



Office for
Nuclear Regulation

Nuclear Academic Discussion Meeting (ONR) Regulatory Requirements to support new nuclear build

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Design Assessment

5 September 2024

UK Regulatory Process

Three main parts:

| Status | Regulatory Activity | Agency (*) |
|-----------|---|--|
| Voluntary | Generic Design Assessment (GDA) | ONR & Environment Agency |
| Formal | Licensing Permitting Development Consent Order | ONR Environment Agency Planning Inspectorate |
| Formal | Construction, commissioning and operation permissioned under the site licence/permits | ONR & Environment Agency |

(*) for developments in Wales, Natural Resources Wales has responsibility for permitting, supported by the Environment Agency

Formal Process

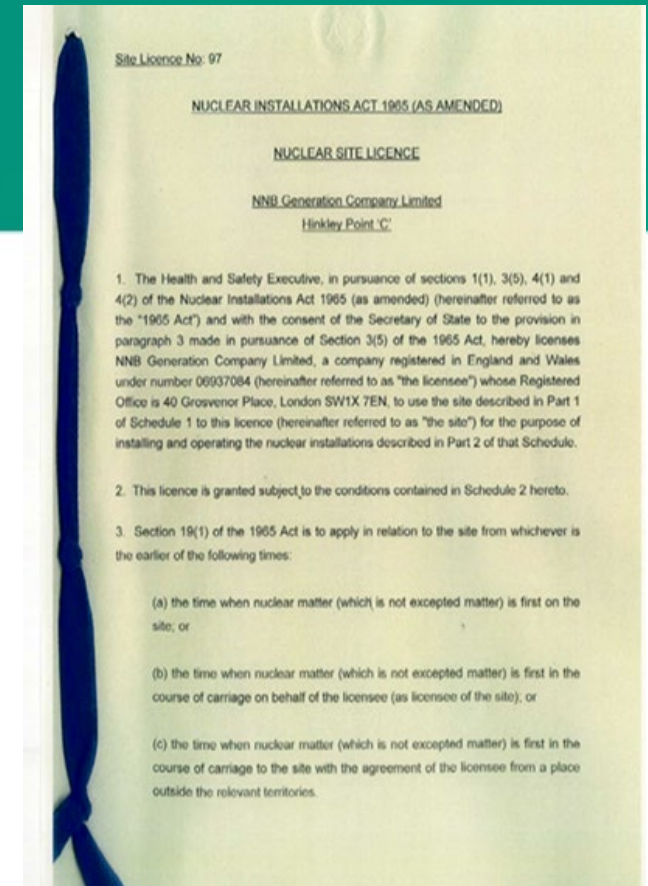
ONR grants a site licence once it is satisfied that:

A corporate body:

Has the **capability** to conduct **specified activities**
on an identified **site** subject to **conditions** attached to
the **nuclear site licence**

ONR does not license the design. The licence is given to a specific UK-registered company for an identified site.

The design does not need to be assessed/approved at the point of licence grant – but ONR needs to have confidence the design is suitable for site, and the licensee has the capability to build and operate the design.



Formal Process

The Environment Agency grants permits to the identified corporate body for it to undertake activities that impact the environment at specific site.

The Planning Inspectorate gives a consent order to the identified corporate body for it to start developments which have a visual impact, results in extra traffic, construction workers living in the local area etc.

The licensing, permitting and development consent order processes are not directly linked, but:

- Developers like to obtain them at approximately the same time to give confidence to investors
- Regulators like to grant them at approximately the same time to avoid (for example) granting a licence to a project that is not going to go ahead

