



Office for
Nuclear Regulation

World Institute for Nuclear Security

Evolving Security Threats and
Advanced Security Technologies

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Scope

- Very brief introduction to ONR
 - Evolving Security Threat
 - A view on the terrorist threat
 - Their exploitation of advanced technologies
 - And how that view is developed and shared
 - Regulation of Advanced Security Technologies
 - The common aim
 - The aim of an outcome-focussed regulatory system
 - The UK regulatory framework – outcome focussed civil nuclear security regulation
 - Something about risk appetite and risk tolerance
 - And another way to think about it
 - Enforcement
 - Who is the controlling mind?
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A summary of what ONR does...

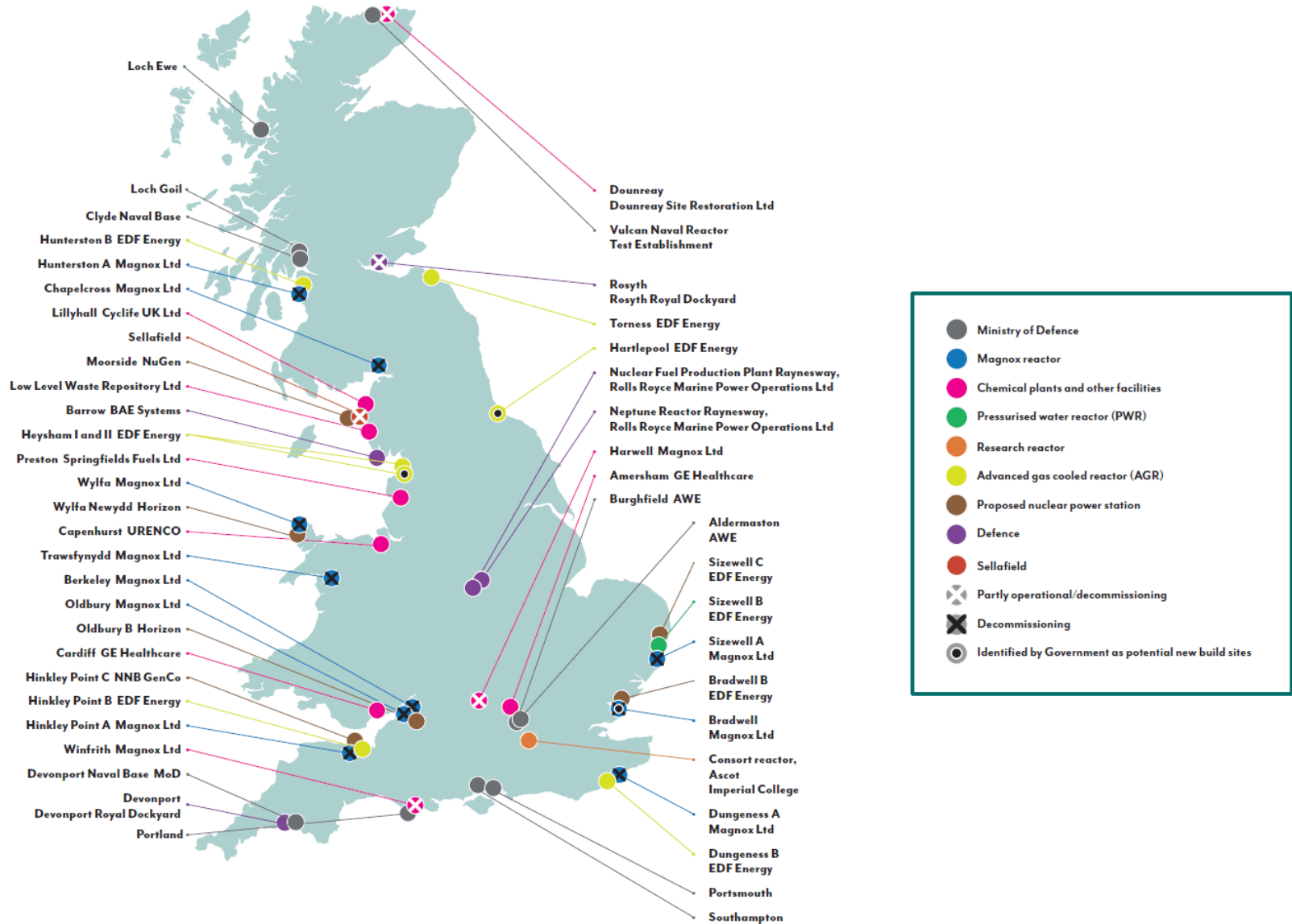
- ONR independently regulates nuclear safety and security at 36 nuclear licensed sites in Great Britain;
 - Nuclear Safety
 - Nuclear Security
 - Conventional Health and Safety on Nuclear Sites
 - Nuclear and Radioactive Materials Transport
- We also monitor safeguards performance in the UK, supporting and intervening as necessary with UK duty holders and/or Euratom and the International Atomic Energy Agency to ensure that safeguards obligations in the UK are met in a proportionate manner;

