

# Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

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NNB Generation Company Limited

Hinkley Point C Power Station  
Near Bridgwater  
Somerset  
TA5 1UD

Permit number  
EPR/ZP3690SY

# Hinkley Point C Power Station

## Permit number EPR/ZP3690SY

### Introductory note

#### *This introductory note does not form a part of this permit*

The permit allows the Operator to receive and dispose of radioactive waste on or from the specified premises, which is a nuclear licensed site.

The permit is issued under the provisions of regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010. Those Regulations are concerned, amongst other things, with the control of radioactive material and radioactive waste.

The operator must also comply with other legislation to which the keeping or use of radioactive material and the transfer, accumulation and disposal of radioactive waste is subject. This includes legislation enforced by the Office for Nuclear Regulation.

The main features of the facility are as follows

- two pressurised water reactors of the UK EPR™ type. The total net electrical capacity is expected to be 3260 MW.
- Interim storage facilities for spent fuel and Intermediate Level Waste.
- Shared radioactive waste treatment building.
- Hot laundry.

The status log of the permit sets out the permitting history, including any changes to the permit reference number .

#### Status Log of the permit

Detail	Date	Response Date
Application EPR/ZP3690SY/A001	Duly made 29 July 2011	
Schedule 5 notice - Additional Information	21 October 2011	3 and 17 November 2011
Schedule 5 notice Additional information No 2	6 January 2012	27 January 2012
Permit determined EPR/ZP3690SY	13 March 2013	

End of Introductory Note

# Permit

Permit number  
**EPR/ZP3690SY**

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010 (the “regulations”),

**NNB Generation Company Limited** (“the operator”)

whose registered office (or principal office) is

**40 Grosvenor Place  
London  
SW1X 7EN**

company registration number **06937084**

to carry on radioactive substance activities at

**Hinkley Point C Power Station  
Near Bridgwater  
Somerset  
TA5 1UD**

(“the premises”)

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Ian Streatfield	13 March 2013

Authorised on behalf of the Environment Agency

# 1 Management

## 1.1 General management

- 1.1.1 The operator shall manage and operate the activities:
- (a) in accordance with a written management system that is sufficient to achieve compliance with the conditions of this permit;
  - (b) using sufficient competent persons and resources.
- 1.1.2 The operator shall maintain records demonstrating compliance with condition 1.1.1.
- 1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.
- 1.1.4 The operator shall manage and operate the activities in consultation with such suitable Radioactive Waste Advisers as are necessary for the purpose of advising the operator as to compliance with this permit.

## 2 Operations

### 2.1 Permitted activities

- 2.1.1 The operator is only authorised to carry on the activities specified in schedule 1 table S1.1 (the “activities”).

### 2.2 The site

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

### 2.3 Operating techniques

- 2.3.1 The operator shall use the best available techniques to minimise the activity of radioactive waste produced on the premises that will require to be disposed of on or from the premises.
- 2.3.2 The operator shall use the best available techniques in respect of the disposal of radioactive waste pursuant to this permit to:
- (a) minimise the activity of gaseous and aqueous radioactive waste disposed of by discharge to the environment;
  - (b) minimise the volume of radioactive waste disposed of by transfer to other premises;
  - (c) dispose of radioactive waste at times, in a form, and in a manner so as to minimise the radiological effects on the environment and members of the public.
- 2.3.3 The operator shall use the best available techniques to:
- (a) exclude all entrained solids, gases and non-aqueous liquids from radioactive aqueous waste prior to discharge to the environment;
  - (b) characterise, sort and segregate solid and non-aqueous liquid radioactive wastes, to facilitate their disposal by optimised disposal routes.
- 2.3.4 The operator shall maintain in good repair the systems and equipment provided:
- (a) to meet the requirements of conditions 2.3.1, 2.3.2 and 2.3.3;
  - (b) to carry out any monitoring and measurements necessary to determine compliance with the conditions of this permit;
  - (c) to measure and assess the exposure of members of the public and radioactive contamination of the environment.
- 2.3.5 The operator shall check, at an appropriate frequency, the effectiveness of systems, equipment and procedures provided to meet the requirements of conditions 2.3.1, 2.3.2 and 2.3.3.
- 2.3.6 The operator shall have and comply with appropriate criteria for the acceptance into service of systems, equipment and procedures for:
- (a) carrying out any monitoring and measurements necessary to determine compliance with the conditions of this permit;
  - (b) measuring and assessing exposure of members of the public and radioactive contamination of the environment.

- 2.3.7 The operator shall post copies of this permit on the premises, in such characters and in such positions to be conveniently read by persons who have duties on the premises which are or could be affected by the matters set out in this permit.

## **2.4 Improvement and information programme**

- 2.4.1 The operator shall complete the requirements specified in schedule 1 table S1.2 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.
- 2.4.2 Except in the case of a requirement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each requirement.

## **2.5 Pre-operational conditions**

- 2.5.1 The activities shall not be brought into operation until the measures specified in schedule 1 table S1.3A have been completed.
- 2.5.2 The specified disposals and receipts of radioactive waste identified in schedule 1 table S1.3B shall not commence until the relevant measures specified in that table have been completed.

