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Revision 01

## Company Document

HPC CWDA ENVIRONMENTAL PERMIT VARIATION APPLICATION – SUPPORTING INFORMATION  
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# HPC COMPANY DOCUMENT

## COMPANY DOCUMENT HPC CWDA ENVIRONMENTAL PERMIT VARIATION APPLICATION - SUPPORTING INFORMATION

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## APPROVAL: HPC CWDA ENVIRONMENTAL PERMIT VARIATION APPLICATION – SUPPORTING INFORMATION

|                     |   |                      |
|---------------------|---|----------------------|
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## DOCUMENT CONTROL

| Revision | Purpose   | Amendment   | By         | Date       |
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| 01       | D4 - FFC - FIT FOR CONSTRUCTION, MANUFACTURING, PROCUREMENT | Approved    | C Fayers   | 20/01/2021 |

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## Non-technical summary

This application to vary the Construction Water Discharge Activity (CWDA) Environmental Permit (EPR/JP3122GM) is made by NNB Generation Company (HPC) Limited (hereafter NNB HPC), company number 6937084. The CWDA Permit was first issued in February 2012 to support the construction of the Hinkley Point C (HPC) Nuclear Power Station.

The original CWDA permit authorised a number of discharges from the HPC construction site to controlled waters as detailed within Schedule 1 of the permit. This was subsequently varied as follows:

- November 2013 – Inclusion of rainfall dependant run-off from the construction of the seawall (Activity A) and updated with revised drainage proposals.
- February 2015 – Increased allowance for concrete wash water volumes and addition of waste stream G (rainfall dependent run-off and shallow excavation water passed through Water Management Zone (WMZ) 6).
- March 2017 – Requirements amended with regards to Activity E to remove the need to treat pumped groundwater (subject to agreed Operating Techniques). National Grid References (NGRs) provided for WMZs.
- March 2018 - Relocation of Activity E discharge from Outlet 1 to Outlet 12, a subtidal point near the seaward end of the HPC temporary jetty. In addition, reduction of discharge flow rate to 20 l/s. Also, inclusion of a new activity (Activity H) for the discharge of trade effluent consisting of tunnelling effluent and drainage from the tunnelling spoil storage area (muck bay).

This latest variation of the permit is to incorporate the following amendments:

- Addition of drainage from the Fuel Farm
- Addition of drainage from the National Grid compound – K6NG
- Addition of drainage from the Crushing Yard – K28 and K16
- Addition of the discharge of waste potable/surface water from multiple uses across site
- Changes to the volume and discharge point for cementitious washwater (Activity F)
- Tunnelling effluent (Activity H) – minor amendment to activity description
- Addition of discharge of wastewater (not containing hazardous substances) from cleaning and hydrotesting of equipment

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- Cessation of Activities that are no longer required
- New notification mechanism for cessation of Activities
- Change to permitted grid references

NNB HPC agree to waive the four year 'hands off period' that would otherwise occur due to this application being submitted within 4 years of the previous version of the permit being issued.

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## 1 INTRODUCTION

### 1.1 Background and purpose

This application is made by NNB HPC, company number 6937084, to vary the CWDA Environmental Permit (EPR/JP3122GM) issued in February 2012 to support the construction of the Hinkley Point C (HPC) Nuclear Power Station.

An initial Environmental Permit Application [Ref. 1] (hereafter referred to as the 2011 Application) to authorise a number of discharges to controlled waters was submitted to the Environment Agency (EA) in September 2011 and Environmental Permit EPR/JP3122GM [Ref. 2] was issued in February 2012.

In November 2013, the EA issued a variation of the Permit EPR/JP3122GM/V002 [Ref. 3] to include waste water (rainfall dependent run-off and water from shallow excavations) produced from the construction of the seawall and to reflect the Operator's revised drainage proposals as set out in its Pre-Operational (PO) condition submissions.

In February 2015, the EA issued a variation EPR/JP3122GM/003 [Ref. 4] to the permit to allow for increased volumes of concrete wash water to be discharged and to add an additional waste stream, waste stream G. A further variation occurred in December 2015 to accommodate a company name change (EPR/JP3122GM/V004).

In March 2017, the EA issued a variation EPR/JP3122GM/V005 [Ref. 5] to amend the requirement of the environmental permit, with regards to Activity E, to remove the need to treat pumped groundwater to meet UK Water Framework Directive (WFD) Environmental Quality Standards (EQS) prior to discharge and reduce the permitted discharge volumes listed in Table S3.1 to the Permit. This variation also updated national grid references for the locations of the outfall discharge points for Water Management Zones (WMZ) 5 and 6.

The previous permit described above also incorporated three new Operating Techniques (OT); OT9 which relates to the monitoring and reporting of the load-based permit limits, OT10 which relates to dewatering operations and OT11 which relates to the monitoring and mitigation measures to support the Habitats Regulations Assessment (HRA). PO7 was removed from the permit although relevant requirements were carried over into OT10.

Finally, in 2018 the EA issued a permit variation EPR/JP3122GM/V006 and V007 [Ref. 7] for relocation of Activity E discharge from Outlet 1 to Outlet 12, a subtidal point near the seaward end of the HPC temporary jetty. Additionally, it includes a reduction of discharge flow rate to 20 l/s.

The above variation also included a new activity (Activity H) for the discharge of trade effluent consisting of tunnelling effluent and drainage from the tunnelling spoil storage area (muck bay) as follows:

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- Tunnelling effluent generated through the construction of HPC heatsink tunnels including groundwater and low concentrations of soil conditioning chemicals.
- Run-off from rainfall over the muck bay, including low concentrations of soil conditioning chemicals and low volumes of groundwater derived from tunnelling spoil temporarily stored in this area.

It is this 2018 permit that this application seeks to vary and hereafter references to “the permit” refer to EPR/JP3122GM/V006 and V007.

This variation application (herein after referred to as ‘the Variation Application’) is being made to cover various minor amendments as shown in Section 1.2.

## 1.2 Scope

The scope of the Variation Application is as follows:

- 1) Specific amendments to the description of discharges
  - Drainage from the Fuel Farm
  - Drainage from the National Grid compound – K6
  - Drainage from the Crushing Yard – K28 and K16
- 2) Regularisation of existing activities (already commenced)
  - Discharge of waste potable/surface water, not including hazardous substances, from multiple uses across site
  - Discharge of tunnelling effluent (Activity H) – minor amendment to allow discharge of groundwater seepage after construction
- 3) Revision of existing activity (not yet commenced)
  - Discharge of cementitious washwater (Activity F)
- 4) Addition of a new sub-activity (or equivalent)
  - Discharge of wastewater from cleaning and hydrotesting of equipment
- 5) Cessation of existing Activities
  - Cessation of Outlet 8 and Activity D4
  - Cessation of Outlet 11 and Activity G
- 6) Other proposed changes

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- New notification mechanism for cessation of Activities
- Change to permitted grid references

The Variation Application is only related to those permitted discharges allowed under the CWDA environmental permit; there is no reference within this application to the management / discharge of radioactive substances as authorised by the Radioactive Substances Regulations (RSR) environmental permit (EPR/ZP3690SY) [Ref. 13]. Controls on the management and discharge of these substances are detailed within the NNB HPC arrangements, as appropriate.

## 1.3 Summary Description of the Proposed Development

The site is centred on National Grid Reference (NGR) ST 211 460 and is located off Wick Moor Drove, the main access route to the HPC site (The Site) and the existing power station complex.

Further information on the site description and surrounding area is provided in the 2011 Application [Ref. 1] and includes the existing land use, nature conservation designations, geology and watercourses. There are no changes to the designations at the site and unless otherwise specified, the 2011 Application descriptions should be referenced.

