculated from the possible test results. EGD510C dimensions have been designed to incorporate the largest exclusion zone, plus a safety buffer, to cover all routine testing. If an activity dictates a larger lateral or vertical exclusion zone, a NOTAM is to be issued to reflect the requirements for such activity, and EGD510B is to be activated to ensure the safety of air systems operating in the local area.

8 PRINCIPLES OF OPERATION – LIAISON PROCEDURES.

8.1 Liaison Meeting Procedures.

- a. RAF Spadeadam hosts a Station Monthly Brief [REDACTED], in [REDACTED] DNV GL is to send a representative to outline the upcoming month's activities, and any special requirements for coordinating such activity. If briefing slides are required, this can be arranged via the Spadeadam [REDACTED]
- b. RAF Spadeadam Operations staff conduct a Daily Brief, except when a Station Monthly Brief is held, in the [REDACTED] [REDACTED] DNV GL is to send a representative to outline the day's activities. In the event that a representative cannot be sent, a liaison call is to be made with the DATCO on [REDACTED] prior to the Daily Brief.
- c. RAF Spadeadam PCC is to host a monthly planning meeting⁶ in [REDACTED] to include DNV GL to coordinate and deconflict DNV GL activity from Spadeadam operations.
- d. RAF Spadeadam's Station Commander hosts an Air Safety Management Group (ASMG) every 6 months, in line with the RAF Spadeadam Air Safety Management Plan (ASMP). DNV GL is requested to send a representative to attend the ASMG to ensure any DNV GL associated Air Safety critical issues are captured, managed and mitigated, where necessary.

8.2 Planning Request Procedures. DNV GL Operations is to make a formal request via Spadeadam PCC in accordance with Para 8.1.c for all activity which affects air systems utilising EGD510B/C. For non-routine activity, or activity which is deemed of significant size or intensity and to be conducted outside of normal range operating hours, a formal written request is to be sent to Spadeadam OC operations at least one month prior to the proposed activity.

8.3 Daily Booking Procedures. The following procedures are to be adhered to:

³ Test exclusion zones do not normally cover the main road through the RAF site; however, when they do, the categories can be enhanced by an addition, such as, 'plus main road'. In such cases the main road will be closed and coordinated via Spadeadam Operations/MPGS.

⁴ Or as notified.

⁵ This is routinely Mon-Fri 0830 (local). When range activity times vary, for instance in support of night flying, all attendees will be notified by Spadeadam PCC of the relevant timings.

⁶ This is routinely on the first Wednesday of the month at 1000 (local). For ad hoc meetings or changes to routine timings, all attendees will be notified by Spadeadam PCC.

- a. **DA NOT ACTIVE (SPADEADAM OPERATIONS MANNED OR UNMANNED).** No DNV GL operations are to be conducted without appropriate airspace protection e.g. activation of EGD510C or EGD510B/C via appropriate NOTAM. The Airspace Operating Authority (SO1 Danger Area Airspace Manager) understands that certain DNV GL activity will take place outside of range opening times. In order to ensure any associated risks with DNV GL operations conducted outside of range opening hours are appropriately managed and mitigated, and that accountability for such activity is held at an appropriate level, the Head of Establishment (Station Commander, RAF Spadeadam) and Airspace Operating Authority (SO1 Danger Area Airspace Manager) must be notified. **At all other times, DNV GL must seek approval from Spadeadam Operations prior to conducting any activity.**
- b. **DA ACTIVE AND SPADEADAM OPERATIONS MANNED.** When EGD510B/C is active DNV GL Operations staff are to make all formal requests for clearance to conduct their operations to Spadeadam Operations, via the Spadeadam Operations Assistant via the published landline number.
- i. DNV GL staff are to make a warning call to Spadeadam Operations via the Spadeadam Operations Assistant 15, 5 and 2 minutes prior to each test, with details of whether there will be a Small/Medium/Large explosion, and whether there will be Frag/no frag. This information is to be forwarded to the DATCO or Spt ATCO, who will consult with the EWTD, if applicable, and ascertain if permission can be granted.
 - ii. The DATCO is to ensure no air systems overfly the DNV GL site until the test is complete. Air systems can be asked to hold outside the boundary of EGD510A/B/C if required. If there are no air systems on frequency the DATCO will confirm the area is clear of traffic, before granting permission for the test to be conducted.
 - iii. The DATCO is to make a transmission on all Spadeadam UHF and VHF ATC frequencies:

“Spadeadam all stations, there will be a small/medium/large explosion, from the industrial site south west of Berry Hill” (supplementary information as deemed necessary)

The DATCO is to request an acknowledgement from all air systems within EGD510A/B.
 - iv. The Spadeadam Operations Assistant is to make a transmission on the Station Tannoy System prior to DNV GL activity commencing, using the following format:

“Standby for broadcast from Spadeadam Operations: There will be a small/medium/large explosion with frag/no frag from the DNV GL site in the next XX minutes. No action is to be taken. End of broadcast.”
 - v. The EWTD is to make a liaison call to any ground personnel on the range using available communications.
 - vi. DNV GL Operations staff are to notify Spadeadam Operations immediately on completion of the test, in order to allow normal range operations to commence.

