

Permitting decisions

Bespoke permit

We have decided to grant the permit for Hinkley Point C operated by NNB Generation Company (HPC) Limited.

This permit introduces a new water discharge activity to an existing sub-tidal outlet location (known as Outlet 12) which is near the seaward end of the Hinkley Point C temporary jetty. The permit controls a discharge of up to 1,150 cubic metres per day of treated sewage effluent only that will be generated during the construction phase of Hinkley Point C. The discharge will be of domestic nature from the use of welfare facilities at HPC during the construction phase of the project. The welfare facilities will comprise of wash basins, toilets, showers, kitchens and canteens within a number of office buildings, and an on-site accommodation campus facility for site workers. The foul network at HPC is currently being constructed, and there is likely to be a need for sewage collected in various cess tanks around the site to be tankered into the sewage treatment system.

Domestic sewage effluent will be treated via a new sewage treatment system known as CSTP (Construction Sewage Treatment Plant) consisting of a British Standard sewage treatment plant, an inlet pumping station, common screening chamber, flow split chamber then individual streams comprising modules for primary settlement and Rotating Biological Contactors as secondary treatment. The effluent is then filtered in final settlement tanks before undergoing tertiary level treatment via ultra-violet disinfection.

The treated effluent will be discharged by pipe across the Jetty to the receiving environment, the Severn Estuary. The same route is also permitted for discharges of groundwater and tunnelling waste streams; under the current Construction Water Discharge Activity (CWDA) permit [EPR/JP3122GM/V006_7](#).

The permit number is [EPR/XP3321GD](#).

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

Purpose of this document

This decision document provides a record of the decision making process. It summarises the decision making process in the decision checklist to show how all relevant factors have been taken in to account.

This decision document provides a record of the decision making process. It:

- summarises the decision making process in the decision checklist to show how all relevant factors have been taken into account
- shows how we have considered the consultation responses.

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Read the permitting decisions in conjunction with the environmental permit. The introductory note summarises what the permit covers.

Decision checklist

Aspect considered	Decision
Receipt of application	
Confidential information	A claim for commercial or industrial confidentiality has not been made.
Identifying confidential information	We have not identified information provided as part of the application that we consider to be confidential.
Consultation	
Consultation	<p>The consultation requirements were identified in accordance with the Environmental Permitting Regulations and our public participation statement.</p> <p>The application was publicised on the GOV.UK website.</p> <p>The application was advertised in Bridgwater Mercury/Burnham & Highbridge Weekly News.</p> <p>We informed 150 stakeholders of where they could view the consultation on citizen space/gov.uk and how they could make comment.</p> <p>We specifically consulted the following organisations:</p> <ul style="list-style-type: none"> • Natural England • Natural Resources of Wales • Somerset County Council • West Somerset District Council • Stogursey Parish Council • Marine Management Organisation • Devon & Severn Inshore Fisheries and Conservation Authority <p>Only those who have provided comments are listed in the consultation section.</p> <p>The comments and our responses are summarised in the consultation section.</p>
Operator	
Control of the facility	We are satisfied that the applicant (now the operator) is the person who will have control over the operation of the facility after the grant of the permit. The decision was taken in accordance with our guidance on legal operator for environmental permits.
The facility	
The regulated facility	<p>We considered the extent and nature of the facility at the site in accordance with RGN2 'Understanding the meaning of regulated facility'.</p> <p>The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.</p>