Security Division

The Security division is responsible for approving security arrangements within the civil nuclear industry and enforcing compliance. Through the Security division, ONR regulates the security of:

- Nuclear and other radioactive materials on civil licensed nuclear sites;
- Nuclear materials off licensed sites;
- Domestic transport of nuclear materials by road, rail and sea;
- International transport of nuclear and other radioactive materials by UK flagged vessels; and
- Sensitive nuclear information wherever it is held.

Sites we regulate



Mission: “To provide efficient and effective regulation of the nuclear industry, holding it to account on behalf of the public.”



Evolving Security Threat

A view on the terrorist threat

Their exploitation of advanced technologies

And how that view is developed and shared



Office for
Nuclear Regulation

Regulation of Evolving Security Threats and Advanced Security Technologies

Enforcement – I need to talk about it now

- What do I mean by enforcement?
 - When do I enforce?
 - Is it when the protected system is vulnerable to attack?
 - Is it when the protected system is more vulnerable to attack than “the” risk appetite, or risk tolerance?
 - Something else?
-

Risk Appetite and Tolerance – I need to talk about this now

- What do I mean by both terms?
 - Who's risk appetite and tolerance is important to a regulator?
 - What is a regulator's risk appetite and tolerance?
 - Does this model work universally, or is it because of our construct?
-

So what we agree on

- We all believe that nuclear facilities can be managed in a safe and secure way.
- We want them to be secure against the threats of today.
- We want to be able to adapt to be secure against the threats of tomorrow as efficiently and effectively as possible.

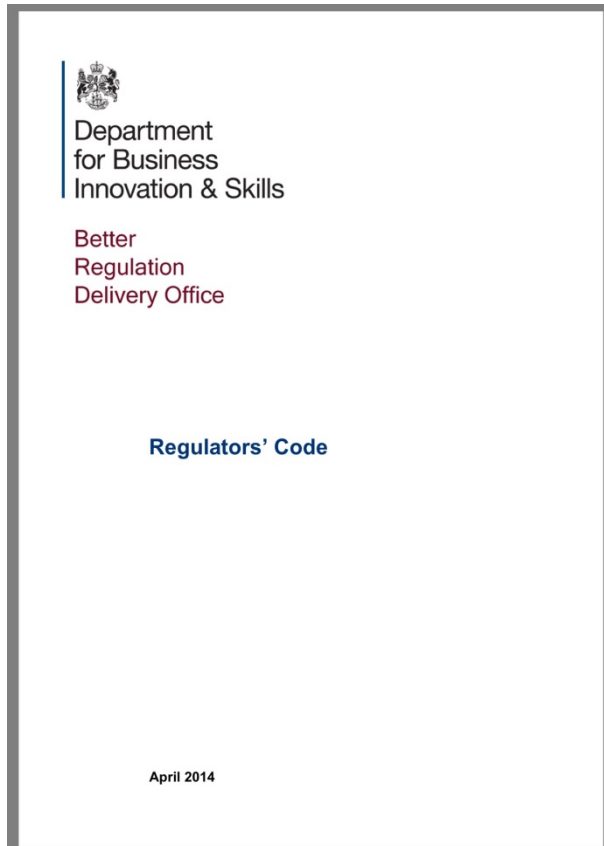
What we might not agree on

- State responsibility, operator liability??
- Who knows best?

The ONR Nuclear Security Assessment Principles Framework

- The regulation requires a security plan approved by the ONR; and implementation of that plan.
- Security Assessment Principles consists of 2 parts:
 - The Principles themselves (published)
 - The risk appetite statement (protected)
- Duty holders provide claims, arguments and evidence to justify their adherence to the principles
- Or schedules to close the gap
- We assess the plan, and if necessary require further development and, once content, approve
- We conduct interventions to ensure delivery/adherence

Enabling rather than obstructive



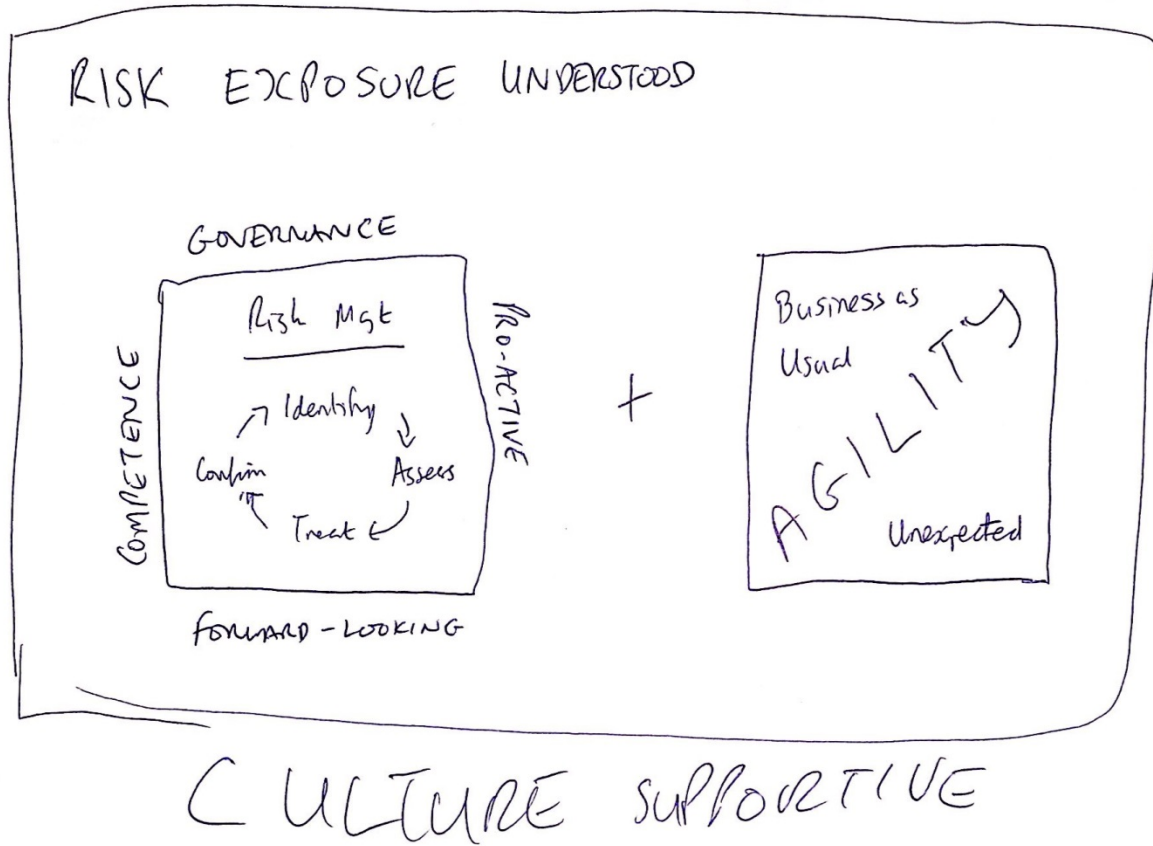
Unifying Purpose Statement

*Civil Nuclear Industry dutyholders are responsible for the leadership, design, implementation, operation and maintenance of security arrangements to **protect the public from the risks arising from a radiological event** caused by the **theft or sabotage of NM/ORM** and supporting systems or through the **compromise of Sensitive Nuclear Information (SNI)**'*

Fundamental Security Principles

Strategic Enablers - Objectives focused on creation of the right conditions to support high reliability, disciplined operations.		Secure Operations - Objectives focused on the implementation and maintenance of nuclear security.	
FSyP I	Leadership and Management for Security	FSyP VI	Physical Protection Systems
FSyP II	Organisational Culture	FSyP VII	Cyber Security & Information Assurance
FSyP III	Competence Management	FSyP VIII	Workforce Trustworthiness
FSyP IV	Nuclear Supply Chain Management	FSyP IX	Policing & Guarding
FSyP V	Reliability, Resilience and Sustainability	FSyP X	Emergency Preparedness and Response Arrangements

Exposure, Agility and Culture



THANK YOU

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Security Delivery Principles

SyDP	Scope
<p>7.1 – Effective Cyber & Information Risk Management (Dutyholders should maintain arrangements to ensure that CS&IA risk is managed effectively)</p>	<ul style="list-style-type: none"> Risk Governance Structure Risk Management Approach Risk Assessment Approach Risk Treatment Approach Residual Risk Management Risk Management for Classified Contracts
<p>7.2 – Protection of Information (Dutyholders should maintain the confidentiality, integrity and availability of sensitive nuclear information and associated assets)</p>	<ul style="list-style-type: none"> Information Assurance Strategy, Policy and Standards Data Classification and Sensitivities Identification of Classified Contracts CS&IA Assessment of Third Parties Assurance of Third Parties

International Cooperation

- Nuclear Security Summits (2010, 2012, 2014, 2016)
- IAEA Nuclear Security Guidance Committee
 - Member States direct, support and decide on the issue of guidance documents (recommendations, implementing and technical guides)
- International Physical Protection Advisory Service
 - Confidential Peer Review Activity delivered by experts from Member States coordinated by the IAEA
- Regional Cooperative Groups
 - European Nuclear Security Regulators Association
- World Institute for Nuclear Security
- Nuclear Threat Initiative

Legislation, Regulation & Guidance

- Principal Legislation: The Energy Act 2013
 - Annual Report to Parliament
 - Key Regulation: Nuclear Industries Security Regulations
 - Duties on Industry
 - Duty to have an Approved Security Plan/Transport Security Statement
 - Duty to Implement and Report
 - Directions by ONR/Offences
 - Published Regulatory Guidance:
 - Security Assessment Principles
 - Technical Assessment Guides
 - Technical Inspection Guides
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National Approach to Nuclear Regulation

- Prescriptive vs Outcome Focussed Regulation
- UK: Enabling Regulation
 - A constructive approach with duty holders and other relevant stakeholders to ensure delivery against clear and prioritised safety and security outcomes
 - Built on good practice and success
 - Focus on outcomes not process
 - Common purpose – work the problem
 - Fit for purpose/adequate solutions
 - Understanding of strategic factors in decision making
 - Behaviours – build trust
 - Willingness to address blockers, distractions & bureaucracy
 - Recognition that ‘not doing’ often has its own risk burden

Security Plan Development

- Threat Assessment and Design Basis Threat
- Secure by Design
 - Categorization and classification of security functions, structures, systems and components
 - Vulnerability Assessment
- Graded Approach
 - Hierarchy of Controls
- Defence in Depth
 - Identify, Protect, Detect, Respond, Recover
- Justification to achieve Approval
 - Through Claims, Arguments and Evidence

What do I mean by risk appetite

- All security classified information has been compartmentalized within a series of Official Sensitive annexes which cover:
 - Categorization for theft and sabotage (nuclear material, other radioactive material and nuclear facilities)
 - Physical protection system security outcomes and postures
 - Categorization of sensitive nuclear information, information technology and operational technology
 - Mandatory clearance levels for access to nuclear material, nuclear facilities and sensitive nuclear information

Targeted and Prioritised Approach to Inspection and Enforcement

- Regulatory Attention Levels
 - Significantly Enhanced, Enhanced and Routine
- Inspections/Interventions
 - Green - No formal action, shortfalls are not significant
 - Amber – Significant shortfall – enforcement communication tracked to completion
 - Red – Demand improvement – sufficiently serious to compel compliance – direction issued
- Regulatory Issues
 - Grading and Management
- Incident Reports
 - Major, moderate, minor, none

Our people and locations

- ONR employs over 560 staff across three different locations: Bootle, Cheltenham and London.
- Our work calls for a high level of expertise and we employ technical specialists from a number of different disciplines, who work alongside our highly professional corporate and administrative staff.
- We are a sponsor of the Nuclear Graduates scheme and each year sponsor a number of graduates through the two-year programme.



Redgrave Court, Bootle, where the majority of ONR staff are based - copyright ONR.

Key Facts & Figures

- Regulate 36 licensed sites
- Employ 563 members of staff based across three offices
- 96% funded by the nuclear industry
- 380 technical specialists
- In 2016/17 we carried out 1,465 inspections
- Around 10,000 visitors to our website each month



ONR Inspectors at site - copyright ONR