## 1.4 Contents of the Application

The main body of the Variation Application references the 2011 Application [Ref. 1] and the existing permit [Ref. 7], the information in these documents is still valid. This Variation Application only presents the proposed changes to the permit.

Section 2 of the application describes in detail the proposals for this CWDA variation application and is the main body of this variation application.

Section 3 proposes wording to be revised within the tables in Schedule 1 of the CWDA permit.

Section 4 of the Variation Application defines how the varied activities will be managed with reference to the NNB HPC written arrangements.

Section 5 includes information relevant to specific questions within the EA application forms including costs.

Section 6 provides a summary conclusion of the application.

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The application to vary an environmental permit for a bespoke water discharge activity consists of EA application forms EPA Part A1, EPC Parts C2 and C6 and EPF Part F1. The completed forms are provided in Appendix A and are supported by the relevant sections of this Application. Form CC1 for the payment of the application fee is also provided.

Appendix B provides the drainage drawings for the Fuel Farm and National Grid Compound (K6) to support the application.

Appendix C provides the revision to CWDA permit Schedule 7 which includes the new monitoring and discharge point for Activity F.

Appendix D includes the anticipated costs for the CWDA permit application agreed at pre-application stage.

The Variation Application should be read in conjunction with the following documents:

- Hinkley Point C Construction Water Discharge Activity Environmental Permit Application 2011 (referred to as the 2011 Application) [Ref. 1].
- Hinkley Point C Construction Water Discharge Activity Environmental Permit V006 & V007 (referred to as The Permit) [Ref. 7].
- HPC Water and Sediment Management Plan (all contractors) [Ref. 10]

## 1.5 References and Definitions

| Ref | Title   | Location | Document No.       |
|-----|---|----------|--------------------|
| 1   | HPC Construction Water Discharge Activity Environmental Permit Application 2011 | EDRMS    | NNB-209-REP-000359 |
| 2   | HPC Construction Water Discharge Activity Environmental Permit EPR/JP3122GM     | EDRMS    | NNB-209-PER-000009 |
| 3   | HPC Construction Water Discharge Activity Environmental Permit EPR/JP3122GMV002 | EDRMS    | NNB-209-PER-000004 |
| 4   | HPC Construction Water Discharge Activity Environmental Permit EPR/JP3122GMV003 | EDRMS    | NNB-209-PER-000004 |
| 5   | HPC Construction Water Discharge Activity Environmental Permit EPR/JP3122GMV004 | EDRMS    | NNB-209-PER-000004 |
| 6   | HPC Construction Water Discharge Activity Environmental Permit EPR/JP3122GMV005 | EDRMS    | NNB-209-PER-000004 |

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| Ref | Title  | Location | Document No.                     |
|-----|--|----------|----------------------------------|
| 7   | HPC Construction Water Discharge Activity Environmental Permit<br>EPR/JP3122GMV007   | EDRMS    | NNB-209-PER-000004               |
| 8   | Temporary Surface Water Drainage Report (NNB GenCo Response to<br>Pre-Operational Conditions 01 and 08)                      | EDRMS    | HPC-NNBOSL-XX-000-REP-<br>000020 |
| 9   | Emissions Management Plan (NNB GenCo Response to Pre-<br>Operational Condition 04)   | EDRMS    | HPC-NNBPCP-XX-000-PLN-<br>000046 |
| 10  | HPC Water and Sediment Management Plan (all contractors)   | EDRMS    | HPC-NNBOSL-XX-000-PLN-<br>000030 |
| 11  | HPC Environmental Incident Control Plan  | EDRMS    | HPC-NNBOSL-XX-000-PLN-<br>000033 |
| 12  | Waste Processing (Crushing) and Storage Environmental Permit<br>EPR/HB3104CD   | EDRMS    | 100580254                        |
| 13  | Radioactive Substances Regulations (RSR) environmental permit<br>(EPR/ZP3690SY)  | EDRMS    | NNB-209-PER-000005               |
| 14  | CEFAS, 2017. Hinkley Point C construction discharge modelling<br>assessment as the location of the temporary jetty (3rd Ed). | EDRMS    | HPC-DEV024-XX-000-<br>REP-100002 |

| Term / Abbreviation | Definition   |
|---------------------|--|
| BDAE                | Built Development Area East                                |
| BDAW                | Built Development Area West                                |
| CEFAS               | Centre for Environment, Fisheries and Aquaculture Sciences |
| CEMP                | Construction Environmental Management Plan                 |
| COTR                | Cementitious (Wash Water) Operating Techniques Report      |
| CWDA                | Construction Water Discharge Activity (permit)             |
| DCO                 | Development Consent Order                                  |
| EA                  | Environment Agency   |
| EICP                | Emergency Incident Control Plan                            |
| EQS                 | Environment Quality Standard                               |
| GIS                 | Gas Insulated Switchgear                                   |
| IDB                 | Internal Drainage Board                                    |
| IHLA                | Independent High-Level Alarm                               |
| HPC                 | Hinkley Point C  |
| MCERTS              | Environment Agency Monitoring Certification Scheme         |
| NGR                 | National Grid Reference                                    |
| NNB HPC             | NNB Generation Company (HPC) Limited                       |
| OT                  | Operating Technique  |

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| Term / Abbreviation | Definition   |
|---------------------|--|
| OWDA                | Operational Water Discharge Activity (permit)                      |
| PO                  | Pre-Operational condition  |
| ROSOV               | Remotely Operated Shut Off Valves                                  |
| RSR                 | Radioactive Substances Regulations                                 |
| SCPA                | Southern Construction Phase Area                                   |
| SDS                 | Safety Data Sheet (formerly knowns as material safety data sheets) |
| SOP                 | Standard Operating Procedure                                       |
| WFD                 | Water Framework Directive  |
| WMZ                 | Water Management Zone  |
| WSMP                | Water and Sediment Management Plan                                 |

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## 2 CWDA PERMIT VARIATION PROPOSALS

### 2.1 Specific additions to overall site drainage

#### 2.1.1 Fuel Farm

##### 2.1.1.1 Drainage from the fuel farm and pollution prevention measures

The “fuel farm” is a fuel depot with bunkering facility including three large fuel tanks capable of storing 112,000l each. Two of the tanks hold red diesel and one tank holds white diesel, in combination there is the potential of storing combined fuel of 336,000l. There is also a tank which holds up to 9,000l of AdBlue. The fuel farm is located within Hinkley Point C in K23B. The facility has a 10-year design life and will be used for the HPC construction period. The fuel farm will be operated by a competent contractor – CERTAS Energy UK Ltd.

The surface water drainage network of the fuel farm has been installed to control run-off from the facility. A Class 1 Full Retention Separator (with integral automatic closure valve linked to a hydrocarbon detector) has been installed. All surface water from the fuel farm platform will pass through the oil separator into Water Management Zone (WMZ) 4 where it will join the HPC surface water network. The drainage network of the fuel farm includes full redundancy including a second independent closure valve in an additional chamber downstream of the oil interceptor outfall. Both the oil interceptor and closure valve have high oil level alarms (visible, audible and with telemetry). The fuel farm boundary is lined with HB2 kerbs (125mm upstand) to control run off. The drainage including control measures is shown in Appendix B.

The fuel storage tanks are integrally banded to provide secondary containment as required by the Control of Pollution (Oil Storage) (England) Regulations 2001. The main tank farm has tertiary containment (concrete wall) with manually operated sump. The tank gauging system fitted to the tank farm has a number of built-in safety features including high level alarm, low level alarm, sudden drop and water content. The bund space (within each integrally banded tank) is fitted with an oil detection sensor. The site is fitted with an Independent High-Level Alarm (IHLa) system including Remotely Operated Shut Off Valves (ROSOV) to physically prevent a tank overflow incident.