Aspect considered	Decision
The site	
Extent of the site of the facility	The operator has provided plans which we consider are satisfactory, showing the extent of the site of the facility including the discharge point. The plan is included in the permit.
Biodiversity, heritage, landscape and nature conservation	<p>The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat.</p> <p>We have assessed the application and its potential to affect all known sites of nature conservation, landscape and heritage and/or protected species or habitats identified in the nature conservation screening report as part of the permitting process.</p> <p>We consider that the application will not affect any sites of nature conservation, landscape and heritage, and/or protected species or habitats identified.</p> <p>We have consulted Natural England and Natural Resources Wales on our Habitats Regulations and SSSI assessments, and have taken their comments into account in the permitting decision.</p>
Environmental risk assessment	
Environmental risk	<p>We have reviewed the operator's assessment of the environmental risk from the facility.</p> <p>The operator's risk assessment is satisfactory – CEFAS BEEMS Technical Report TR428; Hinkley Point C Construction Discharge Modelling Assessment at the temporary Jetty Location, Edition 6</p> <p>The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment [or similar methodology supplied by the operator and reviewed by ourselves], all emissions may be categorised as environmentally insignificant.</p> <p>The hydrodynamic modelling exercise completed by CEFAS to assess the potential environmental impact of the proposed discharge on all the sensitivities of the receiving estuary was commissioned by the operator and subsequently vetted and verified by Environment Agency's marine modellers. This was submitted with the application and was further assessed via the Habitat Regulations Assessment.</p> <p>The modelling exercise has demonstrated to our satisfaction that the proposed discharge with its designed effluent quality of 40 milligrams per litre (mg/l) Biochemical Oxygen Demand (BOD), 60 mg/l suspended solids (SS) and 20 mg/l ammoniacal nitrogen (ammonia) does not have the potential to cause any significant deterioration in the existing background water quality within the Bridgwater or Parrett Transitional waterbodies and the Severn Estuary's European conservation sites. Also that all the relevant Water Framework Directive water quality targets and all statutory environmental quality standards (EQS's) will be met within the receiving waters.</p>

Aspect considered	Decision						
	<p>We have assessed the likely significant effect in alone effect and in-combination effect with other regulated discharges and concluded overall the modelling exercise is fit for purpose.</p> <p>Appropriate measures to control these are included in the operating techniques and emission limits specified in the permit.</p>						
Operating techniques							
Operating techniques	We have reviewed the techniques proposed by the operator and compared these with the relevant technical guidance and we consider them to represent appropriate techniques for the facility.						
Permit conditions							
Use of conditions other than those from the template	Based on the information in the application, we consider that we do not need to impose conditions other than those in our permit template.						
Improvement programme	<p>Based on the information on the application, we consider that we need to impose an improvement programme.</p> <p>We have imposed an improvement programme to ensure that we have the following:</p> <ul style="list-style-type: none"> Evidence of MCERTS certification or MCERTS accreditation (as appropriate), required for Operator Self-Monitoring. 						
Emission limits	<p>It is considered that the numeric and descriptive limits described below will prevent significant deterioration of receiving waters. We have imposed these limits because either a relevant environmental quality or operational standard requires this.</p> <p>The effluent will be treated in a British Sewage Treatment Plant (CSTP), sized according to British Water Flows & Loads 4. The CSTP is designed to achieve an effluent quality of 40mg/l BOD, 60mg/l SS and 20mg/l ammonia. All three parameters set as maximums. A maximum limit is a concentration that no sample result must exceed. An 'mg/l' is equivalent to one part of substance to one million parts of water.</p> <p>The effluent will also be subjected to UV disinfection in order to protect designated Bathing Waters within the estuary.</p> <p>The permit limits for all the parameters below are set in accordance with the standard manufacturer CSTP's capability of achieving effluent. The operator's proposal for these emission limits were verified and vetted by the Agency as part of vetting the modelling report (CEFAS BEEMS Technical Report TR428).</p> <table border="1" data-bbox="584 1798 1318 1995"> <thead> <tr> <th data-bbox="584 1798 999 1854">Parameter</th> <th data-bbox="999 1798 1318 1854">Limit (including unit)</th> </tr> </thead> <tbody> <tr> <td data-bbox="584 1854 999 1910">ATU-BOD as O₂</td> <td data-bbox="999 1854 1318 1910">40 mg/l</td> </tr> <tr> <td data-bbox="584 1910 999 1995">Ammoniacal nitrogen (expressed as N)</td> <td data-bbox="999 1910 1318 1995">20 mg/l</td> </tr> </tbody> </table>	Parameter	Limit (including unit)	ATU-BOD as O ₂	40 mg/l	Ammoniacal nitrogen (expressed as N)	20 mg/l
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Monitoring	<p>We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified.</p> <p>These monitoring requirements have been imposed in order for the operator to implement their own monitoring regime known as Operator Self-Monitoring (OSM).</p> <p>We have imposed the higher sampling frequency known as OSM Tier 3 in line with our guidance because this applies to any continuous discharge from a facility that requires disinfection.</p> <p>We made these decisions in accordance with M18 – Technical Guidance Note on Monitoring and OSM guidance available to the public on GOV.UK website.</p> <p>Schedule 3A - OSM tier 3 sampling frequency</p> <table border="1"> <thead> <tr> <th data-bbox="593 981 737 1249">Parameter</th> <th data-bbox="743 981 880 1249">'Normal frequency' of samples per year</th> <th data-bbox="887 981 1024 1249">Reduced Sampling frequency after 12 consecutive months of numeric permit compliance, samples per year or pro rata over the remainder of a year</th> <th data-bbox="1031 981 1168 1249">On numeric limit failure return to normal frequency as soon as reasonably practicable, samples per 12 months¹</th> <th data-bbox="1174 981 1311 1249">Out of hours samples</th> </tr> </thead> <tbody> <tr> <td data-bbox="593 1249 737 1350">Sanitary</td> <td data-bbox="743 1249 880 1350">24</td> <td data-bbox="887 1249 1024 1350">12</td> <td data-bbox="1031 1249 1168 1350">24</td> <td data-bbox="1174 1249 1311 1350">For 24 samples 2 out of hours samples per annum</td> </tr> <tr> <td data-bbox="593 1350 737 1451">Non sanitary</td> <td data-bbox="743 1350 880 1451">12</td> <td data-bbox="887 1350 1024 1451">12</td> <td data-bbox="1031 1350 1168 1451">12</td> <td data-bbox="1174 1350 1311 1451">For 12 samples 1 out of hours sample per annum</td> </tr> </tbody> </table> <p>Based on the information in the application to ensure we are fully satisfied that the operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate, we have imposed a pre-operational condition for the operator to notify the Agency and submit evidence of MCERTS certification or MCERTS accreditation (as appropriate) within 7 days of commencement of discharge. This is a requirement as part of OSM.</p>	Parameter	'Normal frequency' of samples per year	Reduced Sampling frequency after 12 consecutive months of numeric permit compliance, samples per year or pro rata over the remainder of a year	On numeric limit failure return to normal frequency as soon as reasonably practicable, samples per 12 months ¹	Out of hours samples	Sanitary	24	12	24	For 24 samples 2 out of hours samples per annum	Non sanitary	12	12	12	For 12 samples 1 out of hours sample per annum
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Reporting	<p>We have specified reporting in the permit.</p> <p>These are in line with our guidance for self-monitoring for reporting of monitoring data. We have imposed the following for reporting:</p> <ul style="list-style-type: none"> • Total daily volume • Flow monitoring • OSM for BOD, ammoniacal nitrogen, and suspended solids • UV disinfection measurements • Disinfection efficacy 															