## **2.6 Receipt of radioactive waste**

- 2.6.1 The operator shall:
- (a) for each type of radioactive waste that the operator is prepared to receive, produce a written specification of the information required to:
    - (i) enable the disposal of that type of radioactive waste in compliance with this permit; or
    - (ii) where disposal of that type of radioactive waste is not currently permitted, sufficiently characterise that waste to, as far as reasonably practicable, enable its future disposal;
  - (b) provide that written specification to any person from whom the operator is prepared to receive radioactive waste of that type;
  - (c) only accept a consignment of radioactive waste that is accompanied by a legible note providing the information specified in 2.6.1(a);
  - (d) keep a copy of any such note received;
  - (e) provide a receipt to the consignor in respect of each consignment of radioactive waste that the operator accepts.
- 2.6.2 The operator shall ensure that any radioactive waste which does not comply with the specifications produced pursuant to condition 2.6.1 is returned to the consignor as soon as reasonably practicable, unless otherwise agreed in writing with the Environment Agency.
- 2.6.3 The provisions of conditions 2.6.1 to 2.6.2 do not apply to any radioactive waste collected as a result of the operator's participation in the National Arrangements for Incidents involving Radioactivity or in the Radsafe scheme

# **3 Disposals of radioactive waste and monitoring**

## **3.1 Disposals of radioactive waste**

- 3.1.1 Subject to condition 3.1.4, there shall be no disposals of radioactive waste except of the types of radioactive waste and by the disposal routes specified in schedule 3.
- 3.1.2 The limits on disposals given in schedule 3 shall not be exceeded.
- 3.1.3 Subject to condition 3.1.1, the operator shall dispose of each form of solid and non-aqueous liquid radioactive waste by an optimised disposal route for that waste form.
- 3.1.4 The operator may dispose of radioactive waste, not being radioactive waste otherwise authorised to be disposed of, which is collected as a result of the operator's participation in the National Arrangements for Incidents involving Radioactivity or in the Radsafe scheme provided that the operator:
- (a) transfers the radioactive waste to a person whom the Environment Agency has agreed in writing may receive that radioactive waste;
  - (b) as soon as reasonably practicable provides available details in writing to the Environment Agency of the nature of the radioactive waste, the radionuclides present, their activities and the manner and date of disposal.

- 3.1.5 The operator shall ensure that the transfer of radioactive waste is in accordance with the directions of the person to whom the radioactive waste is transferred that are necessary to enable that person to comply with all relevant regulatory requirements.
- 3.1.6 The operator shall:
- (a) ensure that the person to whom radioactive waste is transferred receives at the time of transfer of each consignment a clear and legible note signed on the operator's behalf stating:
    - (i) the total activity in the consignment of each relevant radionuclide or group of radionuclides listed in the relevant table in schedule 3; or
    - (ii) when no relevant radionuclide or group of radionuclides is specified in schedule 3, the total activity in the consignment of each radionuclide or group of radionuclides as listed in the written specification of the person to whom the radioactive waste is transferred.
  - (b) obtain a note signed on behalf of the person to whom radioactive waste is transferred, at the time of transfer, stating that the transfer has taken place;
  - (c) keep a copy of any note issued under condition 3.1.6(a) and any note received under condition 3.1.6(b).
- 3.1.7 If required by the Environment Agency, the operator shall ensure that any consignment or part of any consignment of radioactive waste found, following transfer, not to be in accordance with the conditions of this permit:
- (a) is packaged in accordance with the relevant legislation;
  - (b) is returned as soon as is reasonably practicable to the operator's premises.
- 3.1.8 The operator shall, not later than 14 days after the end of each month or within such longer period as the Environment Agency may approve in writing, record all disposals of radioactive waste made during that month.

## 3.2 Monitoring

- 3.2.1 The operator shall:
- (a) take samples and conduct measurements, tests, surveys, analyses and calculations to determine compliance with the conditions of this permit;
  - (b) unless otherwise agreed in writing by the Environment Agency:
    - (i) define, document and carry out an environmental monitoring programme;
    - (ii) use the results of that programme to carry out an annual retrospective assessment of the dose to the representative person;
    - (iii) inform the Environment Agency in writing in advance of any modifications affecting the extent of that programme or that have a potential to change the results obtained.
  - (c) use the best available techniques when taking such samples, conducting such measurements, tests, surveys, analyses and calculations, and carrying out such an environmental monitoring programme and retrospective dose assessment, unless particular techniques are specified in schedule 3 of this permit or in writing by the Environment Agency;
  - (d) define and document the techniques being employed to determine the activity of radioactive waste disposals and inform the Environment Agency in writing in advance of any modifications to those techniques that have a potential to change the results obtained.
- 3.2.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.2.3 Monitoring equipment, techniques, personnel and organisations employed for the monitoring of disposals and the environment required by condition 3.2.1 or 3.2.5 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.
- 3.2.4 Permanent means of access shall be provided to enable sampling and monitoring to be carried out in relation to the disposal outlets specified in schedule 3 unless otherwise agreed in writing by the Environment Agency.
- 3.2.5 If required by the Environment Agency, the operator shall:
- (a) take such samples and conduct such measurements, tests, surveys, analyses and calculations, including environmental measurements and assessments, at such times and using such methods and equipment as the Environment Agency specifies;
  - (b) keep samples, provide samples, or dispatch samples for tests at a laboratory, as the Environment Agency specifies, and ensure that the samples or residues thereof are collected from the laboratory within three months of receiving written notification that testing and repackaging in accordance with the relevant legislation are complete.

