

Re-Licensing BAE Systems Devonshire Dock Complex

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EXECUTIVE SUMMARY

Assessment of Re-licensing Application by BAE Systems Marine Limited (Barrow)

This Report describes ONR's assessment of an application by BAE Systems Marine Ltd. (BAESML) to re-license the Devonshire Dock Complex.

Permission Requested

BAESML intends to enlarge the current nuclear licensed site in order to allow the construction of two new facilities at the north-western end of the site

Background

BAESML is currently upgrading its facilities and infrastructure. This programme includes the construction of two additional buildings, one of which is to be constructed on the current site boundary. This is to support the Dreadnought Submarine Programme. Any increase in the area of a nuclear licensed site requires re-licensing under the Nuclear Installations Act 1965.

Assessment and inspection work carried out by ONR in consideration of this request

ONR's assessment concentrated on the licensee's Leadership and Management for Safety capability and its Licence Condition Compliance Arrangements. BAESML's security of tenure for the additional land was also assessed.

Matters arising from ONR's work

The following areas where further work by ONR is required were identified:-

- Further assessment of the effectiveness of the Nuclear Safety Committee
- Monitoring of revisions to Safety Management Prospectus
- Inspection of arrangements for organisational learning
- Monitoring of Baselines development methodology
- Assessment of the training of Baseline staff

It is considered that none of the additional work has any direct relevance to the grant of a new nuclear site licence and can be followed up as part of normal regulatory business.

Conclusions

ONR's assessment supports the licensee's application for a new nuclear site licence for an enlarged site

Recommendations

1. A new nuclear site licence (42C) should be granted to BAESML
2. The new licence should be effective from 1st October 2018
3. The current nuclear site licence should be revoked by the coming into effect of the new nuclear site licence.

LIST OF ABBREVIATIONS

ALARP	As low as reasonably practicable
BSL	Basic Safety level (in SAPs)
BSO	Basic Safety Objective (in SAPs)
CNS	Civil Nuclear Security (ONR)
HOW2	(Office for Nuclear Regulation) Business Management System
HSE	The Health and Safety Executive
IAEA	The International Atomic Energy Agency
NDA	Nuclear Decommissioning Authority
NSC	Nuclear Safety Committee
ONR	Office for Nuclear Regulation
PCER	Pre-construction Environment Report
PCSR	Pre-construction Safety Report
PSA	Probabilistic Safety Analysis
PSR	Preliminary Safety Report
RGP	Relevant Good Practice
SAP	Safety Assessment Principle(s)
SFAIRP	So far as is reasonably practicable
SRP	Site Redevelopment Programme
SSC	Structure, System and Component
TAG	Technical Assessment Guide (ONR)
TOR	Terms of Reference
USP	Urgent Safety Proposal

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1 PERMISSION REQUESTED

1. The Licensee, BAE Systems Marine Limited (BAESML), applied to re-license the Devonshire Dock Complex at Barrow-in-Furness on 18th May 2018 (Ref. 1). The licensee also supplied a dossier of supporting evidence (Ref. 2).