Aspect considered	Decision
	<ul style="list-style-type: none"> • UV disinfection performance <p>We made these decisions in accordance with M18 – Technical Guidance Note on Monitoring, and OSM guidance available to the public on GOV.UK website.</p>
Considerations of foul sewer	<p>We agree with the operator's justification for not connecting to foul sewer.</p> <p>The facility is in a location where it is not reasonable to connect to the foul sewer.</p>
Operator competence	
Management system	<p>There is no known reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.</p> <p>The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.</p>
Growth Duty	
Section 108 Deregulation Act 2015 – Growth duty	<p>We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit.</p> <p>Paragraph 1.3 of the guidance says:</p> <p>“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”</p> <p>We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.</p> <p>We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.</p>

Consultation

The following summarises the responses to consultation with other organisations, our notice on GOV.UK for the public, newspaper advertising, and the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section

Response received from
Natural England
Brief summary of issues raised
Based on the information presented in the assessment, Natural England is in agreement with the assessment and decision made by the Environment Agency. In coming to this conclusion, Natural England have made the following comments: <ul style="list-style-type: none">• Suggestion for Countryside and Rights of Way Appendix 4 assessment to include another site but conclude it is not likely to damage the notified interests.• Recommendations for future reference of formatting features of the designation sites in the Habitat Regulations Assessment Stage 1 document.• For Habitat Regulations Assessment Stage 1, Natural England agree with the overall conclusions made of no likely significant effect.• Agrees with the conclusions made for Bideford to Foreland Point Marine Conservation Zone Assessment.
Summary of actions taken or show how this has been covered
We have responded to Natural England for acknowledgement of their comments. No further actions required.