- 3.2.6 The operator shall carry out:
- (a) regular calibration, at an appropriate frequency, of systems and equipment provided for:
    - (i) carrying out any monitoring and measurements necessary to determine compliance with the conditions of this permit;
    - (ii) measuring and assessing exposure of members of the public and radioactive contamination of the environment.
  - (b) regular checking, at an appropriate frequency, that such systems and equipment are serviceable and correctly used.

## 4 Information

### 4.1 Records

- 4.1.1 All records required to be made by this permit shall:
- (a) be legible;
  - (b) be made as soon as reasonably practicable;
  - (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval;
  - (d) be retained until notified in writing by the Environment Agency that records no longer need to be retained.
- 4.1.2 The operator shall keep on the premises all records, plans and the management system required by this permit, unless otherwise agreed in writing by the Environment Agency.
- 4.1.3 The operator shall:
- (a) retain records made in accordance with any previous relevant permit issued to the operator and related to the premises covered by this permit;
  - (b) retain records transferred to the operator, which were made in accordance with any previous relevant permit related to the premises covered by this permit.

### 4.2 Reporting

- 4.2.1 The operator shall send all reports and notifications required by this permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.
- 4.2.2 The operator shall supply such information in relation to:
- (a) the disposals of radioactive waste;
  - (b) the samples, tests, surveys, analysis and calculations, environmental monitoring and assessments undertaken under conditions 3.2.1 and 3.2.5 in relation to disposals of radioactive waste;
- in such format and within such timescales as the Environment Agency may specify in writing.

### 4.3 Notifications

- 4.3.1 The operator shall notify the Environment Agency without delay following the detection of:
- (a) any malfunction, breakdown or failure of equipment or techniques or any accident that has caused, is causing or may cause significant pollution or may generate significant amounts of radioactive waste;
  - (b) the breach of a limit specified in this permit, or disposal of radioactive waste other than by a relevant permitted route;
  - (c) any significant adverse environmental effects that could reasonably be seen to result from the operation of the facility.
- 4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 within the time period specified in that schedule.
- 4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.
- 4.3.4 The operator shall notify the Environment Agency within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

- (a) any change in the operator's trading name, registered name or registered office address;
  - (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.
- 4.3.5 Where the operator proposes to make a change in the management system or resources, which might have, or might reasonably be seen to have a significant impact on how compliance with the conditions of this permit is achieved:
- (a) the operator shall notify the Environment Agency at least 28 days before making that change, or where that is not possible, without delay;
  - (b) shall include in the notification a description of the proposed changes.
- 4.3.6 If, in any week, the activity in any radioactive waste disposed of from any outlet or group of outlets specified in schedule 3 of any radionuclide or group of radionuclides exceeds, or is likely to exceed, the relevant Weekly Advisory Level (where specified), the operator shall:
- (a) without delay, inform the Environment Agency and the Food Standards Agency;
  - (b) as soon as reasonably practicable, advise the Environment Agency and the Food Standards Agency of the circumstances at the premises leading to the release and the possible impact of any deposition of radioactivity on pasture or crops in the vicinity of the premises, including any measurements made.
- 4.3.7 If, in any quarter, the activity in any waste discharged from any outlet or group of outlets specified in schedule 3 of any radionuclide or group of radionuclides exceeds the relevant Quarterly Notification Level (where specified), the operator shall provide the Environment Agency with a written submission which includes:
- (a) details of the occurrence;
  - (b) a description of the means used to minimise the activity of radioactive waste discharged;
  - (c) a review of those means having regard to conditions 2.3.1, 2.3.2 and 2.3.3;
- not later than 14 days from making the record which demonstrates such excess.

## 4.4 Interpretation

- 4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.
- 4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "without delay", in which case it may be provided by telephone.

# Schedule 1 - Operations

<b>Table S1.1 activities</b>			
<b>Activity reference</b>	<b>Activity listed in Schedule 23 of the regulations</b>	<b>Description of specified activity</b>	<b>Limit of specified activity</b>
A1	Schedule 23 Part 2 para 11(2)(b)	Disposal of radioactive waste on or from the premises	Generation of Electricity by the EPR Nuclear Reactor, Justification register reference number 09/08. SI 2010 No. 2844
A2	Schedule 23 Part 2 para 11(4)(a)	Receipt of radioactive waste for the purpose of disposal	

<b>Table S1.2 Improvement and information requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
IC 1	For each calendar year the operator shall provide the Environment Agency with a progress report on the organisational development relevant to permit compliance.	Not later than 31 March of the next calendar year.
IC 2	For each calendar year the operator shall provide the Environment Agency with a full report of design, build, commissioning and operations activities relevant to permit compliance. The report shall address: the fuel specification, the primary coolant chemistry specification including zinc injection, the secondary coolant chemistry specification, the choice of ion exchange resins, in process monitoring, leak-tight construction techniques and SMART devices. The first report shall cover the changes from the design assessed for the GDA Statement of Design Acceptability.	Not later than 31 March of the next calendar year.
IC 3	The operator shall assess the performance of secondary neutron sources during operations and whether they can be removed. The operator shall provide a full report on the findings of its assessment to the Environment Agency.	Not later than one year after Unit 1 has completed three fuel cycles.
IC 4	The operator shall provide the Environment Agency with a report that demonstrates that requirements for the sampling of discharges have been adequately considered in the design of the plant. Matters to be considered include sufficient space for equipment, suitable sampling arrangements, suitable and safe access, suitable environmental conditions.	Six months before construction of relevant plant areas.
IC 5	The operator shall provide the Environment Agency with a report that demonstrates that monitoring and sampling equipment for gaseous, aqueous and solid wastes is BAT.	Three months before the purchase of such equipment.
IC 6	The operator shall provide the Environment Agency with a report that demonstrates that analysis equipment for gaseous, aqueous and solid wastes is BAT.	Three months before the purchase of such equipment.
IC 7	The operator shall provide the Environment Agency with a report that defines and documents the techniques proposed to be employed to determine the activity of radioactive waste disposals. The report shall include information on the management of relevant laboratories and staff.	Three months before an outlet, system or disposal route is first used for the disposal of radioactive waste.
IC 8	The operator shall provide the Environment Agency with a report on the use of BAT to minimise the production of activated corrosion products. The report shall consider the possible improvements identified in the Pre-Construction Environmental Report: the corrosion resistance of steam generator tubes, the electro-polishing of steam generator channel heads, the specification of lower cobalt content reactor system construction materials and the use of Stellites in reactor components, in particular the coolant pumps.	Six months before construction of relevant plant areas.
IC 9	The operator shall provide the Environment Agency with a report on the detailed design proposals for the Liquid Waste Processing System including a BAT assessment.	Six months before construction of relevant plant areas.
IC 10	The operator shall provide the Environment Agency with a BAT assessment to show that the use of the evaporator, the choice of filter porosity and the demineralisation media have been optimised. The operator shall also provide evidence that the Liquid Waste Processing system has sufficient capacity and resilience (for example, in case of outage due to maintenance or breakdown) to cope with all the aqueous radioactive waste arisings.	Six months before construction of relevant plant.
IC 11	The operator shall provide the Environment Agency with its specification for the operational management of the Liquid Waste Processing System, together with a demonstration of how this contributes to the use of BAT to minimise the activity in liquid discharges.	Six months before operation of relevant plant
IC 12	The operator shall provide the Environment Agency with a report demonstrating how its proposals for reactor commissioning, shutdown and start-up contribute to the minimisation of corrosion product generation. The report shall include consideration of circuit cleaning, passivation and other measures.	Six months before commissioning of relevant plant.
IC 13	The operator shall provide the Environment Agency with its specification for the operational management of the fuel pool (including temperature, ventilation and chemistry control), together with a demonstration of how this contributes to the use of BAT to minimise the activity in discharges (addressing, in particular, the maintenance of fuel integrity and the minimisation of the discharge of tritium to air).	Six months before operation of relevant plant
IC 14	The operator shall provide the Environment Agency with its specification for the operational management of the Interim Spent Fuel Store (including temperature, ventilation and chemistry control), together with a demonstration of how this contributes to the use of BAT to minimise the activity in discharges (addressing, in particular, the maintenance of fuel integrity and the minimisation of the discharge of tritium to air).	Six months before operation of relevant plant.

<b>Table S1.2 Improvement and information requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
IC 15	The operator shall provide the Environment Agency with its predicted mass balance showing how its proposed aqueous radioactive waste management regime will affect the disposal of carbon-14 to the gaseous, solid or aqueous routes. For each route the form of carbon-14 expected shall be provided. For solid wastes the quantities of each type of waste shall be provided with expected carbon-14 content.	Six months before operation of relevant plant.
IC 16	The operator shall provide the Environment Agency with a report setting out and justifying its proposed environmental monitoring programme.	31 July 2014
IC 17	The operator shall provide the Environment Agency with its specification for the design and operational management of the solid waste processing system.	Six months before operation of relevant plant.
IC 18	The Operator shall provide the Environment Agency with an action plan to identify requirements for in-process monitoring to demonstrate compliance with the conditions of this permit.	Within six month of the issue of this permit.
IC 19	The operator shall provide the Environment Agency with a report that demonstrates that in-process monitoring is BAT.	Six months before operation of relevant plant.

<b>Table S1.3A Pre-operational measures</b>	
<b>Reference</b>	<b>Measure</b>
<b>Reference</b>	No measures specified.

<b>Table S1.3B Pre-operational measures for future development</b>		
<b>Reference</b>	<b>Disposal or receipt</b>	<b>Measure</b>
POM 1	Discharge of gaseous radioactive waste from the Interim Spent Fuel Store.	Install filtration to HEPA standard (NVF/DG001 and BS EN1822:2009) in the ventilation system of the Interim Spent Fuel Store.

# Schedule 2 – Holdings of Open Sources

There are no requirements under this schedule.

## Schedule 3 – Disposals of radioactive waste and monitoring

<b>Table S 3.1 Specified disposals to air</b>					
<b>Specified radioactive waste type</b>	<b>Disposal outlet reference</b>	<b>Disposal outlet</b>	<b>Radionuclide or group of nuclides</b>	<b>Annual limits</b>	<b>Quarterly Notification level</b>
Gaseous waste	All outlets (including approved outlets)	As specified below	Tritium	6 TBq	400 GBq
			Carbon -14	1.4 TBq	300 GBq
			Noble Gases (1)	45 TBq	1.5 TBq
			Iodine-131	400 MBq	64 MBq
			Beta-emitting radionuclides associated with particulate matter (1)	120 MBq	8 MBq
Gaseous waste	Outlets A4-7 and Approved outlets (air) (1)	As specified below	Tritium, Carbon-14, Noble Gases, Iodine-131 and Beta emitting radionuclides associated with particulate matter	5% of the relevant annual limit for all outlets	Not specified
Gaseous waste	A1	Unit 1 Nuclear Auxiliary Building Stack	No individual limits specified for these disposal outlets		
Gaseous waste	A2	Unit 2 Nuclear Auxiliary Building Stack			
Gaseous waste	A3	Interim Spent Fuel Store Stack			
Gaseous waste	A4	Interim Storage Facility for ILW Stack			
Gaseous waste	A5	Main Steam Relief Train Vents for Unit 1			
Gaseous waste	A6	Main Steam Relief Train Vents for Unit 2			
Gaseous waste	A7	Louvres, vents, fan-assisted vents, windows and doors associated with Radiation/Contamination Controlled Areas, laboratories, turbine hall and radioactive material storage areas/tanks not specifically listed above			
Gaseous waste	Approved outlets (air)	All outlets to air, not otherwise described in this table, that are approved in writing by the Environment Agency			

(1) as measured using the techniques defined in Schedule 3, table S 3.4

<b>Table S 3.2 Specified disposals to water</b>					
<b>Specified radioactive waste type</b>	<b>Disposal outlet reference</b>	<b>Disposal outlet</b>	<b>Radionuclide or group of nuclides</b>	<b>Annual limits</b>	<b>Quarterly Notification level</b>
Aqueous waste	All outlets (including approved outlets)	As specified below	Tritium	200 TBq	60 TBq
			Carbon-14	190 GBq	18 GBq
			Cobalt-60	6 GBq	0.3 GBq
			Caesium-137	1.9 GBq	0.1 GBq
			"Other radionuclides" (1)	12 GBq	0.6 GBq
Aqueous waste	Outlets W4-W7 and Approved outlets (water)	As specified below	Tritium, Carbon-14, Caesium-137 and Other radionuclides (1)	5% of the relevant annual limit for all outlets	Not specified
Aqueous waste	W1	System provided for discharging radioactive waste from the Liquid Radwaste Monitoring and Discharge System (KER system, T tanks) to the Bristol Channel via the outfall tunnel	No individual limits specified for these disposal outlets		
Aqueous waste	W2	System provided for discharging radioactive waste from the Additional Liquid Waste Discharge System (TER system, S tanks) to the Bristol Channel via the outfall tunnel			
Aqueous waste	W3	System provided for discharging radioactive waste from the Site Liquid Waste Discharge System (SEK system, Ex tanks) to the Bristol Channel via the outfall tunnel			
Aqueous waste	W4A	System provided for discharging water from the site drainage to the Bristol Channel via the outfall tunnel			
Aqueous waste	W4B	System provided for discharging water from the site drainage to the Bristol Channel via the forebay			
Aqueous waste	W5	System provided for discharging water from the cooling water return to the Bristol Channel via the outfall tunnel			
Aqueous waste	W6	System provided for discharging water from the seawater surge spillway to the Bristol Channel via drainage through the seawall			
Aqueous waste	W7	System provided for discharging water from the sea wall drainage system to the Bristol Channel via drainage through the seawall			
Aqueous waste	Approved outlets (water)	All outlets to water, not otherwise described in this table, that are approved by the Environment Agency			

(1) as measured using the techniques specified in Schedule 3 Table S 3.4

**Table S3.3 Specified transfers to other premises**

<b>Specified radioactive waste type</b>	<b>Person to whom radioactive waste may be transferred <sup>1</sup></b>	<b>Purpose of transfer</b>	<b>Radionuclide or group of radionuclides</b>	<b>Calendar year limit</b>	<b>Annual volume limit – m<sup>3</sup></b>
LLW	The holder of an environmental permit for the receipt and disposal of LLW	For any one or more of: - treatment - onward transfer for treatment or disposal - incineration - metals recovery - final disposal	Any	No limit	No limit
Non-aqueous liquid waste	The holder of an environmental permit for the receipt and disposal of non-aqueous liquid waste	For any one or more of: - treatment - onward transfer for treatment or disposal - incineration - final disposal	Any	No limit	No limit

1 For the purposes of this table, "environmental permit" includes an authorisation issued under the Radioactive Substances Act 1993 by the environmental regulator for Scotland or Northern Ireland.

**Table S 3.4 monitoring techniques**

Table and radionuclide	Monitoring technique
<p>Table 3.1 Beta-emitting radionuclides associated with particulate matter</p>	<p>For the purposes of demonstrating compliance with the conditions of this permit relating to “beta-emitting radionuclides associated with particulate matter”, the operator shall measure the gross beta activity of all particulate samples collected for these purposes, after an appropriate period for decay of radon daughters, by using:</p> <ul style="list-style-type: none"> <li>(a) a scintillation detector based counting system which: <ul style="list-style-type: none"> <li>(i) has a scintillation detector type BP4/4A, with a window of maximum total thickness of 1.2 mg cm<sup>-2</sup>, which is shielded from background radiation using a lead castle, all manufactured by NE Technology Ltd;</li> <li>(ii) uses the top shelf position of the lead castle (i.e. closest to the detector) to count samples;</li> <li>(iii) has a scaler/counter of a type appropriate to be used with a scintillation detector (such as NE Technology ST7);</li> <li>(iv) is set, using a chlorine-36 source, to have an operating voltage complying with manufacturer’s instructions (normally at the mid point of the plateau);</li> <li>(v) has the lower energy threshold control set at the minimum consistent with appropriately limiting the counting of electronic noise, and the upper energy window control set at maximum so as to have no upper limit set; and</li> <li>(vi) is calibrated for detection efficiency using a chlorine-36 standard traceable to a National Standard;</li> </ul> </li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>(b) any other suitable counting system, which has been agreed in writing by the Environment Agency.</li> </ul>
<p>Table 3.1 Noble Gases</p>	<p>For the purposes of demonstrating compliance with the limitations and conditions of this Authorisation relating to “noble gases”, the Operator shall measure the activity of noble gases in disposals of radioactive gaseous waste by:</p> <ul style="list-style-type: none"> <li>(a) For disposal outlets A1, A2 and A3, a Merlin-Gerin Provence Instruments Particulate-Iodine-Gas (PIG) Monitor, drawing a sample from the discharge outlet for analysis using an NGM 20-21 ionisation chamber monitor in which: <ul style="list-style-type: none"> <li>(i) the detector is set to measure beta radiation in the energy range 250 keV – 3 MeV;</li> <li>(ii) the detector output is routed to a measuring unit, type CM/CI, which passes voltage pulses to the ratemeter, INR, within which the sample specific activity is calculated according to the manufacturer’s algorithm;</li> <li>(iii) the system is set up in accordance with the manufacturer’s requirements;</li> <li>(iv) the counter is calibrated for detection efficiency using a caesium-137 source traceable to National Standards;</li> <li>(v) the detection range is 1.0 kBq m<sup>-3</sup> to 1.0 GBq m<sup>-3</sup> in the beta particle energy range of 250 keV to 3 MeV; and</li> <li>(vi) the measured specific activity of the gas is multiplied by the volume of gas discharged during the reporting period, as measured by a calibrated flow meter;</li> </ul> </li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>(b) Any other suitable method, which has been agreed in writing by the Environment Agency.</li> </ul>

**Table S 3.4 monitoring techniques**

Table and radionuclide	Monitoring technique
Table 3.2 Other radionuclides	<p>For the purposes of demonstrating compliance with the conditions of this permit relating to "Other radionuclides" The operator shall measure by using</p> <p>(a)</p> <ul style="list-style-type: none"> <li>(i) Preparing a bulked sample representative of the total effluent discharged over a sample period not exceeding one week;</li> <li>(ii) Analysing a proportion of this sample bulk for cobalt-60 and caesium-137 by gamma spectrometry;</li> <li>(iii) Evaporating a proportion of this sample bulk to dryness to remove tritium and dissolving the residues in nitric acid;</li> <li>(iv) measuring the activities of the radionuclides in the dissolved residues using triple channel liquid scintillation spectroscopy which has been set and calibrated as below: <ul style="list-style-type: none"> <li>-the "low energy" channel of the liquid scintillation spectrometer shall have been set to detect all beta energies below 8.0 keV, calibrated for detection efficiency using a tritium standard;</li> <li>-the "intermediate energy" channel shall have been set to detect all beta energies above 18.6 keV and up to the maximum energy of 167 keV, calibrated for detection efficiency using a carbon-14 standard;</li> <li>-the "high energy" channel shall have been set to detect all beta energies above 167 keV and up to the maximum detectable by the counter, calibrated for detection efficiency using a standard consisting of strontium-90 and yttrium-90;</li> <li>-the automatic energy/quench correction function shall be applied to the counting protocol;</li> </ul> </li> <li>(v) summing the activities from each of the above three channels for each sample bulk to give the "total activity excluding tritium";</li> <li>(vi) Subtracting the cobalt-60 and caesium-137 values determined in step (ii), to give "other radionuclides " discharged during the sample period;</li> <li>(vii) The total discharge for each month shall be determined from the sum of the "other radionuclides" in each sample period over that month;</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>(b) Any other suitable method, which has been agreed in writing by the Environment Agency.</li> </ul>

# Schedule 4 - Reporting

There are no requirements under this schedule.