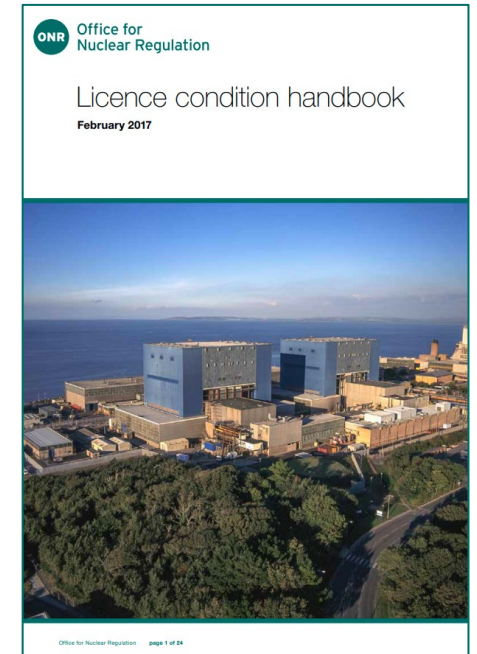
Formal Process

An ONR granted site licence has 36 standard licence conditions associated with it.

- Licence Condition 19 – Construction or installation of new plant
- Licence Condition 20 – Modification to design of plant under construction
- Licence Condition 21 – Commissioning
- Licence Condition 23 – Operating Rules

These Licence Conditions give ONR regulatory control over operations on the site.

Progress beyond agreed **holdpoints** requires regulatory approval, usually after the review of a safety case submission.



Formal Process

The first major **holdpoint** (LC19) is usually “First Nuclear Island Concrete” or “First Nuclear Safety Related Construction”.

This holdpoint is released after ONR has assessed a site-specific **pre-construction safety report (PCSR)**.

Later holdpoints are released by ONR after assessment of:

- Start of commissioning: **pre-commissioning safety report**
- Start of operation: **pre-operational safety report**

GDA – Voluntary Process

- ❑ GDA is an upfront, step-wise assessment of a generic reactor design undertaken jointly by the Regulators (ONR / Environment Agency / NRW)
- ❑ Developed in 2006 as a process for regulatory assessment of candidate new reactor designs on a **generic basis**
- ❑ Enables identification / resolution of key issues on safety, security and environment protection before build commences – **reducing potential programme (cost and time) risks to future builds**
- ❑ GDA is not a mandatory process but has **significant benefits** – gives investors confidence, allows focus on organisational capability at site licence grant stage, can be started with international reactor vendors before the specific site and UK-corporate body have been identified or established.
- ❑ GDA process has evolved with learning from its use



“Modernised”
3-step process

3-step Rolls-Royce SMR GDA



2-step SMR-300 GDA



2-step BWRX-300 GDA



GDA – Voluntary Process

Open and transparent:

- vendors need to publish their key documents on their website and implement a comments process for the public
- the regulators' reports and judgements are published on the GDA website (as our approach, standards, guidance etc)

Step 1 ~ 12 months. Focus is on agreeing the scope and schedule for the assessment to come.