Response received from
Natural Resources Wales
Brief summary of issues raised
Natural Resources Wales supports Natural England's comments and concurs with the overall conclusion of the EA's assessment that there is no likely significant effect to the Severn Estuary SAC, SPA and Ramsar Site in relation to the proposals.
Summary of actions taken or show how this has been covered
We have responded to Natural Resources Wales for acknowledgement of their comments. No further actions required.

Representations from local MP, assembly member, councillors and parish/town community councils

Response received from
Molly Scott Cato MEP
Brief summary of issues raised
Molly has been contacted by her constituents who are concerned about the discharge proposal: <ul style="list-style-type: none">• Expressed concerns the application was publicised on the GOV.UK website for one month over summer when people are on holidays and off-line.• Concerns were raised about the potential impact on bathing water quality and its vulnerabilities, and the impact this would have on the tourism industry, local economy, and the public.• Mentions the habitat and wildlife areas surrounding the facility site and its importance.

- Would like reassurances other options have been explored to dispose of the effluent.
- Would like evidence an impact assessment on the potential impact of the effluent on sea life has been carried out.
- Would like assurances the Agency will continue to abide by European Directives guidelines in the event of the UK withdrawing from the European Union.

Summary of actions taken or show how this has been covered

The timetabling and method of publicising applications is prescribed by the EPR regulations and so our options in this respect are limited. Adverts have to be placed within days of the application being made to allow time for any responses to be addressed within the four month determination period the regulations stipulate.

The potential for impact on bathing waters was assessed and found not to be significant. The designated bathing water at Burnham Jetty is over 9 km from the discharge outlet and dilution available between the discharge and the bathing water will prevent any risk of deterioration in bathing water quality. This would be the case for a non-disinfected effluent but in this case the treatment system includes ultra violet disinfection tertiary treatment. The permit we will issue includes conditions to ensure these systems are maintained and operated effectively.

In determining this water discharge activity application, we have examined thoroughly the fate of effluent discharged from HPC. We have carried out a comprehensive Habitats Regulations Assessment (HRA) into the impact of the proposed discharge on the marine ecology of the Severn Estuary in response to our duty under The Conservation of Habitats and Species Regulations 2017, including consultation with Natural England and National Resources of Wales. The HRA included considering the potential impacts of the proposed discharge in combination with other permissions, plans and projects (PPPs). We have concluded that with the appropriate measures in place in the permit, the proposed discharge will not have an adverse effect on the integrity of the designated biodiversity sites of the Severn Estuary. Natural England have agreed with our overall conclusions.

The alternative sewage disposal methods mentioned in consultation responses (and others) are not considered to be practical and they have their own associated environmental risks. The installation of a private sewage treatment facility for a new development where there is no access to a public foul sewer is acceptable under government guidance to local planning authorities and the Agency. Ultimately the Agency has a duty to make a formal decision on any application it receives based on the potential environmental risks it poses. In this case we determined that the discharges from the treatment facility are acceptable and that the permit conditions will prevent any significant adverse effect on any of the sensitivities of the receiving environment including the designated features of all the conservation sites.

The supporting information included with the application contains an impact assessment for the potential effects of the treated sewage effluent on the receiving waters. The applicant's impact assessment was vetted by us and we also undertook our own assessments of the risks to all the sensitivities of the receiving environment. As stated above we concluded that there are no significant risks to any of these and that the conditions of the permit will ensure this.

The EU Withdrawal Act 2018 will make sure the whole body of existing EU environmental law continues to have effect in UK law, providing businesses and stakeholders with maximum certainty as we leave the EU. This will include the secondary legislation which has already transposed the EU Bathing Water Directive, which will ensure the UK maintains or surpasses the same standards and levels of testing for water quality required of EU Member States.