# Schedule 5 - Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the disposal. Where appropriate, a comparison should be made of actual disposals and permitted disposal limits.

## Part A – to be provided within 24 hours

Permit Number	<b>EPR/ZP3690SY</b>
Name of operator	<b>NNB Generation Company Limited</b>
Location of Facility	<b>Hinkley Point C Power Station</b>
Time and date of the detection	

### **(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or disposal which has caused, is causing or may cause significant pollution or may generate significant amounts of radioactive waste**

Date and time of the event	
Reference or description of the location of the event	
Description of where any disposal into the environment took place	
Radionuclides potentially released	
Best estimate of the quantity or rate of release of radionuclides or amount of radioactive waste generated	
Measures taken, or intended to be taken, to stop any disposal	
Description of the failure or accident.	

### **(b) Notification requirements for the breach of a limit or disposal of radioactive waste other than by a relevant permitted route**

Disposal outlet reference/ source	
Radionuclides	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the disposal	

### **(c) Notification requirements for the detection of any significant adverse environmental effect**

Description of where the effect on the environment was detected	
Radionuclides detected	
Activity of radionuclides detected	
Date of monitoring/sampling	

## Part B - to be provided as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any contamination of the environment which has been or may be caused by the disposal	
The dates of any unauthorised disposals from the facility in the preceding 24 months.	

<b>Name*</b>	
<b>Post</b>	
<b>Signature</b>	
<b>Date</b>	

\* authorised to sign on behalf of NNB Generation Company Limited

# Schedule 6 - Interpretation

In this permit, except where otherwise specified, words and expressions defined in the "regulations" in relation to radioactive substances regulation shall have the same meanings when used in this permit as they have in those regulations.

"*activity*", expressed in becquerels, means the number of spontaneous nuclear transformations occurring in a period of one second.

"*annual limit*" means the limit over a period of any consecutive 12 months.

"*aqueous waste*" means radioactive waste in the form of a continuous aqueous phase together with any entrained solids, gases and non-aqueous liquids.

"*best available techniques*" means the latest stage of development (state of the art) of processes, of facilities or of methods of operation which indicate the practical suitability of a particular measure for limiting discharges, emissions and waste. In determining whether a set of processes, facilities and methods of operation constitute the best available techniques in general or individual cases, special consideration shall be given to:

- a. comparable processes, facilities or methods of operation which have recently been successfully tried out;
- b. technological advances and changes in scientific knowledge and understanding;
- c. the economic feasibility of such techniques;
- d. time limits for installation in both new and existing plants;
- e. the nature and volume of the discharges and emissions concerned

"*techniques*" include both the technology used and the way in which the installation is designed, built, maintained, operated and dismantled.

"*Bq, kBq, MBq, GBq, TBq and PBq*" are used as abbreviations meaning becquerels, kilobecquerels, megabecquerels, gigabecquerels, terabecquerels and petabecquerels respectively.

"*calendar year*" means a period of 12 consecutive months beginning on 1 January.

"*environment*" means all, or any, of the media of air, water (to include sewers and drains) and land.

"*gaseous waste*" means radioactive waste in the form of gases and associated mists and particulate matter.

"*GDA Statement of Design Acceptability*" means Generic Design Assessment Statement of Design Acceptability for the UK EPR<sup>TM</sup> issued on 13 December 2012

"*LLW*" means solid radioactive waste, including any immediate packaging, with an activity concentration greater than the maximum for VLLW but not exceeding 4 gigabecquerels per tonne of alpha emitting radionuclides nor 12 gigabecquerels per tonne of all other radionuclides.

"*MCERTS*" means the Environment Agency's Monitoring Certification Scheme.

"*month*" means calendar month.

"*National Arrangements for Incidents Involving Radioactivity*" means the arrangements co-ordinated by the Health Protection Agency to protect the public from hazards arising from the use and transport of radioactive materials and in situations where no formal contingency plans exist.

"*nuclear operator*" means the holder of a licence issued under the Nuclear Installations Act 1965.

"*quarter*" means any period of three consecutive months.

"*packaging*" includes any sack, drum, container or wrapping.

"*Pre-construction Environmental Report*" means EDF and AREVA's Final Consolidated UK EPR GDA Pre-construction Environmental Report, as referenced in Schedule 1 of the Statement of Design Acceptability of the UK EPR<sup>TM</sup>, issued 13 December 2012

"*Radioactive Waste Adviser*" means, subject to the transitional arrangements in the Environment Agencies' Scheme for Radioactive Waste Advisers ("the Scheme"), either an individual certified under the Scheme and appointed in writing by the operator, or those individuals advising the operator under the operator's arrangements, approved under the Scheme, for "corporate radioactive waste adviser". The Scheme is set out in the Environment Agencies' Statement on Radioactive Waste Advisers of 24 May 2011, together with the associated guidance and other documents published by the Environment Agencies from time to time. (Current documents are available at: [http://www.sepa.org.uk/radioactive\\_substances/radioactive\\_waste\\_advisers.aspx](http://www.sepa.org.uk/radioactive_substances/radioactive_waste_advisers.aspx).)