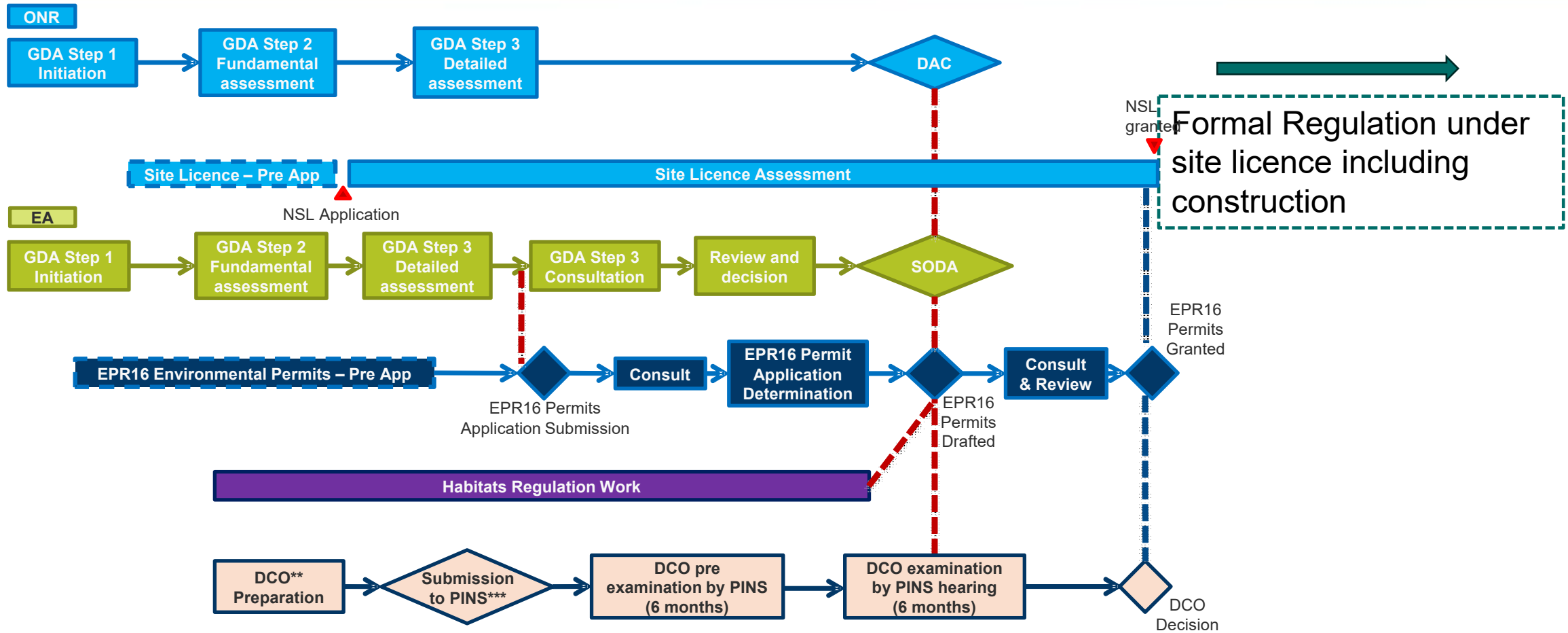
Step 2 ~ 12 months. An assessment of the fundamental aspects of the design.

Step 3 ~ 24 months. An assessment of submissions to level of detail needed: for ONR for first safety significant construction; for EA to inform future permit applications.

There is an option to stop at end of Step 2. The “Step 3” assessment would be completed on a site-specific basis under site licence arrangements (extra risk to the developer and investors).

A two-step GDA does not result in a DAC or SoDA. It is not doing a “full” GDA in reduced time or steps.

Overview of process (up to nuclear site licence grant/permit grants and DCO decision)



*Please note that there are also construction permits and marine licence applications.
 **DCO – Development Consent Order
 ***PINS – Planning Inspectorate

Overview of the process

The different regulatory activities can be started in parallel:

- GDA will almost always be the first regulatory activity to start.
- If a site has been secured and a development company set up, licensing engagements can be started before GDA has finished.
- With a site licence in place, activities without nuclear safety significance can be undertaken without a formal permission.
- First nuclear concrete is permissioned following ONR's review of the site-specific PCSR. If a full GDA has been completed, this could be shortly after site licence grant.
- If only a two-step GDA has been completed, or no GDA, ONR will need a lot longer to review the site-specific PCSR.
- In our experience, GDA is not a “critical path” activity. It can start before and then be completed around creating a UK organisation, obtaining a site, applying for licence/permits, making the financial investment decision, placing orders for key components etc

Subsequent builds

- GDA should only need to be done once for a particular technology. It should facilitate fleet build.
- Unfortunately, apart from EPR, previous GDAs have not led onto construction.
- In the case of Sizewell C, the site-specific PCSR for Hinkley Point C is more relevant than the generic EPR PCSR considered in circa 2011 in GDA. *Sizewell C has full access to the Hinkley Point C PCSR.*
- SMR vendors hope to sell multiple units to different operators/licensees (and not just traditional generators). The more the vendor does in GDA, the more control it has over eg intellectual property from commissioning etc.

Thanks for listening