Response received from

East Huntspill Parish Council

Brief summary of issues raised

The Parish meeting sought assurance and highlight the need the effluent will be regularly monitored and tested for any adverse changes to the water quality over the whole lifetime of the project.

Summary of actions taken or show how this has been covered
In determining this water discharge activity application, we have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified in the permit.

Response received from
Burnham-on-Sea and Highbridge Town Council
Brief summary of issues raised
Their Full Council meeting discussed the application and agreed that they have no objections.
Summary of actions taken or show how this has been covered
No further actions.

Response received from
Selworthy and Minehead Without Parish Council
Brief summary of issues raised
The Parish Council have made general concerns about allowing a discharge of treated domestic sewage into the Severn Estuary. Requested information on the projected effect on the habitat into the Bristol Channel. Also asked about the monitoring systems in place for the effluent.
Summary of actions taken or show how this has been covered
In determining this water discharge activity application, we have examined thoroughly the fate of effluent discharged from HPC. We have carried out a comprehensive Habitats Regulations Assessment (HRA) into the impact of the proposed discharge on the marine ecology of the Severn Estuary in response to our duty under The Conservation of Habitats and Species Regulations 2017, including consultation with Natural England and National Resources of Wales. The HRA included considering the potential impacts of the proposed discharge in combination with other permissions, plans and projects (PPPs). We have concluded that with the appropriate measures in place in the permit, the proposed discharge will not have an adverse effect on the integrity of the designated biodiversity sites of the Severn Estuary. In determining this water discharge activity application, we have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified in the permit.

Representations from community and other organisations

Response received from
Quantock Hills Area of Outstanding Natural Beauty (AONB) on behalf of the Quantock Hills Advisory Committee
Brief summary of issues raised
<ul style="list-style-type: none"> • Mentions the area is known for its wildlife habitat and its visual amenity value. They also mention concerns about the potential of odours from the site to affect its amenity value. Their management plan includes the objective GC2 – to protect the high quality of Quantock coastal landform and habitats and their distinctive landscape contribution. • They opposed any permission that would have a significant effect on the water quality impacting on coastal/marine habitats and/or public enjoyment of the area.
Summary of actions taken or show how this has been covered
In determining this water discharge activity application, we have examined thoroughly the fate of effluent discharged from HPC. We have carried out a comprehensive Habitats Regulations Assessment (HRA) into

the impact of the proposed discharge on the marine ecology of the Severn Estuary in response to our duty under The Conservation of Habitats and Species Regulations 2017, including consultation with Natural England and National Resources of Wales. The HRA included considering the potential impacts of the proposed discharge in combination with other permissions, plans and projects (PPPs). We have concluded that with the appropriate measures in place in the permit, the proposed discharge will not have an adverse effect on the integrity of the designated biodiversity sites of the Severn Estuary. Because of this we are confident that the discharges will have no effect on the visual or wildlife appreciation amenity value of the AONB.

Addressing the potential for odours from the treatment facility to have any impact upon the amenity value of the AONB is not within the remit of the Agency and cannot be addressed through the legislation under which the application has been determined. The permitting legislation can only address the risks to the water environment. Addressing any potential odour issues from the site are the responsibility of the environmental health department of the local authority.

Response received from
PCAH (Parents concerned about Hinkley)
Brief summary of issues raised
Objection to the discharge of “irradiated” effluent as this would make it an offence to further contaminate the river with radioactivity.”
Summary of actions taken or show how this has been covered
We believe this comment may be based on a misconception of some kind. As stated above, the discharge is treated ‘domestic sewage’ from a treatment plant serving the welfare facilities of the work force during the early stages of the construction of Hinkley C Power Station. As such there is no potential at all for the raw sewage influent to the treatment plant to contain any radioactive material and none is added during treatment. The treated effluent, therefore cannot contain any radioactive material and there is no risk at all of any radioactive contamination in the receiving environment from the permitted facility. Therefore the issue raised above is not relevant to this permit application determination.