- vii. Test start and finish times are to be logged by the Spadeadam Operations Assistant in the FOA Logbook.
- c. **DA ACTIVE AND SPADEADAM OPERATIONS UNMANNED.** DNV GL Operations is to make all formal requests for clearance to conduct planned operations to MPGS via the Main Guard Room.
 - i. DNV GL Operations staff are to make a warning call to MPGS 15,5 and 2 minutes prior to each test, with details of whether there will be a small/medium/large explosion, and whether there will be frag/no frag.
 - ii. As MPGS personnel do not have access to the ATC radar display and, as such, cannot guarantee that the airspace is clear of air systems, DNV GL remains responsible for safeguarding against airspace infringements by unknown air systems.
 - iii. MPGS personnel are to provide DNV GL with information on ground personnel operating within the range. MPGS are to make a liaison call to ground personnel using all available communications prior to DNV GL activity commencing.
 - iv. MPGS personnel are to make a transmission on the Station Tannoy System prior to DNV GL activity commencing, using the following format:

“Standby for broadcast from the Main Guard Room: There will be a small/medium/large explosion with frag/no frag from the DNV GL site in the next XX minutes. No action is to be taken. End of broadcast.”
 - v. DNV GL Operations staff are to notify MPGS immediately on completion of the test.
 - vi. Test start and finish times are to be logged by MPGS in the Main Guard Room Logbook.

9 MISCELLANEOUS OPERATIONS.

9.1 **R8 Operations.** DNV GL operations at R8 generally require few restrictions to be placed on Spadeadam operations. During testing, the fenced area around the DNV GL facility at R8 will be closed off, and a red flag will be flown to indicate that testing is in progress; there is also an occasional requirement to close the area off for equipment calibration. The exclusion zone for R8 tests extends to a 150m radius (all inside the fenced off area) and a maximum height of 50m. The Spadeadam Operations Assistant will highlight any DNV GL R8 activity to the DATCO and EWTD to ensure that the area is not being used by ground personnel.

9.2 **Crane Operations.** If DNV GL require to use a crane or similar device on any site, DNV GL Operations staff are to liaise with Spadeadam Operations. Following consultation with the DATCO, a NOTAM may be issued.

9.3 **Pool Fires (burning fuel).** DNV GL Operations staff will notify Spadeadam Operations of any pool fires. This information will be relayed by the DATCO to air systems operating on the range as required.

9.4 **Remotely Piloted Air Systems.** DNV GL operate a commercial off-the-shelf (COTS) remotely piloted air system (RPAS) iaw CAA regulations; however, if there is a requirement to use

it for aerial photography or mapping whilst the DA is active, clearance is to be formally requested through the DATCO. DNV GL Operations staff are to notify the DATCO of the area, maximum height/altitude of RPAS operations, and start and end times of such activity. The DATCO reserves the right to hold the RPAS on the ground until other air systems are clear of the DA. Additionally, the DATCO can request any airborne RPAS to be grounded to facilitate EWTTTF air activity.

10 AIR SAFETY HAZARD ELEVATION

10.1 RAF Spadeadam is required to Duty Holder (DH) face all air safety hazards to the Delivery Duty Holders (DDHs) of air systems operating within the DA. Hazard(s) associated with DNV GL operations are to be raised on the RAF Spadeadam Air Safety Hazard Log (ASHL), and reviewed iaw the RAF Spadeadam Air Safety Management Plan (ASMP). To facilitate this, the RAF Spadeadam Air Safety Team is to ensure that regular two-way dialogue and face-to-face meetings are conducted with DNV GL Operations.

10.2 DNV GL Operations Control personnel are to be included in RAF Spadeadam Air Safety Management Group (ASMG) meetings, and provided with a copy of the latest ASMP and Air Command Academic Weapons and Electronic Warfare Range Orders (ACAWEWROs).

10.3 DNV GL Operations Control is to notify Spadeadam Operations immediately of any changes to current SOPs and may not conduct operations until the Air Safety Team has identified, mitigated and DH-faced any air safety hazards caused by the changes.

11 GENERAL PROVISOS

11.1 Any amendment to this LOA within the authority of the signatories will be the subject of prior consultation and agreement between all parties. Notwithstanding this, each signatory will do their utmost to observe the spirit of this agreement. This LOA is to be reviewed annually.

SIGNATORIES

[REDACTED]
[REDACTED]
Station Commander
RAF Spadeadam

DATE:

[REDACTED]
Site Operations Manager
GL Industrial Services UK Ltd
Spadeadam Test Site

DATE:

[REDACTED]
[REDACTED]
SO1 Danger Area Airspace Manager
For and on behalf of
Airspace Operating Authority

DATE:

[REDACTED]
Vice President Oil and Gas
GL Industrial Services UK Ltd
For and on behalf of
Det Norsk Veritas Germanischer Lloyd

DATE: