



Office for Nuclear Regulation (ONR) Quarterly Site Report for Urenco UK Limited Capenhurst

Report for period 1 July – 30 September 2015

Foreword

This report is issued as part of ONR's commitment to make information about inspection and regulatory activities relating to the above site available to the public. Reports are distributed quarterly to members of the Urenco UK Limited Local Liaison Committee and are available on the ONR website (<http://www.onr.org.uk/llc/>).

Site inspectors from ONR usually attend the Urenco UK Limited Local Liaison Committee meetings and will respond to any questions raised there. Any person wishing to inquire about matters covered by this report should contact ONR.

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1 INSPECTIONS

1.1 Dates of inspection

The ONR Site Inspector and other ONR Inspectors conducted interventions at Capenhurst on the following dates during the quarter:

July	2, 8, 15, 17, 22 & 29
August	6, 13, 19, 27 & 28
September	3, 9, 16 & 17

2 ROUTINE MATTERS

2.1 Inspections

Inspections are undertaken as part of the process for monitoring compliance with:

- the conditions attached by ONR to the nuclear site licence granted under the Nuclear Installations Act 1965 (NIA65) (as amended);
- the Energy Act 2013
- the Health and Safety at Work Act 1974 (HSWA74); and
- regulations made under HSWA74, for example The Ionising Radiations Regulations 1999 (IRR99), The Construction (Design and Management) Regulations 2007 and The Management of Health and Safety at Work Regulations 1999 (MHSWR99).

The inspections entail monitoring licensee's actions on the site in relation to incidents, operations, maintenance, projects, modifications, safety case changes and any other matters that may affect safety. The licensee is required to make and implement adequate arrangements under the conditions attached to the licence in order to ensure legal compliance. Inspections seek to judge both the adequacy of these arrangements and their implementation.

In this period, routine inspections of the Urenco UK Limited licensed site covered the following:

Nuclear Safety Case.

Nuclear safety cases are in place for the enrichment facilities at Capenhurst. Nuclear safety cases are kept live by short term reviews, with a full periodic review by the licensee, typically every ten years. The licensee has been engaged in consolidating the nuclear safety case for an enrichment facility, which was commissioned in stages over a number of years. Consequently, the extant safety case for one enrichment facility was also implemented over a number of years. The licensee is consolidating this enrichment facility safety case into a single, consistent nuclear safety case for the entire facility. Aspects of the licensee's methodology and modern standards for producing nuclear safety cases have been subject to extensive recent discussions between the licensee and ONR specialist inspectors, (primarily relating to the emerging Tails Management Facility safety cases, but with implications for the licensee's current review of the enrichment facility safety cases). ONR specialist inspectors have provided regulatory advice to the licensee, which has resulted in the licensee reviewing aspects of the safety case production arrangements. This has resulted in some significant slippage to the licensee's planned timetable for periodic safety case reviews, discussed with the nominated site inspector. The licensee has proposed a broadly acceptable revised

programme for the periodic review of safety cases, which will incorporate recent developments in safety case methodology. Pending the production by the licensee of periodically reviewed safety cases, some interim safety cases in the form of “justifications for continued operation” of the enrichment facilities at the site have been and are being compiled by the licensee. The initial interim safety case for one of the enrichment facilities was sent to ONR in July 2015. It was noted that the licensee is maintaining good progress in promptly implementing the engineering improvements arising from the review of the nuclear safety case.

Planned system inspection, jointly with the Environment Agency, of the containment of radioactive materials on part of the licensed site leased to the Capenhurst Nuclear Services Limited tenant organisation.

On 27 August, I conducted a planned system inspection, accompanied by an ONR specialist project inspector and two nuclear regulators from the Environment Agency. The focus of the system inspection was the containment of radioactive material on the part of the licensed site leased to the Capenhurst Nuclear Services Limited (CNS) tenant organisation.

The licensee explained how training was managed and the forthcoming enhancements to the training arrangements. The training records subsequently sampled during the plant inspection of the uranic residue storage areas were of a good standard. The licensee adequately demonstrated the arrangements for the implementation of the extant safety case, as it applied to the containment of radioactive materials, predominantly solid, (with some liquid), uranic residues, which were generally in the Low to Very Low Level radioactive waste categories. Good progress continues to be made with the timely disposal of the broad range of legacy low level radioactive waste materials from the site. A number of the tenant organisation’s arrangements for implementing licence conditions were reviewed. It was noted that, of those inspected during this system inspection, the company instructions had been very recently revised. Programmes to implement the arrangements were discussed, with an acceptable outcome. Regulatory advice was provided, relating to some shortfalls observed in the bunding containment of very low level liquid radioactive wastes, which could affect the containment of such waste, in the event of leakage of the liquid waste storage containers, together with the need to replace some roofing material. Adequate arrangements were being implemented to inspect the containment of legacy “Hex Tails” cylinders, this matter receiving due attention from the CNS tenant organisation.

I concluded that on the basis of this joint system intervention, with the Environment Agency, that the licensee and the CNS tenant organisation were able to adequately demonstrate the implementation of the safety case for the containment of radioactive materials. Regulatory advice was provided to the licensee and to the CNS tenant organisation, to address some minor shortfalls observed during the intervention.

Emergency Arrangements.

On 17 September, a team of ONR inspectors observed a Level One (‘on site’) emergency exercise. The scenario was based on a release of uranium hexafluoride gas from within an enrichment facility. Aspects of the licensee’s emergency response, including effective cooperation between the ‘on site’ and local authority fire and rescue services, were demonstrated to an acceptable standard. Mustering of the entire site was demonstrated, including the large number of personnel working on the Tails Management Facility (TMF) construction site. I concluded that this was an adequate demonstration of the ‘on site’ emergency arrangements.

Regulatory liaison meetings with the licensee and the Capenhurst Nuclear Services Limited tenant organisation.

On 15 July and 16 September, regulatory liaison meetings were held between the regulators, the licensee and the Capenhurst Nuclear Services Limited tenant organisation, at which regulatory advice was provided. At the meeting on 15 July, the licensee was considered to be adequately addressing the control of leakage of radioactive materials, as well as implementing

plans for the disposal of redundant radioactive sources. The meeting on 16 September enabled me to review both the licensee's and then CNS tenant's progress with decommissioning projects on the site, including the proposed completion of remediation of the part of a lightly contaminated area of the licensed site, by March 2016. Significant asbestos remediation projects are progressing satisfactorily, as were the inspections by specialist contractors of the ageing '0236 type' "Legacy Hex Tails" cylinders. I also reviewed safety performance metrics, which I considered were acceptable. Regulatory advice was provided across a range of matters, where the licensee agreed to address some minor shortfalls, exemplified by the need to improve the training attendance by the plant based 'auxiliary fire fighters'. Acceptable progress was reported with the timely implementation of tangible nuclear safety improvements, derived from the ongoing review of the safety cases, as part of the current "justification for continued operation" safety case periodic review process.

Leadership and Management for Safety.

An ONR specialist inspector for Leadership and Management for Safety conducted site interventions on 15 July and 19 August. The first intervention was to review aspects of the licensee's implementation of licence condition 36 organisational capability arrangements, as applied to changes to the leadership of a tenant organisation, (Urenco ChemPlants Limited, (UCP), constructing the Tails Management Facility), with an acceptable outcome. The second intervention was to review safety cultural issues, recently measured in a staff survey, by the licensee and both of the major Capenhurst tenant organisations. This regulatory intelligence informs the ONR regulation of the licensee. On 17 July, I observed the licensee's use of an event run by an external training contractor, to develop discussions amongst the workforce on safety culture matters, with a positive outcome. On 9 September, a specialist inspector conducted an intervention to assess aspects of the safety culture, on the part of the site operated by the CNS tenant, interviewing a range of CNS staff, assisted by the CNS safety representatives. This identified some good practices and areas for improvement, the majority of which were recognised by the CNS tenant organisation management. On 16 September, a specialist inspector provided regulatory advice, at a meeting with the licensee's Head of Technical Services, regarding ongoing improvements to enhance the licensee's 'design authority', engineering and project management capability.

Safety Case for the Tails Management Facility, (TMF).

ONR assessment of the TMF Pre-Commencement Safety Reports is progressing, with continuing interactions between the ONR specialist inspector assessment team and the licensee, regarding several aspects of the nuclear safety case. At this stage, the licensee has yet to make an adequate nuclear safety case.

ONR's priority remains to complete its assessment in support of its decisions on (a) whether to grant permission for Mechanical, Electrical and Instrumentation equipment installation, in vaporisation (b) how to pursue its concerns relating to TMF's deconversion stage. ONR's remaining issues on nuclear safety are criticality safety and faults leading to hex releases from autoclaves and kilns.

The meeting on 16 April had concentrated on the chemotoxic risks from faults in the autoclaves and kilns. ONR followed this with a meeting about the radiological risks, on 30 April at Capenhurst. At that meeting ONR's starting position had been that the safety system protecting against the fault sequence that leads to an autoclave being wrongly opened when full of leaked uranium hexafluoride was of lower integrity than ONR would expect, given the assessed high radiological consequence of this fault. At this meeting, ONR agreed to accept a good 'Class Two' system and ONR asked for the evidence that this would be provided. ONR is now considering that evidence. Overall, ONR remained of the view that the safety case, as initially presented, and as periodically supplemented, was poor. However, with respect to the proposed autoclaves, ONR had concluded that the proposed design and safety

provisions were better than the safety case had suggested. As regards the proposed kiln operations, ONR remained of the view that requiring the operator to be in the vicinity of the kiln when it was operating was contrary to the ALARP principle, (i.e. risks being “as low as reasonably practicable”).

During the quarter, ONR had also inspected fire safety, organisational change and mechanical engineering. ONR has expressed reservations to the licensee that some organisational changes within the UCP tenant were being made before the relevant safety justification had been completed, contrary to the licensee’s arrangements under Licence Condition 36.

In summary, ONR has completed its assessment of the Pre-Commencement Safety Reports (PCSRs) associated with the TMF, and has concluded that in some areas of TMF design the risks to the operator have not been reduced “so far as is reasonably practicable”, (SFAIRP). This judgement is being discussed with the licensee to establish what improvements may be required. ONR considers it is likely that some of the regulatory concerns can be addressed by the licensee before active commissioning is started in 2016/7 and ONR will continue to influence the licensee to establish what improvements are required, before important safety related equipment is installed and commissioned.

Safety Case for the Legacy Cylinder Facility (LCF).

A significant new nuclear facility, the Legacy Cylinder Facility, is planned to be constructed and operated by the Capenhurst Nuclear Services Limited tenant organisation, on the Urenco UK Limited licensed site. The facility is currently being designed. The purpose of this facility is to decant and purify the contents of the Legacy “Hex Tails” (uranium hexafluoride) into modern transport containers. The uranium hexafluoride contents will then be transported to the Tails Management Facility, (currently under construction) for deconversion to a more stable, less hazardous, oxide powder form of uranium, U₃O₈. There is a commitment to commence the deconversion of the Legacy “Hex Tails” uranium hexafluoride by 2020 at <http://www.nda.gov.uk/publication/storage-strategy-for-nda-owned-uranium-hexafluoride-tails-2010/>. In order to prepare for the construction of the Legacy Cylinder Facility, a number of old uranium hexafluoride transport cylinders will need to be relocated to different storage rafts on the licensed site. The outline of the proposed safety case for the lifting and transfer of these old transport cylinders was discussed with the licensee at a meeting on 29 July and it was agreed that the transport cylinder transfers could proceed, subject to the implementation of an adequate safety case, which has been produced by the licensee and subject to the licensee’s due process for implementation,

Compliance inspection of the Licence Condition 19 arrangements for the construction or installation of new plant.

On 29 July and 28 August, a specialist project inspector conducted a planned intervention, to inspect the licensee’s arrangements and their implementation, for the construction or installation of new plant. In judging compliance, I first examined the adequacy of the arrangements that the licensee had made to control construction and installation. I then examined some aspects of how these arrangements were implemented. They included: how construction and installation had been divided into stages and how the transition from one stage to the next was regulated and authorised; how the design of the plant was controlled; how the licensee controlled and supervised the Urenco ChemPlants Limited tenant organisation. I found evidence of good practice, as well as parts of the arrangements that lacked clarity or rigour and which therefore needed to be improved. Overall, I found adequate compliance with Licence Condition 19. The licensee has begun a review of some of its arrangements, which should rectify the deficiencies referred to above. I found no issues that significantly affected nuclear safety, or that required me to take further regulatory action.

ONR Safeguards Programme.

There have been three routine safeguards inspections (Joint Euratom / IAEA) at the licensee's enrichment facilities during this quarter. Further to these, there have been two 'Limited Frequency Unannounced Access' (LFUA) Inspections (one 'Type 1', triggered during routine inspection and one 'Type 3' (IAEA only, called outside of routine Inspection). Any issues that have arisen have been satisfactorily addressed.

COMAH regulation.

Capenhurst will become an 'upper tier' COMAH site, when the relevant quantities of designated materials are introduced in to the Tails Management Facility, which is currently under construction on the licensed site. COMAH is regulated by the 'joint competent authority' of ONR and the Environment Agency. The COMAH 2015 Regulations (The Control of Major Accident Hazards Regulations 2015) were implemented on 1 June and regulatory advice continues to be provided to the site, to advise the site of the requirements necessary to comply with COMAH 2015.

Conventional Industrial Safety inspections.

The ONR investigation into the live 11 kV cable strike event has been progressed during this quarter.

A specialist conventional fire safety inspector conducted two site interventions in this period. On 6 August, the licensee's progress with implementing the "Fire Safety Improvement Plan" was inspected. (This plan had been produced in response to regulatory advice, following shortfalls identified in a fire safety inspection of October 2014, initially followed up by an ONR inspection in January 2015). The plan addresses shortfalls across a broad range of fire safety matters, including emergency lighting, fire alarms and fire risk assessments. Regulatory advice was provided to the licensee regarding the importance and prioritisation of matters to be addressed within the improvement plan, the implementation of which will continue to be monitored by the specialist inspector. On 13 August, a site inspection was conducted of parts of the Tails Management Facility construction site, primarily to inspect the implementation of the fire safety strategy, following up a previous fire safety inspection of the construction site in April 2015. Regulatory advice was provided requiring some improvements. However, it was concluded that there was appropriate continuing high importance being attached to the implementation of adequate fire safety arrangements, which had improved since a site inspection in early 2014.

There have been a number of minor incidents on the Tails Management Facility construction site, relating to conventional health and safety, which have been promptly reported to ONR, including under RIDDOR requirements where appropriate. The TMF construction site part of the Urenco UK Limited licensed site is leased to the Urenco ChemPlants Limited tenant organisation.

General comment on the interventions in this quarter.

In general, ONR judged the arrangements made and implemented by the site in response to safety requirements to be adequate in the areas inspected. However, where improvements were considered necessary, the licensee made satisfactory commitments to address the issues, and the site inspector will monitor progress during future visits. Where necessary, ONR will take formal regulatory enforcement action to ensure that appropriate remedial measures are implemented to reasonably practicable timescales.

2.2 Other work.

Meetings with the safety representatives.

Meetings are routinely held with the licensee's team of safety representatives and during plant inspections by ONR inspectors, to support their function of representing employees and receiving information on matters affecting their health, safety and welfare at work.

ONR participated in the licensee's 'Safety Representative's Forum' meeting on 22 July, at the invitation of the safety representatives, providing regulatory advice on a range of site matters.

The work of the safety representatives continues to make a valuable contribution to the site safety culture and their engagement with inspectors is valued.

3 NON-ROUTINE MATTERS

Licensees are required to have arrangements to respond to non-routine matters and events. ONR inspectors judge the adequacy of the licensee's response, including actions taken to implement any necessary improvements.

ONR was promptly informed of relevant minor events on the licensed site during this period.

In response to the assessment by ONR and the Environment Agency of the licensee's investigation into a minor legacy uranium hexafluoride legacy "Hex Tails" leak, in November 2014, a joint ONR and Environment Agency letter was sent to both the licensee and the Capenhurst Nuclear Services Limited tenant organisation, on 11 August 2015. Ongoing strong regulatory interest was confirmed in the storage and asset management of the legacy "Hex Tails". The licensee provides updates on a range of legacy "Hex Tails" matters at the quarterly regulatory review meetings.

4 REGULATORY ACTIVITY

ONR inspectors may issue formal documents to ensure compliance with regulatory requirements. Under nuclear site licence conditions, ONR issues regulatory documents, which either permit an activity or require some form of action to be taken; these are usually collectively termed 'Licence Instruments' (LIs), but can take other forms. In addition, inspectors may issue Enforcement Notices to secure improvements to safety.

No enforcement notices were issued in this period.

No Licence Instruments were issued during this period.

Reports detailing regulatory decisions can be found on the ONR website at <http://www.onr.org.uk/pars/>. The ONR report justifying the approval of the Capenhurst Emergency Plan is at <http://www.onr.org.uk/pars/2015/urenco-15-001.pdf>.

5 NEWS FROM ONR

Retirement of the Chief Nuclear Inspector.

Dr Andy Hall, the first Chief Nuclear Inspector to hold this statutory office, announced his decision to retire from ONR in November 2015 and until his retirement he is taking a period of compassionate leave for personal reasons. The ONR Board, with the approval of the Secretary of State, has appointed Dr Richard Savage as Acting Chief Nuclear Inspector, pending a process to fill the role on a permanent basis. Richard was previously Head of the

Defence Nuclear Safety Regulator before joining ONR in his current role as a Deputy Chief Nuclear Inspector.

Regulation Matters magazine.

Insight into ONR's work as an independent regulator of the nuclear industry can be found in Regulation Matters. This quarterly online publication (<http://www.onr.org.uk/regulation-matters.htm>) reports on the key themes and developments in each of ONR's regulatory programmes and provides an update about the on-going changes at ONR. For the latest news and updates from ONR, you can also visit the website and sign up for our e-bulletin: <http://www.onr.org.uk/index.htm>.

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