2 BACKGROUND

2. The Devonshire Dock Complex is concentrated around the Devonshire Dock Hall (DDH) and comprises a number of facilities which support the construction of nuclear submarines for the Royal Navy in the DDH. The licensee wishes to carry out a programme of facility and infrastructure development to increase its future capability in readiness for the Dreadnought submarine programme. This Site Redevelopment Programme (SRP) will involve the construction of two new buildings, D58 and D59, at the north-western end of the site, partly on land which is outside the current nuclear licensed site (Ref. 23). This will require an expansion of the existing nuclear site boundary (see diagram at annex A to this PAR). Section 3(12) of the Nuclear Installations Act 1965 (NIA 1965) permits variation of nuclear site licences to remove areas no longer required for prescribed activities, but there is no provision for increasing the area of an existing site. Consequently, any addition of any new land to a nuclear licensed site requires the site to be re-licensed. The current nuclear site licence will have to be revoked under section 5(1) of NIA1965.
3. The development programme includes the construction of a new Devonshire Dock Quay (DDQ) to the east of the current licensed site. This will be used for commissioning new Dreadnought submarines. Section 1(1) of the Nuclear Installations Act includes an exemption for reactors comprised in a means of transport. Through a series of workshops exploring key legal definitions and interpretations It was accepted by ONR that the proposed scope of activities at the DDQ are restricted to operating and commissioning a reactor comprised in a means of transport and, as such, are not prescribed activities under NIA 1965. Should the duty holder propose changes to the scope of activities at the DDQ in the future, it would be for ONR to review whether or not they are licensable. Where the exemption to the NIA 1965 applies at the DDQ, submarine commissioning and operation will be authorised by the Defence Nuclear Safety Regulator and ONR will be the regulator for all the RSPs of HSWA in accordance with the H&S Enforcing Authority Regulations.
4. The current nuclear site licence (42B) was granted to Vickers Shipbuilding and Engineering Limited in 1990, the company was subsequently renamed BAE Systems Marine Limited in 1999, following its acquisition by BAE. The licensee has requested that the wording of schedule 1 be altered slightly from that in its current licence, in order to give a better description of the activities on the site (Ref. 24). The changes substitute “storage of nuclear fuel” for “storage of fuel elements” and “installing new reactor cores” for “installing new unirradiated reactor cores”. There will be no change to the prescribed activities.

3 ASSESSMENT AND INSPECTION WORK CARRIED OUT BY ONR IN CONSIDERATION OF THIS REQUEST

Background and Scope

5. BAESML is a mature licensee, with lengthy experience of constructing nuclear submarines at this site. The application does not include any additional prescribed activities; this allows ONR to adopt a proportionate approach, concentrating on the effect the increased area of the site will have upon the licensee’s control of the site and the suitability of its organisation and emergency arrangements to manage the new installations.

6. Referring to ONR's guidance (Ref. 4) and *Licensing Nuclear Installations* (Ref. 26), paragraph 100, we gained assurances on the quality of the Licensee's safety cases through reviewing the previous inspection ratings and a targeted intervention on LC13 focussing on the functioning of the Nuclear Safety Committee. In reviewing the development of the licensee's organisational structure we assessed their Management of Change processes and current change proposals, to gain assurances that we would be licensing a stable and suitable organisation. This approach is similar to that adopted for the re-licensing of Harwell in 2012, where a small enclave site was incorporated into the main site. There was no change to prescribed activities and ONR's assessment focussed on the licensee's organisational structure and licence condition arrangements to ensure they were adequate for the enlarged site (Ref. 25).
7. A programme of work has been undertaken by ONR inspectors to assess BAESML's current Safety Management Prospectus (SMP) and Organisational Capability for their suitability for the management of an enlarged site. BAESML's Licence Condition (LC) compliance arrangements have also been reviewed. The inspectors have prepared minor assessment notes which support this PAR (Refs. 18 & 19). The extension to the site required the acquisition of the land at the north-western end of the site; the licensee's security of tenure has been assessed as part of this application. BAESML has prepared a Post Re-licensing Implementation Plan (Ref. 3) as a part of the re-licensing dossier.
8. The BAESML SMP is a suite of documents (Ref. 20) which describe how the organisational structure meets the business's nuclear safety management needs. A proportionate approach was adopted; the Nuclear Safety Committee was observed and the SMP was sampled.
9. The LMfS inspector judged the level of challenge and process adherence displayed in the NSC to be requiring improvement. The NSC arrangements have recently been changed and they are currently in a 'bedding in period'. ONR should undertake further interventions on the effectiveness of the NSC as part of its ongoing regulatory intervention strategy, but this is not a pre-requisite for the grant of a new nuclear site licence (see paragraph 43.1).
10. BAESML has included an improvement programme as part of its submission which covers the need to update the SMP. This is due for completion 3 months after re-licensing. It is recommended that the revision is monitored to ensure consistency with ONR's guidance (Ref. 21), this again is not considered a pre-requisite for grant of a new nuclear site licence (see paragraph 43.2).
11. The submission on organisational learning was sampled. The documents (Ref. 20) provide a framework for learning from internal events rather than organisational learning. This predominantly covers learning from events at Barrow and learning from industry generally. The LMfS inspector judged that the arrangements are adequate for relicensing. Areas not covered are leadership by the board and development of a culture to support a learning environment. Further interventions under LC7 (Incidents on the Site) to include organisational learning should be considered by ONR (see paragraph 43.3).
12. The LMfS inspector reviewed prior inspection findings where ONR had been working with the licensee to improve the quality of the Barrow baseline. The LC36 inspection showed BAESML had produced a support staff baseline which, although not complete, does cover staff with a significant impact on nuclear safety. It was noted that the governance arrangements for this capability are robust. ONR accepts that the BAESML baseline includes those posts which have an immediate effect on nuclear safety; some operational posts are not included in the baseline, but the post holders are in place. This is not a bar to re-licensing, further development of the baseline is necessary (see paragraph 43.4).

13. BAE's methodology for producing its baseline statement and assessments was examined. The current standard template is being replaced; its replacement will track vulnerabilities through to action completion. The LMfS inspector judged the arrangements as adequate for relicensing. ONR should consider monitoring the effectiveness of the new template, post re-licensing.
14. The LMfS inspector identified a number of potential shortfalls relating to LCs 10 (Training) and 12 (Duly Authorised and Experienced Persons). These were judged not to be significant for relicensing. Some safety related posts had been filled by staff from non-nuclear backgrounds; this was to be managed under LC 10 and 12 arrangements. Inspection under LCs 10 and 12 should be considered, post relicensing (see paragraph 43.5).
15. Overall, the LMfS inspector is satisfied that that BAESML have made an adequate demonstration that its SMP and Organisational capability are suitable for re-licensing.

Licence Condition Compliance Arrangements

16. The site inspector has undertaken a review of the Licence Condition (LC) compliance arrangements as set out within ONR's licensing guidance (Ref. 4). This review considers the adequacy of arrangements that BAESML has in place for demonstrating compliance with the 36 LCs, and their overall compliance history. Greater focus has been applied to the review of LC11 (Emergency Arrangements) and LC35 (Decommissioning) as outlined in ONR's guidance (Ref. 4).
17. To support the DREADNOUGHT programme there is a significant re-development project underway across the site. It is this work that has driven the re-licensing request to extend the site boundary at the North end of the site. We agree with the licensee's assessment that the change to the licensed boundary does not impact on extant activities or require changes to the existing LC arrangements.
18. BAESML's internal regulator has undertaken assurance work in direct support of the re-licensing work. This has increased our regulatory confidence in the quality of work undertaken by the licensee to prepare itself for re-licensing. This work is discussed below.

Assessment of Licence Condition Compliance Arrangements (LCCAs)

19. As the changes to the BAESML licensed site are small, the only variation to the extant LCCAs is the arrangements for the marking of the site boundary (LC2), which will be updated to reflect the new site boundary. Arrangements for the other LCs will be transferred across to the new site licence.
20. A high level review of licence condition compliance inspections for the previous two years (August 2016 to August 2018) was undertaken by the site inspector. Where shortfalls were identified with compliance arrangements, regulatory issues were raised and continue to be managed through routine engagement with the site. Whilst progress against regulatory issues has taken time, ONR has confidence that the action plans that BAESML has developed will address the shortfalls. Based on the improvement plans that BAESML has in place, and the progress that continues to be made against those plans, LC compliance is judged to be acceptable for relicensing.

LC2 – Marking of the Site Boundary

21. As part of the re-licensing request BAESML produced a revised site map (Ref. 5) showing the boundary of the new licensed site. The proposed boundary was walked down with a member of BAESML INA (Ref. 6) and was found to accurately reflect the site drawing. At the time of the walk-down a temporary site fence was in place marking

the proposed licensed site boundary. The final site fence will be established upon completion of on-going work associated with SRP.

LC13 - Nuclear Safety Committee Terms of Reference and Urgent Safety Proposals

22. In 2017 BAESML conducted a Licence Condition 13 improvement programme. This culminated in BAESML writing to ONR requesting 'Approval' of revised nuclear safety committee (NSC) terms of reference (ToR) (Ref. 7), and urgent safety proposals (USP) (Ref. 8). ONR's assessment of the proposed NSC ToR and USPs is reported in ONR-OFD-PAR-17-012 (Ref. 9). The ONR assessment considered the entirety of the revised NSC ToR to ensure their overall compliance with the requirements of LC13. Specific attention was applied to the two sections with the most significant changes:
- Section 5: Relevant Business.
 - Section 6: Urgent Safety Proposals.
23. The assessment concluded the revised NSC and USP arrangements were adequate in demonstrating compliance with ONR guidance (Ref. 10), and satisfied the requirements of LC13. It was also concluded that the revised arrangements had been subject to appropriate governance and endorsed by the extant NSC. Two licence instruments (LI517 and LI518) were issued 'Approving' the revised NSC ToRs and USP respectively.
24. In addition, an ONR leadership and management for safety (LMfS) specialist inspector observed the July 18 NSC. This was the first NSC to be conducted under the new ToR (Ref. 11). The focus was on the functionality and behaviours of the Committee to ensure nuclear safety is prioritised as part of this key governance process.
25. The LMfS inspector judged that there was a lack of challenge and discussion related to safety throughout the meeting from most of the members, with the exception of the independent member, the meeting Chair and the Safety Case Manager. The observations will be taken forward as part of routine business see paragraph 43.1.

LC35 – Decommissioning

26. ONR expects (Ref. 12) the licensee to have a clearly documented strategy that demonstrates that all redundant, operational and proposed plant will be decommissioned safely at end of life. The strategy should consider options and timescales for decommissioning the facility, and the end-state after completion of all decommissioning activities.
27. ONR last inspected against LC35 on 23 May 2017 (Ref. 13) in anticipation of BAESML's re-licencing application. The inspection was rated GREEN against the regulatory expectations of ONR Decommissioning Guidance (Ref. 12). At the time of the inspection the BAESML decommissioning plan reflected the current stage in the site's lifecycle, and identified volumes of waste and outline costs. The level of detail held within the plan was considered adequate, noting that the SRP work had not yet been included. New facilities created during SRP were planned to be added during the next update to the decommissioning plan.
28. Overall ONR concluded that BAESML's arrangements for compliance with LC35 have been effectively implemented on the site as far as is practicable, considering the stage in the life cycle of the site and the overall risk posed by the site in respect of radioactive inventory. The new buildings to be constructed under the SRP will be added to the decommissioning plan when it is updated.

LCCA-related Regulatory Issues on the ONR Issues Database

- 29. As of August 2018 there are 30 regulatory issues associated with BAESML. These have been reviewed with BAESML recently and are being actively managed.
- 30. As a result of the review ONR did not identify any regulatory issues that require resolution prior to re-licensing.

BAESML Internal Readiness

- 31. In order for BAESML to understand how well it is complying with the LCs, a comprehensive 'Compliance Dashboard' is maintained by the Nuclear Safety and Regulation Department (NSRD). ONR sampled a number of the monthly dashboard reports (Ref. 14) and discussed the process with the Head of Internal Regulation (Ref. 15). The Compliance Dashboard is presented as a 'Red – Amber - Green' summary table supported by detailed analysis. Within the Dashboard each LC is underpinned by a 'Compliance Index'. From this, NSRD Advisors, Owners and Sponsors can understand the basis for assessment and target improvement activity accordingly.
- 32. LC Owners, Sponsors and other stakeholders may provide additional evidence, challenge evidence or dispute the Compliance Index rating assigned. Unresolved disputes are resolved through escalation to the Head of Engineering (Nuclear Safety Regulation) and/or the Nuclear Safety & Security Director as required. They are also reviewed by the licensee, internal regulator and ONR as a part of the Annual Review of Safety.
- 33. The dashboards seen (April – August 2018) reflect a relatively static position over the past 6 months. Eight of the LCs currently hold an Amber rating (LCs 7, 14, 19, 22, 25, 26, 28 and 36). It is noted that the INA Amber ratings reflect shortfalls that are currently captured within ONR regulatory issues. BAESML has improvement plans in place for these shortfalls and is working to address them. The site inspector judges that the improvement plans are satisfactory and can be reviewed through our planned interventions and that it is appropriate to grant a nuclear site licence.
- 34. Overall ONR concluded that there is an adequate level of detail and challenge provided by the monthly dashboard approach. Whilst there are differences between the LC ratings assigned by BAESML and ONR; these are minimal and understood.

Licence Instruments

- 35. BAESML has assisted ONR by preparing a list of extant Licence Instruments associated with the existing licence, which has been reviewed by the licensing team. The following approvals are to be carried forward to the new licence using Schedule 3.

Licence Instrument No.	Date	Subject	Licence Condition
516	1 Feb 2017	Approval: Site Emergency Plan NSRD/GR04-002	11(3)
517	4 Jun 2018	Approval: Nuclear Safety Committee Terms of Reference	13(3)
518	4 Jun 2018	Approval: Arrangements for Consideration of Urgent Safety Proposals	13(11)

In addition, a Specification (LI 504, dated 14 December 2007) issued under LC 25(4), relating to Highly Active Sealed Sources, will be carried forward using paragraph 5 of the new licence.

Consultation with the Environment Agency

36. The Nuclear Installations Act places a statutory obligation on ONR to consult the appropriate environment agency before granting a nuclear site licence. ONR has consulted the Environment Agency concerning this application. The Environment Agency has confirmed that granting a nuclear site licence will not prejudice any legal process under the Environmental Permitting Regulations 2016 (Ref.17)

Public Body Notification

37. ONR has a discretionary power under section 3(4) of the Nuclear Installations Act to direct a licence applicant to serve notice on certain public bodies local to the site. This is to ensure that local public bodies have an opportunity to comment and to suggest anything which ought to be provided for in the conditions attached to the licence. ONR concluded that public body notification would not be appropriate in this case because:
- a) No change is proposed in the prescribed activities
 - b) There will be no changes to the duties of local authorities or impact on local infrastructure

Security of Tenure

38. Expansion of the physical area of the site is the trigger for re-licensing. BAESML wishes to construct two new buildings to support the construction of new nuclear submarines. The ownership of land for the site is shown on the map provided by the licensee in its application dossier (Ref. 2). The licensee either owns the freehold, or leases land from Associated British Ports (ABP). Most of the land required for the construction of buildings D58 and D59, in the area which is to be added to the licensed site, is already leased from ABP under BAESML's current lease. BAESML owns the freehold of the land required for expansion of the site boundary to the west. A small parcel of additional land at the north-western edge of the site has been purchased from Barrow Borough Council (Ref. 16). A Licence for Alteration (Ref. 17) has been negotiated between BAESML and ABP to allow the creation of a construction enclave and for construction of buildings D58 and D59. The licence has a term of 56 months. The licence does not affect the terms of BAESML's lease, there is no effect upon BAESML's security of tenure.
39. BAESML will either own the freehold, or have a long-term lease in place, for the whole of the expanded site at the time of re-licensing.

Nuclear Liability Cover

40. Section 19(1) of the Nuclear Installations act requires that a nuclear site licensee makes provision (by insurance or other means) for cover for its liabilities. Cover for BAESML is provided by government indemnities (Ref. 22).

Security

41. Defence activities are outside the scope of ONR's security purpose and the Nuclear Industry Security Regulations 2003.

Site Map

42. The licensee has produced a new site map (Ref. 5) showing the new, post-relicensing boundary. The site boundary has been walked and the inspector confirms that the boundary shown on the map is correct. At the time of re-licensing, the complete boundary is not fully marked in accordance with LC2. A construction enclave to enable the construction of buildings D58 and D59 currently straddles the site boundary. The enclave is managed as though it were part of the licensed site, as previously agreed by ONR (Ref. 23). When construction is completed, the enclave will be removed and the boundary marked as required by LC2. This is covered in the licensee's post-relicensing implementation plan.

4 MATTERS ARISING FROM ONR'S WORK

43. Whilst there are no recommendations that preclude the grant of a nuclear site licence, there are recommendations arising which should be considered for integration into future interventions with the site and the relevant regulatory issues raised:
1. Assessment of the NSC to ensure it is providing a robust challenge with respect to nuclear safety, meeting protocols are followed and the minutes are representative of the meeting.
 2. Monitoring of revised SMP.
 3. Inspection of LC7 arrangements, to include organisational learning
 4. Monitoring of development of BAESML Baselines using new assessment methodology.
 5. Inspection of LC 10 and 12 arrangements to ensure nuclear safety requirements are included in nuclear baseline post profiles.