"*Radsafe*" means the consortium of organisations which offer mutual assistance in the event of a transport accident involving radioactive materials belonging to a RADSAFE member.

"*samples*" includes samples that have been prepared or treated to enable measurements of activity to be made.

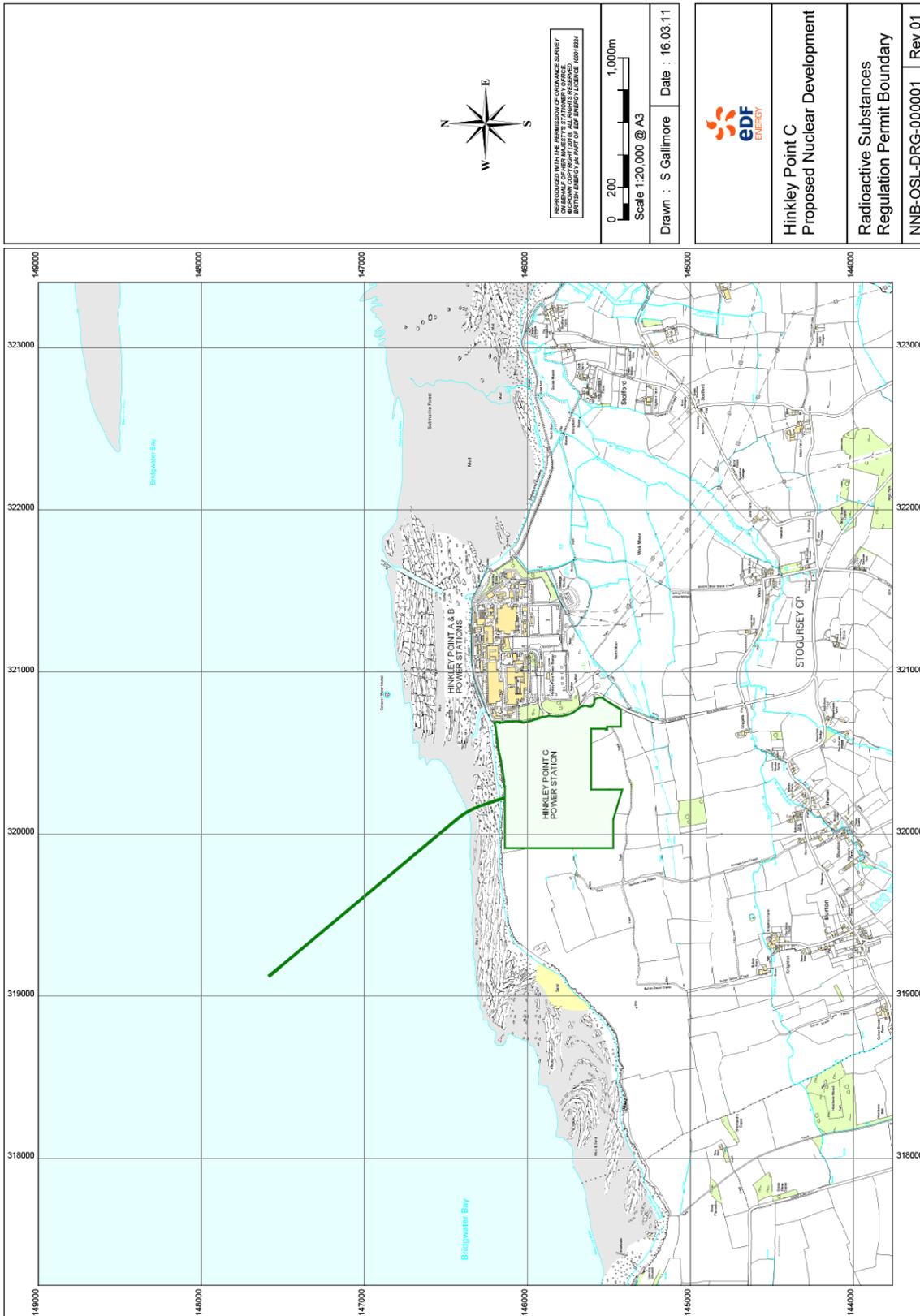
"*spot sampling*" means the taking of samples on a non-continuous basis of radioactive substances for subsequent analysis.

"*VLLW*" means solid radioactive waste with a maximum concentration of 40 megabecquerels per tonne of tritium and carbon-14 (in total) and 4 megabecquerels per tonne of all other radionuclides.

"*week*" means a period of 7 consecutive days commencing at a day and time to be notified in writing to the Environment Agency by the Operator at least 14 days before any disposal of radioactive waste is made under the terms of this permit, any subsequent change being notified in writing to the Environment Agency at least 7 days in advance.

"*year*" means any period of 12 consecutive months.

# Schedule 7 - Site plan



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