As much pipework as possible is contained within the tertiary bund and above ground. There is approximately 5 metres length of buried pipework to the pump island which is fitted with a vacuum leak detection system and has telemetry. All pipe runs are fitted with lock-off valves and non-return valves. (there is a maximum potential uncontrolled loss of 307 litres from the longest pipework span between two valves). Standard operating procedure (SOP) is that all valves are closed and locked out of hours.

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#### 2.1.1.2 Emergency planning

In regard to emergency planning, the industry standard worst-case scenario allowance is 7000l uncontrolled loss of product (single compartment of an articulated delivery tanker) during a 1:30 year storm event (HPC specific parameter). See below for this scenario at HPC with the pollution control measures in place.

1. 7,000l of diesel lost which enters drainage network at the same time as HPC is experiencing a 1:30 year rainfall event.
2. The interceptor will start to treat the incoming diesel (which will not arrive all at once) and will still be allowing water to pass through.
3. Based on interceptor overall capacity calculation once circa 4,000l of diesel has flowed into the main interceptor chamber it will trigger the high-level hydrocarbon detector and close the valve into the coaleser chamber (the second independent closure valve acts as a backup to the auto-valve in the interceptor).
4. The interceptor is now acting as an underground storage tank and once it is full the drainage network will start backing up. There is a minimum of 18,000l of storage in the interceptor (if worst case the silt capacity of 10,000l is already reached - very unlikely) and an additional 5,520l within the drainage network.
5. A 1:30yr rainfall event will result in a flow of 72l/s entering the interceptor from manhole SW-05. With a total storage capacity of 34,220l there is capability to store 71.5 minutes of storm water and diesel while in peak flow conditions.
6. This includes an additional 14.3 minutes of storage while the drainage network on the fuel farm backs up and stores the spilled fuel/water mix.

Based on the above worst-case scenario there will be 70 minutes to respond to a catastrophic event (the platform kerbs will contain slightly more volume). HPC would use site-based resources to reduce any impact with potential to utilise HPC's external specialist spill response contractor where necessary. HPC resources already in place include:

- Use of Wessex Water to provide emergency cover with a tractor and 10,000l tractor tower vacuum tanker to pump out the chamber within the interceptor. This plant is based at HPC full-time.
- Certas and Wessex Water also have road going tankers on site which could also be utilised (19,000l and 28,000l).
- Fuel depot to only receive bulk fuel deliveries during normal HPC working hours (06:00-18:00) when emergency cover is available.

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#### 2.1.1.3 Proposed update to permit

Run-off from the fuel farm discharges to WMZ4 and then flows through Outlet 4. The design of WMZ4 provides additional retention for hydrocarbons by ensuring that outlets from each pond are always submerged. This prevents floating hydrocarbons from passing through the WMZ to the outlet. Our proposal is for Schedule 1 – Operations to be updated under Activity C for the column Limits of Specified Activity. This approach is comparable to the description for Activity A. Please see Section 3.1 for the exact wording that NNB HPC propose for Activity C.

NNB HPC do not believe that further permit updates are required as the fuel farm will be effectively operated under internal management arrangements to ensure pollution control (Section 4). There will be no changes necessary within Schedule 3 of the CWDA permit.

#### 2.1.2 National Grid (NG) Compound

##### 2.1.2.1 Drainage from the operational NG Compound and pollution prevention measures

The NG compound is located in K6NG and has been built to house the 'Shurton Substation'. A submission pursuant to DCO requirement MS30 (Surface and Foul Water Drainage System) under the Hinkley Point C (Nuclear Generation Company) Statutory Order 2013 (as amended) for Work No. 1A(j) National Grid Substation and associated buildings and plant ('Shurton Substation') has been made to Somerset West and Taunton Council.

The EA are a key stakeholder in the consultation for the submission and update of DCO requirement MS30. However, to avoid double regulation it has been agreed that any questions regarding pollution control will be raised in response to this variation rather than via the planning process. The pollution control measures detailed above are consistent with those set out in Pre-Operational Conditions such as PO1/8 [Ref. 8].

Drainage for Shurton Substation has been designed to the standards and design guides listed in Section 3 of the appended Civil & Structural Calculations – Site Drainage Calculations:

- Section 3.1 British Standards; and
- Section 3.2 Design Guides/Regulations – Inclusive of National Grid Technical Specification NGTS 2.10.01 Issue 1 April 2017 – Oil Containment.

The design philosophy is based upon sustainable drainage principles and the context of the Site Drainage Strategy for HPC. A drainage drawing including control measures can be found in Appendix B.

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Surface water and land drainage for Shurton Substation will act independently of each other and drain to different sources.

The surface water discharges to the existing Hinkley Point surface water network system to the north of the Shurton Substation site and flows to WMZ3. No attenuation has been considered for the surface water drainage as the Hinkley Point existing drainage system has enough capacity for discharge from Shurton Substation and the area in question was always with the catchment.

For information the land drainage will discharge to a headwall located within the existing ditch to the side of Wicks Moor Drove, located to the south west of Shurton Substation. Any land drainage will not discharge into the surface water network permitted by the CWDA permit and will have a separate land drainage consent. To clarify a permit under the EPR regulations will not be required for this activity as it is only rainfall dependant run-off to a ditch which is not classified as a “main river”.

The surface water network system will convey roof run-off via a network of rainwater pipes to the Gas Insulated Switchgear (GIS) building and connect into a below ground surface water discharge system via a branch connection, which would travel via an oil interceptor before discharge to the HPC surface water drainage system.

Run-off from the hardstanding areas will be collected via linear drains and kerb drains and discharge into the system and connects into the existing HPC surface water drainage system.

The reactors will be filled with oil shortly before Shurton Substation becomes operational. Oil contained within the reactor bund would be removed via the oil draw off pipework through the oil draw-off chamber. Fire containment would be provided through a fire trap. A bund water control unit would detect any oil via alarm and allow flow of surface water drainage via an oil interceptor. This will prevent ‘oily’ water entering the surface water drainage system. It is noted that prior to filling of the reactors with oil, drainage from the construction works is already within the scope of the existing activity.

Surface water will discharge to an oil separator which will be fitted with an oil level alarm system with telemetry to central control. Manhole chambers containing penstocks are located upstream and downstream of the oil interceptor.

Further detailed information on the oil within the reactors as follows:

The oil type held within the reactors is Nynas Lyra X with a reactor mass of insul/oil = 43t x 3 with a density of oil being 895kg/m<sup>3</sup>. The reactor volume of oil is 145.14m<sup>3</sup> (this allows for 3No. reactors). The reactor bund has been designed to 150% of the volume of oil, which is 217.17m<sup>3</sup>.

Oil containment measures proposed are as follows:

- Bund designed to 150% volume of oil.
- Diesel generator will be located within a self-contained bund. 1,127 L Brimful Capacity, 887 L Useable Capacity – Container Bund Capacity 115% of Brimful Capacity.

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- Regular checks are taken from sampling chambers. Maintenance regime to be undertaken by National Grid.

#### 2.1.2.2 Proposed update to permit

Run-off from the NG compound discharges to WMZ3 and then flows through Outlet 1. The proposal is for Schedule 1 – Operations to be updated under Activity A for the column Limits of Specified Activity. Please see Section 3.1 for the exact wording that NNB HPC propose for Activity A.

NNB HPC do not believe that further permit updates are required as the NG Compound will be effectively operated under NGs management arrangements to ensure pollution control (see Section 4). There will be no changes necessary within Schedule 3 of the CWDA permit. The Operational Water Discharge Activity (OWDA) permit will regulate the discharge at the appropriate stage when the CWDA permit is surrendered.

#### 2.1.3 Crushing yard (K28 and K16)

##### 2.1.3.1 Drainage from the crushing yard and pollution prevention measures

Crushing of inert waste takes place at a crushing yard in K28 and is also permitted to take place in K16. All crushing of inert waste takes place as per the Waste Processing (Crushing) and Storage permit – EPR/HB3104CD. “Inert waste” refers to any waste types provided in Schedule 2 of the EA Environmental Permitting Regulations (EPR) waste permit – EPR/HB3104CD [Ref. 12]. NNB HPC will principally crush and store inert waste concrete and non-hazardous tarmac, however it is acknowledged that other inert waste types are included within Schedule 2 of the permit [Ref. 12], NNB HPC consider these other inert waste types as low risk and as such no difference in regards to pollution control measures for drainage.

Site drainage is limited to surface water run-off. The crushing, screening and, storage areas in the crushing yard will comprise a compacted stone base with drainage to collect surface water run-off including that which has come into contact with the waste. Surface water will drain into a sump or flow to the relevant WMZ under gravity. Water collected in a sump will be directed to water management zones: K28 to WMZ 5 and K16 to WMZ 2. Any stockpiles are not to be located directly adjacent to site drainage to minimise likelihood of waste / materials sliding into drainage (as per the Water and Sediment Management Plan [Ref. 10]).

Any wet concrete is located within a pit within the crushing zone to allow it to dry before crushing. The pit is bunded so that surface water does not run-off into the pit. Any seepage of water from the wet concrete percolates through approximately 20m of compacted stone fill which filters the drainage before reaching WMZ 5. Similar arrangements will be set up for any concrete crushing in K16.

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Drainage will be captured and treated in WMZ5 or WMZ2 by flocculation, coagulation and settlement, and pH balancing before water is discharged via outlet 3 or outlet 1. This treatment will ensure that the limits set within Table S3.1 of the CWDA permit for suspended solids and pH are not exceeded.

Mitigation measures are in place across the wider HPC construction site for the management of hydrocarbon impacted waters should there be any leaks or spillages at the facility that are not contained at source. This includes the requirement to check for oil and grease within each of the WMZs prior to discharge as per Table S3.1 of the CWDA permit.

NNB HPC propose that existing surface water treatment across HPC site is sufficient to prevent any further impact to the environment from this discharge and as such can be captured under existing activities.

#### 2.1.3.2 Proposed update to permit

Water from the crushing yard in K28 discharges to WMZ5 and then flows through Outlet 3. Water from the crushing yard in K16 discharges to WMZ2 and then flows through Outlet 1. Our proposal is for Schedule 1 – Operations to be updated under Activity A and B for the column Limits of Specified Activity. Please see Section 3.1 for the exact wording that NNB HPC propose for Activity A and B.

NNB HPC do not believe that further permit updates are required as the crushing yard will be operated under internal management arrangements to ensure pollution control (see Section 4). There will be no changes necessary within Schedule 3 of the CWDA permit.

## 2.2 Regularisation of existing activities (already commenced)

### 2.2.1 Waste potable/surface water from multiple uses across site

#### 2.2.1.1 Purpose and activity

Since the CWDA permit was first granted and then subsequently varied, HPC site has moved from predominantly earthworks and several areas of bare ground to civils construction with impermeable surfaces such as concrete. Cleaning of vehicles, equipment and surfaces is now taking place at a greater extent across site due to these new surfaces which need to be maintained and cleaned before follow-on works can be completed. In addition, as a result of the impermeable surfaces such water can no longer soak away. Local agreements with the EA have been in place for some of these activities. With this variation NNB HPC would like to capture these activities so there is no discrepancy on what can and can't be discharged to the HPC surface water management system.

Activities are as follows:

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- Dust suppression;
- General cleaning of surfaces e.g., before the next concrete pour or before painting;
- Vehicle cleaning;
- Wheel wash facilities;
- Hydro demolition; and
- Dewatering of road sweepings/silts.

All of the activities listed above will take place ad-hoc and when required. For example, dust suppression will occur regularly during the summer months or/and when works which create dust are taking place. Another example would be the wheel wash facility which recirculates water until it requires discharge and restock (likely every few months).

As HPC is a dynamic site there may be other equivalent activities to take place that are not specified above. Due to this NNB HPC propose to add the wording “or other equivalent activity as agreed with the Environment Agency” to the Activity description (see Section 3.1). If agreed with the EA that any new equivalent activity could take place as it would not increase the potential impact on the environment, then this would remove the requirement to vary the permit.

Control measures for these activities are in place as per the specific Risk Assessment Method Statements (RAMS), see Section 4 for the management arrangements section such as the HPC Water and Sediment Management Plan [Ref. 10] and the “permit to pump” process.

#### 2.2.1.2 Effluent type and discharge route

Potable and surface water (for example captured from WMZs) are used for the above activities and the wastewater is discharged into the HPC surface water system. No hazardous substances will be used for these activities and no detergents or surfactants will be utilised. A limited amount of oil and grease may be picked up during these activities.

This activity will take place across HPC and any fixed mechanisms such as the wheelwash may change locations multiple times as it is a dynamic complex construction site. Due to this the waste water from this activity could enter WMZ 1, 2, 3, 4 and 5 and discharge via outlet 1, 3 or 4. This activity is not significantly different from what is already discharged into the HPC surface water management system and through the WMZs, for example from run-off from rainwater which picks up surface silt particularly during heavy rainfall. All the WMZs are designed to capture incidental oil and grease as well as to remove suspended solids and adjust pH when needed.

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#### 2.2.1.3 Proposed update to permit

Discharges will be to WMZ1, 2, 3, 4, or 5 and will flow through Outlet 1, 3, or 4. Our proposal is for Schedule 1 – Operations to be updated under Activity A, B and C for the column Limits of Specified Activity. Please see Section 3.1 for the exact wording that NNB HPC propose for Activity A, B and C.

NNB HPC do not believe that further permit updates are required as the activities described in Section 3.3.1 will be effectively operated under internal management arrangements to ensure pollution control (see Section 4). There will be no changes necessary within Schedule 3 of the CWDA permit.

#### 2.2.2 Tunnelling effluent (Activity H)

##### 2.2.2.1 Purpose and activity

Currently within the CWDA permit under Table S1.1 “Limits for specified activity” for Activity H the first paragraph on tunnelling effluent specifies ‘as they are dug’. NNB HPC is now aware that there may be some seepage of groundwater into the tunnels after the tunnelling works are complete but prior to connection of the heads. NNB HPC would like to dispose of this effluent using the same method as agreed for Activity H and OT12 (Table S1.2 of the CWDA permit).

NNB HPC proposes that the groundwater from the seepage of water will cause no more impact once treated and discharged than the groundwater that needed to be disposed of when the tunnel was being dug. Furthermore, the modelling that was carried out in the previous CWDA variation will still be relevant for the groundwater seepage once the tunnelling works are complete.

##### 2.2.2.2 Proposed update to permit

This groundwater would continue to be discharged, after treatment if needed, through outlet 12 (as per Activity H and OT12). The proposal is for Schedule 1 – Operations to be updated under Activity H for the column Limits of Specified Activity. Please see Section 3.1. for the exact wording that NNB HPC propose for Activity H.

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## 2.3 Revision to existing activity (not yet commenced)

### 2.3.1 Cementitious washwater (Activity F)

#### 2.3.1.1 Purpose and activity

Currently within the CWDA permit Activity F(i), F(ii) & F(iii) allows for the discharge of trade effluent consisting of cementitious wash water (CWW) via outlet 1 once PO2 (concrete wash water categorisation report) is discharged. To date NNB HPC has not discharged any CWW via outlet 1. A report (NNB HPC, 2013) was submitted in 2013 to discharge PO2 and was accepted by the EA based on the information available at the time. However, discharge under Activity F was never commenced under this report. A further submission was made in April 2020 with a view to discharging PO2 with respect to grout wash water from the tunnelling works. The EA was not able to discharge PO2 due to uncertainties over the applicability of the completed modelling to the particular discharge under consideration.