Response received from
The Well Being
Brief summary of issues raised
<ul style="list-style-type: none"> • Questioned lack of information and where the effluent will be discharged to. • Also questioned lack of options to dispose of effluent with suggestions made of “natural fertiliser, buried in the ground or discharged into septic tanks”. • If it to discharged to sea or river, everybody would be against it.
Summary of actions taken or show how this has been covered
The application, and its supporting information, outlines the proposal in great detail and clearly stipulates the location of the outfall. All this information was available to view via a web-link in the Agency’s advertisement of the application on the Gov.UK website at the beginning of the determination process. The basic details including the outlet location were given within the advert which also stated that the full documents were open be viewed at the Agency’s Bridgewater Office for anyone who could not access them via the internet. The alternatives sewage disposal methods suggested were not considered to be practical and they have their own associated environmental risks. The installation of a private sewage treatment facility for a new development where there is no access to a public foul sewer is acceptable under government guidance to local planning authorities and the Agency. Ultimately the Agency has a duty to make a formal decision on any application it receives based on the potential environmental risks it poses. In this case we determined that the discharges from the treatment the discharges from the treatment facility are acceptable and that the permit conditions will prevent any significant adverse effect on any of the sensitivities of the receiving environment including the designated features of all the conservation sites.

Representations from individual members of the public.

Brief summary of issues raised
Concerned with water quality in Burnham-On-Sea is already poor and the discharge may add to the poor quality. Would like assurance that environmental control will be in place.
Summary of actions taken or show how this has been covered
The potential for impact on all designated bathing waters was assessed and found not to be significant. Burnham-on-Sea bathing waters are many miles from the discharge outlet and the travel time (pathogens have a short life) and dilution in between will prevent any risk of harm to human health. This would be the case even for a non-disinfected effluent but in this case the treatment system does include Ultra Violet disinfection tertiary treatment and the permit we will issue includes conditions to ensure these are maintained and operated effectively.

Brief summary of issues raised
<ul style="list-style-type: none">• Concerned the modelling report submitted with the application does not cover the areas such as Burnham-on-Sea, Berrow and Brean and during the high peak season as these are 10-17 miles from the facility site.• Burnham-on-Sea beach had historically failing bathing water results but just now 'adequate' down to agricultural and industrial discharges. Concerned this application will add to the problem and delay the progression of WFD target by 2027.• Commented the application does not have tidal flow or effluent disposal diagrams based on empirical data or known sea flow behaviours.• Concerned about the suspended solids settling permanently further away onto other area of beaches, rivers and estuary if bad weathers permit it.• Concerned about the impacts on the tourism in the area and no monitoring commitment from the operator to have in place for bathing waters on the beaches of Burnham-on-Sea, Berrow and Brean or contingency plan in the event of pollution.• Commented the application should be refused based on dangers and risks to the local communities on the shores of Bridgwater Bay.
Summary of actions taken or show how this has been covered
<p>The modelling report submitted by the applicant was vetted by our own marine modelling experts who verified that it is credible and appropriate for the purpose. The model predicts that the discharges from the treatment plant only have the potential to cause any deterioration of the existing background water quality within a very limited 'mixing zone' around the outlet before the effluent fully mixes with tidal waters.</p> <p>Outside this mixing zone the model predicts no significant change to the existing water quality and that all the statutory water quality standards will be met. Our modellers have confirmed that these results are correct and the huge dilution available in the receiving coastal waters makes this conclusion unsurprising. We are therefore very confident that the bathing waters of the beaches of Burnham-on-Sea are not under any threat from the proposed discharges. They are many miles from the mixing zone around the outlet. The extra dilution in between and the travel time (pathogens in sewage effluent have a short life) would serve to nullify any threat to the bacteriological Bathing Water standards of the beaches. This would be the case even if the sewage was untreated. In this case the sewage will receive good conventional treatment and will also receive tertiary treatment via an Ultra Violet disinfection system.</p> <p>The risk from suspended solids in the effluent to the receiving waters is not significant. The emission standard imposed by the permit is 40 mg/l which equates to 40 parts of suspended solids in one million parts of water. Outside the limited mixing zone there will no increase on the existing background concentrations of suspended solids which are naturally high in the tidal waters. The maximum daily load of suspended solids from the discharge will be an infinitesimal amount compared to the natural daily load of in the tides of estuary.</p> <p>As stated above the natural levels of dilution in the receiving estuarial waters are huge in relation to the maximum daily volume of the discharges from the sewage treatment plant and a modelling exercise</p>

(vetted by the Agency) has confirmed that the available dilution will prevent any significant deterioration of the waters outside a very limited mixing zone around the outlet.