5 CONCLUSIONS

44. The LMfS inspector has concluded that BAESML's submission is consistent with the key principles identified in T/AST/072 and T/AST/048. The SEMP and organisational capability documentation provide an adequate demonstration that BAESML's systems, structures and capability are suitable for re-licensing.
45. The Licence Condition Compliance inspector has completed his work and has concluded that BAESML's compliance arrangements are sufficient and have been adequately implemented. No regulatory issues which require resolution prior to re-licensing have been identified.
46. The site licensing specialist has reviewed BAESML's security of tenure and has concluded that it continues to ensure BAESML's continued occupation of the site.
47. The recommendations arising from these assessments support a decision to grant a new nuclear site licence to BAESML.
48. A new site licence has been prepared in accordance with NS-PER-IN-004 "The Processing of Applications for Replacement Licences for Existing Nuclear Sites" (Ref.4). The draft has been reviewed and annotated by the Government Legal Department (Ref. 27). The licensee has confirmed that it is factually correct (Ref. 28).

6 RECOMMENDATIONS

49. Based on the application from BAESML and the findings set out in sections 1 to 4 of this report it is recommended that:

- a) A new nuclear site licence (No. 42C) should be granted to BAESML in respect of the Devonshire Dock Complex.
- b) The nuclear site licence should come into force on 1st October 2018.
- c) The current nuclear site licence (No. 42B) will be revoked by the coming into effect of the new nuclear site licence.

REFERENCES

1. Application Letter from BAE systems Marine Ltd, 16 May 2018 (TRIM: 2018/281076)
2. Re-Licensing Supporting Evidence Dossier (TRIM: 2018/281077)
3. BAESML Implementation Plan for Re-Licensing and Re-Authorisation (TRIM: 2018/279581)
4. ONR Guidance, "The Processing of Applications for Existing Licensed Nuclear Sites" NS-PER-IN-004
5. Site Map for NSL 42C (TRIM: 2018/280157)
6. Contact Record, ONR-OFD-CR-18-372, Aug 2018 (TRIM: 2018/276777)
7. Request Letter from BAESML, LC13(3), Nuclear Safety Committee Terms of Reference (TRIM: 2018/181092)
8. Request Letter from BAESML, LC13(11), Arrangements for Urgent Safety Proposals, (TRIM: 2018/90913)
9. ONR PAR ONR-O-F/D-PAR-17-012 (TRIM: 2017/399002)
10. ONR Guidance, LC13, NS-PER-GD-013
11. Contact Record, ONR-OFD-CR-2018/248446
12. ONR Guidance, LC 35, NS-INSP-GD-035
13. Intervention record, 23 May 2017 (TRIM: 2017/214277)
14. BAESML LC Compliance Dashboards (TRIM: 2018/271063, 2018/271068, 2018/271071, 2018/271073)
15. Contact Record CR-18-372, Aug 2018, (TRIM: 2018/276777)
16. Land Registry documents, purchase of land from Barrow Borough Council, 2018/300364.
17. Environment Agency Consultation and response (TRIM: 2018/274967 & 2018/300902)
18. LMfS Assessment Note (TRIM: 2018/298619)
19. LC Compliance Assessment Note (TRIM: 2018/271082)
20. BAESML safety management Prospectus (TRIM: 2018/281076)
21. NS-TAST-GD-072, Function and Content of a Safety Management Prospectus
22. Confirmation of indemnity (section 19, Nuclear Installations Act 1965)
23. Control of Construction of New Facilities (TRIM: 2016/32996)
24. Nuclear Site Licence 42B, 29 October 1990 (TRIM: 2011/643397)
25. PAR, Re-licensing RSRL Harwell to include GE Healthcare Building 443.26 (TRIM: 2012/145850)
26. Licensing Nuclear Installations (ONR, 2015)
27. Government Legal Department review of Nuclear Site Licence 42C.
28. BAESML's factual check of Nuclear Site Licence 42C.