The Hinkley Point C project continues to use concrete and cementitious grout for a number of applications. This includes the installation of three bored tunnels beneath the Bristol Channel to form part of the power station's cooling water system which require cementitious grout to be injected behind the segment lining, increasing the waterproofness of the tunnel and enhancing stability. Using the on-site batching plants, significant volumes of concrete continue to be produced to form the platforms across HPC. Cementitious grout is also required for the structures that are being constructed at HPC, and as such a separate batching plant specific for grout production is to be installed.

Cement and grout equipment and containers require washing out, for example at the end of each shift, which creates a cementitious wash water. Although there is the potential to reuse some wash water in the mix, in many circumstances reuse is not possible due to quality specifications. For example, it is not acceptable to reuse water in the grout mix required for the tunnelling works. This gives rise to the CWW waste stream which requires disposal.

Currently excess CWW is being removed from site by tanker for off-site treatment leading to increased vehicle movements and fuel use, and social and economic impacts. NNB HPC would like to be able to discharge CWW via Activity F to reach a more sustainable approach, however, to do this a variation to the currently agreed activity is seen as the most appropriate way forward.

NNB HPC propose to vary the permit to:

- change the discharge location for CWW to Outlet 12; and
- increase the permitted flow rate to 50m<sup>3</sup>/day which is considered sufficient for all CWW discharged through to the completion of the project.

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It is recognised that the current permitted discharge location (Outlet 1) which discharges to the sensitive foreshore has higher potential to impact the environment due to the potential for direct contact with receptors such as *Sabellaria spp.* and *Corallina spp.* Changing the discharge to Outlet 12 located at the HPC jetty would reduce the potential for impact to the environment as it is a subtidal location where there is greater opportunity for dilution and dispersion to occur. Detailed modelling was also produced for the previous CWDA variation which enabled discharge of tunnelling effluent and groundwater from this location (Ref. 14).

A review of the likely volumes of CWW that cannot be re-used to make new concrete or grout has indicated that 10m<sup>3</sup>/day as allowed under the existing permit is insufficient. It is considered that marine works may produce up to 20m<sup>3</sup>/day and the main civils works may produce up to 30m<sup>3</sup>/day giving a total of 50m<sup>3</sup>/day although it is unlikely that both sources will be producing CWW at maximum capacity at the same time.

NNB HPC will provide a cementitious wash water characterisation report as per permit condition PO2 when the required information becomes available. NNB HPC recognise that no discharge can commence under Activity F until a submission under PO2 is approved by the EA.

#### 2.3.1.2 Proposed treatment and monitoring methodology

Treatment to remove suspended solids and to adjust pH will be required to facilitate discharge. The precise treatment system is yet to be determined but is likely to comprise a lamella settlement step, likely enhanced with coagulant and flocculent and a pH correction step which will utilise carbon dioxide to neutralise the excess alkalinity. All the treatment chemicals to be used have previously been approved for use by the Environment Agency in connection with treatment of surface water which is discharged via the same outfall.

These chemicals are:

- Aquatreat EM430
- Aquatreat EM533
- Polyaluminium chloride
- Ferric chloride
- Carbon dioxide.

Dosing rates will be determined by experiment (jar tests) and dosing will be undertaken on a flow dependent basis to prevent overdosing. Monitoring of pH and turbidity will be undertaken, and discharge will only take place when the effluent is compliant.



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Given the low flow rates and the periodic nature of the discharge (i.e. it will only take place when CWW has been generated) the provision of an MCERTS flow meter is unlikely to be practicable. Subject to engineering design considerations it is intended to provide a physical limit that will prevent discharge of wash water above the permitted rate. This may be a flow restriction valve or small diameter pipe/orifice plate.

It is proposed that cementitious wash water would be added into the groundwater discharge line on a flow-proportionate basis, this will provide a degree of mixing/dilution prior to discharge.

NNB HPC can confirm that the monitoring point will be located subsequent to treatment of CWW and prior to mixing with other waste streams before discharge from Outlet 12.

NNB HPC propose that confirmation of the treatment system including details of the monitoring, flow reduction techniques, exact location of the monitoring point, and emissions monitoring plan is provided in a report required by an Operational Technique as per Table S1.2 of the CWDA permit.

#### 2.3.1.3 Proposed update to permit

If NNB HPC's proposal for the change to Activity F are agreed with the EA then there are various changes required in the permit due to the change of discharge location, volume, monitoring point, etc.

Proposed changes as follows:

- Table S1.1 – including activity reference, description and limits of specified activity (see Section 3.1 for proposed wording).
- Table S1.2 - including OT1, OT2 and OT8 (see Section 3.2 for proposed wording).
- Table S1.4 – including PO2 and PO4 – (see Section 3.3 for proposed wording).
- Table S3.1 – including changing effluent(s) and discharge point(s) to Activity F only and via Outlet 12 and changing the limit for the maximum daily discharge volume from 10m<sup>3</sup>/day to 50m<sup>3</sup>/day.
- Table S3.2 – including changing effluent name to Activity F only and discharge point to Outlet 12 with the associated National Grid Reference (NGR) (same as Activity H).
- Table S3.3 – including reducing the monitoring points to just one row and changing the monitoring point NGR and reference to TBC following submission and approval of OT8.
- Table S4.1 – change effluent name to Activity F only, reduce the monitoring reference points to just one reference, and link to OT8.
- Table S4.2 – change the effluent name to Activity F only.

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## 2.4 Addition of a new sub-activity (or equivalent)

### 2.4.1 Wastewater from cleaning and hydrotesting equipment

#### 2.4.1.1 Purpose and activity

Across HPC there is equipment to be installed; pipes, tanks, pools, etc. which will require hydrotesting and cleaning/flushing when they are commissioned. Hydrotesting is a common process when commissioning a new system and the primary purpose is to test leaktightness. An example for hydrotesting the pumping station steel cylinder reinforced concrete pipes as follows; Water is transferred into the pipes, pressure is then built up and visual observations are conducted for cracks, leaks or deformation. The water is then moved to another pipe for reuse (where possible) or contained for further disposal. Cleaning/flushing of the equipment may also be required when commissioning, for example within the RPE tanks.

The strategy for hydrotesting/ cleaning of equipment depends on the system, tank, pipe, pool, etc. and will be determined by the design, manufacturing specification, and OPEX from other sites. Due to nuclear safety requirements the volume and type of effluent cannot be governed by environmental quality and/or sustainability aspects.

The Hinkley Point C project requires the use of demineralised water for some of the necessary cleaning and testing of equipment; this will generate a wastewater. NNB HPC wishes to be able to manage this effluent on-site, therefore removing the need for off-site transport and improving the project's sustainability. Any wastewater from hydrotesting and cleaning/flushing will be disposed of to the HPC surface water system regulated under the CWDA permit.

#### 2.4.1.2 Effluent type and discharge route

The sources proposed for hydrotesting and cleaning/flushing equipment will be as follows:

- Potable water
- Surface water
- Demineralised water<sup>1</sup>

<sup>1</sup> includes use of de-mineralised, distilled or de-ionised water (termed demineralised water hereafter).

No hazardous additives will be used in this process. Following use it's likely that the water will pick up some solids and other impurities however this is unlikely to be in significant quantities and will not significantly change the characteristics of the effluent. For demineralised water any impurities may actually reduce the potential impact prior to discharge into the surface water system.

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Due to capacity and location the proposal is for any wastewater from this process to be disposed into the surface water system that connects to WMZ 1, 2 and 3 where it will undergo mixing and treatment before being discharged to the Bristol Channel via Outlet 1.

#### 2.4.1.3 Risk assessment for demineralised water

For discharge of potable and surface water used for hydrotesting and cleaning/flushing (with no addition of hazardous substances) NNB HPC propose that there would be no significant impact above what is already permitted for discharge under Activity A. Consequently, no further risk assessment is provided on these waste streams.