Without the potential for any significant change in any aspect of the existing water quality of the estuary to be caused by the discharges we are very confident that there can be no adverse effects or any potential threat to the health of any of the residents of local communities or visitors to the area.

Brief summary of issues raised

- Commented the discharge volume is 1,150 tonnes per day equates to 420,000 tonnes annually with that amount travelling inshore to the littoral zone and becoming concentrated/topped at every tide.
- Commented on the importance of the habitat sites surrounding the Severn Estuary such as Bridgwater Bay Sites of Special Scientific Interest (SSSIs) AND National Nature Reserve overlapping RAMSAR area.
- Commented on the importance of littoral zone and the impact of sewage effluent.
- Commented on the UV treatment of the effluent.
- Commented on the environmental assessment submitted with the application with regards to movement of muds in the bay.
- Concerned this discharge will add to the problem surrounding the tourist beaches with its failing bathing waters.

Summary of actions taken or show how this has been covered

The dispersion of the effluent within the tides and the residual amounts of it returning on incoming tides is accounted for in the modelling. It therefore does address the potential overall annual load of the pollutants in the effluent on the waters for the estuary.

An analysis of the potential risk based on the littoral zone receiving an annual 420,000 tonnes of effluent is very misleading for the following reasons:

- 420,000 tonnes is the total weight of effluent that would be discharged from the treatment facility if it discharged the maximum permitted volume of 1,150 cubic metres every day for 365 days.

But the pollutants within the effluent are only present in parts per million. This means that the vast majority of the effluent is in fact harmless water.

For example, the maximum daily weight of BOD discharged each day in the, effluent under the terms of the permit, could be 20 mg/l (milligrams per litre) X 1,150,000 litres = 23 Kilograms or 0.023 tonnes. So, if the maximum volume of effluent at the maximum permitted BOD limit was discharged every day for one year the total load of BOD discharged for that year would be 365 X 23 = 8,395 kg or 8.4 tonnes.

The remaining 419,991 tonnes of effluent discharged will be water, apart from similar weights of ammonia (also 8.4 tonnes) and suspended solids 12.6 tonnes.

- This analysis is itself conservative because it does not allow for natural biodegradation of the BOD and Ammonia in the environment. These pollutants are not persistent and cannot accumulate within the estuary.
- It also assumes that the maximum volume and concentrations are discharged every day and that all the effluent remains with the estuary and that none is dispersed into the wider coastal waters which is not the case.

Our analysis addresses the true polluting potential of the effluent and it is still conservative because although it allows for dilution and dispersion, it also does not take account of natural biodegradation and it also assumes maximum loads are discharged.

The maximum daily load of suspended solids that could be discharged from treatment facility each day is 34.5 kilograms and we consider that this is not significant in terms of the high natural, background suspended solids loads in estuarial waters and cannot have a significant effect on the existing movement of muds in the littoral zone.

Overall, we are confident that the good quality of treatment the sewage will receive before it is discharged and the good dilution and dispersion characteristics within the estuary at the point of discharge will prevent any significant adverse effects on any of the sensitivities of the receiving waters.

Brief summary of issues raised

- Objection to the application for an environmental permit to discharge treated sewage effluent into the Severn Estuary.
- Concerned about the impact in the marine environment particularly around Lundy island to the West and the flow traveling up north to the Bristol Channel to the wetlands to the East vital for breeding and overwintering wildfowl and other birds.
- Also about the impacts on the local beaches.

Summary of actions taken or show how this has been covered

As stated above the modelling undertaken by the applicants consultants, and vetted by our modellers, established that there is sufficient dilution within the tidal waters at the outlet of the discharges to prevent any significant deterioration of the existing water quality beyond a very limited mixing zone. Beyond this zone the existing water quality will be maintained. We are therefore confident that there is no threat to any species or their habitat in the wider estuary or beaches beyond the mixing zone. All the features mentioned in the above response are some distance from the mixing zone and the dilution factors will increase with distance affording greater protection.