However, regarding discharge of demineralised water used for the same purpose, NNB HPC understands there is greater risk of impact to the environment at high volumes. Therefore, a risk assessment including testing has been provided below.

Initial testing of the water in Water Management Zones 1 and 3 indicated a conductivity of around 1,100  $\mu\text{S}/\text{cm}$  which corresponds to a Total Dissolved Solids concentration of 704 ppm, where:

$$TDS \text{ (mg/L)} = EC \text{ (dS/m)} * 640$$

Each water management zone holds a certain volume of water before treatment and discharge starts; a volume of demineralised water can be thus added to this initial volume in each WMZ and conductivity of the discharge via Outlet 1 would be kept above the mid-range of potable water conductivity (approximately 250  $\mu\text{S}/\text{cm}$ ). The following equation was used to determine the volume of demineralised (hydrotesting) water that can be added to the WMZ in order for a conductivity of 250  $\mu\text{S}/\text{cm}$  to be conserved:

$$V_{HT} = V_{WMZ} \frac{C_{WMZ} - C_F}{C_F - C_{HT}}$$

Where:

$V_{HT}$  = Volume of hydrotesting water

$V_{WMZ}$  = Volume in WMZ before discharge starts

$C_{WMZ}$  = Concentration of TDS in WMZ

$C_{HT}$  = Concentration of TDS in hydrotesting water (assumed to be 0 to be conservative)

$C_F$  = Final concentration of TDS from mixing

The data shown in the following table was used in the calculations:

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**Table 1 - WMZ 1 and 3 calculations**

|      | $V_{WMZ}$<br>(m <sup>3</sup> ) | $EC_{WMZ}$<br>( $\mu$ S/cm) | $C_{WMZ}$<br>(ppm) | $EC_F$<br>( $\mu$ S/cm) | $C_F$<br>(ppm) | $C_{HT}$<br>(ppm) |
|------|--------------------------------|-----------------------------|--------------------|-------------------------|----------------|-------------------|
| WMZ1 | 2,461.7                        | 1,100                       | 704                | 250                     | 160            | 0                 |
| WMZ3 | 1,904.77                       | 1,100                       | 704                | 250                     | 160            | 0                 |

It is demonstrated that a maximum volume of 8,370m<sup>3</sup> and 6,476m<sup>3</sup> of completely pure water can be discharged into WMZs 1 and 3 respectively, keeping the conductivity of the diluted water in the mid-range of potable water conductivity. This is a conservative estimate as it does not take into account that the demineralised water to be discharged into the WMZs will have picked up some TDS during the testing of equipment and hence the TDS is likely to be higher and furthermore the demineralised water used on site will not be completely pure grade. The presence of silt and cementitious particles in the ponds will equilibrate with the water likely bringing the conductivity back up to the 1,100  $\mu$ S/cm level.

Given that the maximum volume of demineralised water predicted to be used, c.1,800m<sup>3</sup> in a single test it is not possible for the site to discharge demineralised water at levels that could have negative environmental effects.

Although testing was only carried out at WMZs 1 and 3, this outcome is also equivalent for WMZ2 which will have a comparable size to WMZ1 and 3 once built.

Further control measures already in place are provided in the management arrangements section (Section 4) such as the HPC Water and Sediment Management Plan [Ref. 10] and the “permit to pump” process.

To conclude, NNB HPC propose that any discharge of demineralised water used in hydrotesting and cleaning/flushing of equipment via WMZ 1, 2 and 3 will have not have a significant impact due to the low volumes of demineralised water, mixing with water contained within the WMZs, and existing treatment.

#### 2.4.1.4 Proposed update to permit

Potable, surface and demineralised water used for hydrotesting will be discharged into the drainage system that leads to WMZ 1, 2 or 3 and flows through Outlet 1. Our proposal is that a new Sub-Activity is created under Activity A of the permit. A Sub-Activity to Activity A would be reasonable as all discharges will go through the same treatment and will discharge to the same outlet. NNB HPC propose that the effluent parameters and limits set in Table S3.1 should not need to change for this new Sub-Activity.

It is acknowledged that there would be a few changes across the permit tables if a new Activity or Sub-Activity is required, NNB HPC will not propose any wording as it is not yet known whether a new Activity or Sub-Activity is required.

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NNB HPC do not believe any new Operating Techniques or updates to existing Operating Techniques or Pre-Operational conditions are required if water used for hydrotesting and cleaning/flushing equipment can be covered under an existing activity (including as a sub-activity). NNB HPC has management arrangements shown in Section 4 which should sufficiently control this activity without the requirement of a new report.

## 2.5 Cessation of existing activities

### 2.5.1 Cessation of Outlet 8 and Activity D4 (EW-WMZ 6a)

#### 2.5.1.1 Purpose

Following decommissioning of Early Works (EW) WMZ 6a, Activity D4, which permits discharge via outlet 8, is no longer required and there are no plans to restart this discharge.

#### 2.5.1.2 Proposed update to permit

Activity D4 should be removed from the permit as it is no longer required. An update to Schedule 7 will also take place (See Appendix C), however this will await receipt of the outline design of CWW treatment and the associated monitoring point. Any charges for this activity should cease.

### 2.5.2 Cessation of Outlet 11 and Activity G (WMZ6)

#### 2.5.2.1 Purpose

A new drainage design of the southern landscaping area at HPC was approved following a planning submission pursuant to DCO requirement MS30 (Surface and Foul Water Drainage System) under the Hinkley Point C (Nuclear Generation Company) Statutory Order 2013 (as amended). Following amendments to the design a new planning submission pursuant to MS30 has been submitted and the EA are a key consultee. Works that had been approved are currently taking place in the southern landscaping area of HPC (which is currently due to complete by the end of 2020). Part of the design includes WMZ6 being converted into ponds for enhancement of wildlife with a gravity outfall to Bum Brook.

Separate to planning approval, land drainage consents have been required from Somerset County Council (SCC) for the new drainage scheme in the area of Bum Brook.

Outlet 11 will revert to green field run-off only in 2021 and no treatment of silt laden water from the construction works will be required. As such NNB HPC propose that the permitted discharge is no longer required.

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#### 2.5.2.2 Proposed update to permit

Activity G should be removed from the permit as it is no longer required. An update to Schedule 7 will also take place (See Appendix C), however this will await receipt of the outline design of CWW treatment and the associated monitoring point. Any charges for this activity should cease.

## 2.6 Other proposed changes

### 2.6.1 Creation of a new notification mechanism for cessation of activities

#### 2.6.1.1 Purpose

NNB HPC proposes that a new notification mechanism is added to the permit to request for the cessation of activities within the permit. This new notification would be reasonable as the activities across HPC will cease at different times, with all activities under the CWDA permit eventually ceasing once HPC changes to the permanent operational state where any discharges will be regulated under the Operational Water Discharge Activity permit (HP3228XT). Much of the activities will be ceased when WMZs are decommissioned, for example WMZ 4 and 5 (activities B and C), however some activities are based on a certain work activity at HPC, for example, tunnelling effluent under activity H.

Without this notification the CWDA permit would have to be consistently go through the 'partial surrender' process which NNB HPC believes is inappropriate due to the amount of WMZs and activities listed in the permit. When a notification of cessation is carried out, NNB HPC would also like to ensure charges associated to that activity cease at the appropriate time.

#### 2.6.1.2 Proposed update to permit

The most relevant section for this notification would be Section 4.3 of the CWDA permit, potentially under Section 4.3.7, as this includes when the EA are notified in writing for start of operation of the WMZs.

### 2.6.2 Change to permitted grid references

#### 2.6.2.1 Purpose

The National Grid Reference (NGR) provided for the discharge point for Outlet 4 and the monitoring points for Activity A1(i) (referenced WMZ1-SW), Activity A1(iii) (referenced WMZ3-SW), Activity C (referenced WMZ4-SW) and Activity B (referenced WMZ5-SW) are incorrect. The NGRs were incorrect at the time of permit application and a couple of the NGRs have since been clarified to the EA via email and letter in 2018 and 2019. The advice given by the EA was to capture the correct NGRs in a future permit variation as the differences were not significant to warrant a standalone variation.

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#### 2.6.2.2 Proposed update to permit

NNB HPC propose that Table S3.2 and S3.3 need to be updated with the correct grid references provided in the table below:

**Table 2 - Update to NGRs**

| Location                    | Type             | Incorrect NGR (current) | Correct NGR (variation) |
|-----------------------------|------------------|-------------------------|-------------------------|
| Outlet 4                    | Discharge point  | ST20500 45218           | ST20497 45213           |
| Activity A1(i) – WMZ1-SW    | Monitoring point | ST19749 46015           | ST19742 46092           |
| Activity A1(iii) – WMZ3 -SW | Monitoring point | ST20416 46125           | ST20612 46141           |
| Activity C – WMZ4 - SW      | Monitoring point | ST20508 45200           | ST 20507 45166          |
| Activity B – WMZ5 - SW      | Monitoring point | ST19733 45081           | ST 19775 45126          |

## 3 PROPOSED CHANGE TO WORDING TO PERMIT TABLES

Although recognising that it is for the EA to draft the permit NNB HPC has provided proposed revised wording within this section. It is acknowledged that further discussion and review will be needed.

### 3.1 Table S1.1 - Activities

#### 3.1.1 Activity A (i, ii and iii)

Rainfall dependant run-off and surface water pumped from shallow excavations within Built Development Area East (BDAE) and Built Development Area West (BDAW) including run-off from:

- a) Onshore activities associated with the jetty aggregates storage area;
- b) construction of the sea defence wall;
- c) crushing and sorting etc. of inert waste under permit EPR/HB3104CD and;

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d) the National Grid compound also known as Shurton Substation.

Also waste potable/surface water excluding hazardous substances from activities including dust suppression, general cleaning of surfaces, vehicle cleaning, wheel wash facilities, hydro-demolition and dewatering of road sweepings/silts, or other equivalent activity as agreed with the Environment Agency.

Effluent treatment shall be provided by Water Management Zones (WMZ) including:

WMZ 1 for Activity A1 (i)

WMZ 2 for Activity A1 (ii)

WMZ 3 for Activity A1 (iii)

#### 3.1.2 Activity B

Rainfall dependant run-off and water pumped from shallow excavations within the Southern Construction phase Area (SCPA), including run-off from the materials stockpile areas and the area used for crushing and sorting of inert wastes under permit EPR/HB3104CD.

Also waste potable/surface water excluding hazardous substances from activities including dust suppression, general cleaning of surfaces, vehicle cleaning, wheel wash facilities, hydro-demolition and dewatering of road sweepings/silts, or other equivalent activity as agreed with the Environment Agency.

Effluent treatment shall be provided by WMZ5.

#### 3.1.3 Activity C

Rainfall dependant run-off and water pumped from shallow excavations within the SCPA, including run-off from the fuel farm.

Also waste potable/surface water excluding hazardous substances from activities including dust suppression, general cleaning of surfaces, vehicle cleaning, wheel wash facilities, hydro-demolition and dewatering of road sweepings/silts, or other equivalent activity as agreed with the Environment Agency.



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Effluent treatment shall be provided by WMZ4.

#### 3.1.4 Activity D4

To be removed as per Section 2.5.1.

#### 3.1.5 Activity E1/E2

To remain the same.

#### 3.1.6 Activity F

**Activity Reference:**

F (remove F1 (i), (ii) & (iii)).

**Description:**

Discharge of trade effluent consisting of cementitious wash water via Outlet 12.

**Limits of specified activity**

Cementitious wash water from the washing down of:

- a) vehicles used to transport cementitious products to the required location on the construction site; and
- b) equipment such as pumps and tools which are being used with cementitious products.

#### 3.1.7 Activity G

To be removed as per Section 2.5.1.

#### 3.1.8 Activity H

Tunnelling effluent will consist of wastewater pumped out from the pit-bottom of the tunnels required to construct the power station heatsink system as they are constructed (during or following tunnel excavation) and will include groundwater and low concentrations of soil conditioning chemicals.

Muck bay drainage will consist of leachate from the tunnelling spoil containing low concentrations of soil conditioning chemicals and low levels of groundwater, as well as a rainfall dependant surface water run-off within the muck bay curtilage.

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#### 3.1.9 Other

NNB HPC has not included any proposed Activity wording for discharge of water used for hydrotesting and cleaning/flushing of equipment as the EA will determine whether it is a new Activity or included within existing activities.

## 3.2 Table S1.2 – Operating Techniques

#### 3.2.1 OT1

Remove any reference to Activity F, all relevant information to be included in OT8. Otherwise still relevant.

#### 3.2.2 OT2

Remove any reference to Activity F, all relevant information to be included in OT8. Otherwise still relevant.

#### 3.2.3 OT3

Still relevant – no change.

#### 3.2.4 OT4

Potential removal of OT as Activity D4 will cease.

#### 3.2.5 OT5

Still relevant – no change.

#### 3.2.6 OT6

Still relevant – no change.

#### 3.2.7 OT7

Potential removal of OT as Activity D4 will cease.

#### 3.2.8 OT8

##### Activity reference

F - (remove F1 (i), (ii) & (iii)).

##### Description of documentation

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OT8 – Construction Water Discharge Activity Permit: Cementitious (Wash Water) Operating Techniques Report (COTR).

#### Parts

All

#### 3.2.9 OT10

Still relevant – no change.

#### 3.2.10 OT11

Still relevant – no change.

#### 3.2.11 OT12

Still relevant – no change.

### 3.3 Table S1.4 – Pre-operational measures

#### 3.3.1 PO1

Still relevant – no change.

#### 3.3.2 PO2

At least 2 months prior to commencement of discharge of an unapproved cementitious mix under Activity F specified in Schedule 1 Table S1.1, the operator shall submit to the Environment Agency a Cementitious Wash Water Characterisation Report, which will include the following information:

- The nature and composition of the cementitious product used on site, including additives;
- The characteristics of the resultant wash water, for both cementitious products from the off-site supplier and from the on-site batching plant(s) if applicable; and
- Performance data on the proposed treatment system(s) for all relevant substances identified within the wash water for which treatment is needed.

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The report should take in consideration those substances listed in the Environment Agency's H1 Guidance on Environmental Risk Assessment, Surface water pollution risk assessment for your environmental permit, (ii) make clear how the information has been derived and (iii) describe and assumptions or limitation associated with preparation of this report.

The Cementitious Wash Water Characterisation Report shall be audited by the Environment Agency and used to establish operational compliance (numeric) limits for any contaminants present in the wash water at environmentally significant levels where this is practicable.

Following written notification by the Environment Agency, any additional compliance limits required shall be deemed to be incorporated into Table S3.1 of this permit.

#### 3.3.3 PO4

Remove any reference to Activity F, all relevant information to be included in OT8 rather than the existing emissions management plan [Ref. 9]. Otherwise this PO is still relevant.

#### 3.3.4 PO8

Still relevant – no change.

#### 3.3.5 PO9

Still relevant – no change.

#### 3.3.6 PO10

Still relevant – no change.

#### 3.3.7 PO11

Still relevant – no change.

### 3.4 Tables S3.1- S4.2

There will be changes necessary to Schedule 3 Table S3.1-3.3 and Schedule 4 Table S4.1-4.2 in relation to Activity F and the potential new Activity or Sub-Activity for hydrotesting and cleaning/flushing of equipment. Proposed changes for Activity F are shown within Section 2.3.1.5.

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## 4 MANAGEMENT OF THE ACTIVITY

### 4.1 Management Arrangements

NNB HPC was awarded ISO14001 certification in 2016 for its Environmental Management System including the environmental procedures operated by NNB HPC. All activities stated in this variation are being undertaken in accordance with the requirements of the NNB HPC written arrangements and management systems.

Prior to commencement of CWW discharges NNB will perform a readiness review lead by the NNB HPC Project Manager supported by the Environment Team. This measure is to ensure that arrangements are in place and adequate in order for the activity to commence in a safe and compliant manner. These processes will be further discussed with the EA and regulatory involvement incorporated as required. For other activities included in this variation, which have already commenced, NNB HPC suggest a readiness review is not required as the management arrangements are already in place and the risk of non-compliance is low.

In relation to CWW discharge, as per the proposed OT (Section 3.2.8), a Cementitious (Wash Water) Operating Techniques Report (COTR) will be produced which will include but is not limited to, roles and responsibilities, pollution prevention measures (including treatment), monitoring location and requirements, data review and reporting, and risk and contingency arrangements. The COTR will be issued to the relevant Contractors so that all specific requirements and control measures will be implemented.

Environmental Management Plans (Construction Environmental Management Plans (CEMPs) and other specific management plans) will be implemented for all work activities and include controls relevant to the management of substances covered by this discharge permit application. The two key NNB HPC management plans are the Water and Sediment Management Plan [Ref. 10] which includes control measures for managing cement and concrete and the “permit to pump” process among other aspects and the Environmental Incident Control Plan [Ref. 11] in the case of an incident/non-compliance with the permit. Management plans will be updated, resubmitted and briefed to the workforce where there are any gaps following this variation submission, for example management arrangements for hydrotesting and cleaning/flushing equipment. In addition, activity specific risk assessments and method statements (RAMS) have been, or will be, written, reviewed by the NNB HPC Environment Team and briefed to relevant individuals.

Specific design control measures have been provided in the relevant sections above such as pollution control measures in place for the drainage from the Fuel Farm and National Grid platform.

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## 4.2 Emergency Events

As required by ISO14001, arrangements and controls for such events will be covered by the HPC emergency arrangements as detailed within documents such as Emergency Incident Control Plans (EICPs) and Emergency Plans. Emergency events relevant to the permitted discharge activity could include:

- Surface flooding. This has the potential to mobilise contaminants and breach drainage systems / WMZs.
- Fires. Resultant fire-fighting waters have the potential to contain contaminants and could therefore cause environmental impact if released into the environment.
- Inundations of tunnels with groundwater. This would likely be a life critical situation and rapid pumping / discharge is likely to be required.
- Pollution incidents. Including fuel, oils and other contaminants present onsite.

Emergency documentation is available for information on request in advance of the commencement of any activity.

Specific emergency arrangements regarding the Fuel Farm have been included in Section 2.1.1.

## 4.3 Monitoring and Reporting

The monitoring and reporting arrangements will remain the same for the majority of activities listed in this permit application. The monitoring and reporting arrangements for Activity F will be agreed via the Operating Technique, the COTR, however it is expected that the overall arrangements will not significantly change from those already in place under Activity F for the permit (for example the monitoring parameters). NNB HPC also expect the monitoring and reporting arrangements for hydrotesting and cleaning/flushing of equipment will not change significantly (or at all) from the arrangements already permitted for Activity A.

Once the new monitoring point has been agreed for Activity F, CWDA permit Schedule 7 will be updated and provided as part of the submission of the COTR.

Given the low flow rates and the periodic nature of the discharge (i.e. it will only take place when CWW has been generated) the provision of an MCERTS flow meter is unlikely to be practicable or appropriate. NNB HPC proposes, subject to engineering design considerations, that physical flow restriction measures are put in place which will prevent discharge above the permitted rate.

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## 4.4 Treatment

The majority of the activities covered under this permit variation application will be covered by existing treatment arrangements agreed as part of the permit or via Pre-operation conditions/ Operating Techniques.

For Activity F, detailed treatment arrangements will be agreed through the submittal and approval of an Operating Technique, NNB HPC propose as the COTR. Proposed treatment arrangements at a high level are provided in Section 2.3.1.2.

Further details in relation to both treatment and monitoring arrangements including any plant specifications, capacities and configurations will be provided to the EA following design works.

## 5 OTHER INFORMATION SPECIFIC TO EA APPLICATION QUESTIONS

### 5.1 Costs and justification (EA application form Part F1)

This section is to provide the justification of the permit application costs including abatements provided in the EA application form Part F1, Section 1. Please see Appendix D for the costs (including justifications) that were determined with the EA during the pre-application stage.

### 5.2 Effluent name (EA application form Part C6)

This section is in response to the effluent name required for EA application form Part C6, Question 1b. As shown by this supporting document the scope of the variation includes numerous Activities and as such it is not possible to add just one effluent name. For this reason the effluent has been named "Various – Hinkley Point C". The Activities within the CWDA permit have existing names which are still relevant.

To note – there are questions within the EA application form Part C6 which are only relevant to the variation of Activity F such as the provision of a new discharge rate so in this circumstance only the volume for Activity F was provided.

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## 5.3 Discharge to foul sewer (EA application form Part C6)

This section is in response to the information required for EA application form Part C6, Section 5 which is mandatory. As agreed at pre-application stage, this question is not relevant to this permit variation and would have already been answered under previous variations to the CWDA permit. NNB HPC are proposing to change the discharge location for Activity F but there is no public foul sewer in close proximity to the HPC development, particularly in the north of the HPC development site, so it is not feasible to connect to public foul sewer. Regarding discharge of wastewater from cleaning and hydrotesting equipment, NNB are proposing to use the existing Activity A for the discharge route which would have already been assessed in regards to connection to public foul sewer which again is not feasible.

## 6 CONCLUSIONS

NNB HPC is currently applying to vary the HPC CWDA permit to include the following:

- Drainage from the Fuel Farm
- Drainage from the National Grid compound – K6
- Drainage from the Crushing Yard – K28 and K16
- Discharge of waste potable/surface water from multiple uses across site
- Discharge of cementitious washwater (Activity F) at a higher rate and to a different location.
- Discharge of tunnelling effluent (Activity H) – minor activity wording amendment to allow continued discharge after construction is complete
- Discharge of wastewater from cleaning and hydrotesting equipment
- Cessation of existing Activities
- Addition of a new notification mechanism for cessation of Activities
- Change to permitted grid references

For the majority of the permitted arrangements listed above the existing HPC permitting and management arrangements will be sufficient to control the discharge and prevent pollution to the environment.

Justifications have been provided to update Activity F with a different discharge location and increased flow rate. It is recognised that no discharge will be able to commence for Activity F until a submission under permit condition PO2 is approved by the EA and a new Operating Technique will be required to confirm the treatment and monitoring arrangements including provision of a new monitoring point.

Details on hydrotesting and cleaning/flushing of equipment has been provided including an environmental risk assessment which shows that there would be no potential impact to the environment and as such



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existing arrangements in place under Activity A should suffice to prevent pollution. NNB HPC propose that hydrotesting is covered under a Sub-Activity to Activity A.

Also included in the variation are two Activities (D4 and G) which need to be surrendered as the discharge will no longer continue under the permit. NNB HPC have proposed a new notification under the permit so that Activities can cease without the need for a partial permit surrender/variation.

NNB HPC considers that, with the exception of Activity F, the requested changes do not change the site's risk profile and the control measures already in place are such that the changes do not present any increased risk to water quality, conservation status or otherwise to the environment or human health. The proposed changes to Activity F will be subject to risk assessment under permit condition PO2.

A - APPROVED