

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

All responses received during the consultation on the draft Energy NPSs were reviewed by DECC. Where appropriate, issues or questions arising from consultation responses were forwarded to the relevant regulators and expert organisations who advised DECC on the nominations against the criteria for further advice.

These bodies were the Environment Agency (EA), Nuclear Installations Inspectorate (NII), Civil Aviation Authority (CAA), Ministry of Defence (MoD), Office for Civil Nuclear Security (OCNS), Department for Transport (DfT) and MWH/Enfusion, a consultancy who were commissioned to conduct environmental and sustainability appraisals of the nominated sites. Some comments were also forwarded to the Health Protection Agency (HPA) and / or the Commission on Medical Aspects of Radiation in the Environment (COMARE).

Only those comments which required additional technical input over and above the advice that regulators had already provided were sent to regulators either in their advice on the nomination, or their advice on public comments received during Spring 2009, which is also available on this website.

The criteria that these comments were considered against are also listed in the below table. Please see the end of Annex C of the revised draft Nuclear NPS for a description of how sites were assessed against each criteria and detail on the criteria themselves.

C1: Demographics

C2 and D5: Proximity to military activities

D1: Flood risk, storm surge and tsunamis

D2: Coastal processes

D3: Proximity to hazardous facilities

D4: Proximity to civil aircraft movements

D6: Proximity to sites of international ecological importance

D7: Proximity to sites of national ecological importance

D8: Proximity to areas of amenity, cultural heritage and landscape value

D6,7 and 8 were also informed by the Appraisal of Sustainability (AoS). D6 was also informed by the Habitats Regulations Assessment.

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

D9: Size of site to accommodate operation

D10: Access to suitable sources of cooling

Ref	REGULATOR	SITE	CRITERIA	REQUEST FOR ADVICE FROM REGULATOR / EXTRACTS FROM CONSULTATION RESPONSE	REGULATOR / SPECIALIST RESPONSE
1.	Environment Agency	Bradwell, all.	D1	<p><b>Clarification of flooding conclusions</b> Some respondents at Bradwell felt that the following statement from the assessment was unclear:</p> <p>“it is potentially reasonable to conclude that a nuclear power station could potentially be protected against flood risks throughout its lifetime”.</p>	<p><b>Response from EA:</b></p> <p>Our advice was that “Based on our current understanding of the flood risk in this area we believe that it is reasonable to conclude, at the strategic level, that the site can potentially be protected from flooding.” The conclusions for the sites are clarified as below:</p> <p><b>Bradwell, Braystones, Hartlepool, Hinkley Point, Kirksanton, Oldbury, Sizewell, Sellafield:</b> The Environment Agency has advised that it is reasonable to conclude that a nuclear power station within the nominated site could potentially be protected against flood risks throughout its lifetime, including the potential effects of climate change, storm surge and tsunami, taking into account possible countermeasures.</p> <p><b>Heysham, Wylfa:</b> The Environment Agency has advised that it is reasonable to conclude that a nuclear power station within the nominated site could be protected against flood risks throughout its lifetime, including the potential effects of climate change, storm surge and tsunami, taking into account possible countermeasures.</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

2.	Environment Agency	All	D1	<p>Concerns raised at both public consultation events and via consultation responses that climate change data to 2100 is insufficient given that waste may need to be stored on site for up to 160 years.</p>	<p><b>Response from Environment Agency (EA):</b></p> <p>The Environment Agency is working with Defra on updating flood risk policy in the light of climate change predictions in UKCP09. These updates will be subject to internal government consultation and eventually the updating of Planning Policy Statements/TANs or their successors. Flood risks are treated as an external hazard at nuclear sites and they are expected to be very well protected. Should future climate change projections suggest that sites were at an increased risk there would be time for action to be taken to increase sites' protection or take other actions to deal with this increased risk.</p>
3.	HSE	All	D2	<p>Climate Change Predictions, potential impact on nominated sites and possibilities for managing these.</p> <p>Concerns raised at both public consultation events and via consultation responses that climate change data to 2100 is insufficient given that waste may need to be stored on site for up to 160 years. Questions relating to the ability of engineering/technical solutions to mitigate the impact of rising sea levels.</p>	<p><b>Response from HSE:</b></p> <p>Civil Nuclear Power stations are licensed on the basis that they can withstand external hazards which have been conservatively estimated as having a return frequency of less than <math>10^{-4}</math> per annum (1 in 10,000 year event) including the effects of climate change, and that there should not be a disproportionate increase in risk beyond this level of event. In addition, the adaptability of the sea defences and mitigation measures to potential future changes will also be reviewed. Particular measures available will depend on the site, although preference should always be given to passive measures wherever possible. Climate change effects evolve on a relatively slow timescale. The requirement under the site licence to undertake 10 yearly periodic reviews of all safety cases will ensure that the latest predictions of climate change are taken account of.</p> <p>The precise measures adopted for individual sites will reflect the levels of hazard postulated and the local topography of the site and its relationship to the transmission paths for flood water. In line with good practice for all hazards, we would try to prevent the hazard from arising on site through elimination measures, by the selection initially of appropriate engineered platform levels. Secondly, passive protection can be provided through the hard</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					defences against water ingress, coupled with measures which prevent inadvertent pathways being created. The selection of door threshold levels which can accommodate considerable build up of flood water before buildings are breached, coupled with the provision of door stop logs which allow for an enhancement of the threshold level are simple measures to incorporate. Within structures, the placing of safety critical plant on plinths, to allow for a certain level of ingress before operation is compromised is also used routinely. In some cases, the ingress protection level of the plant can be enhanced to specified protection standards to allow for full operation in a submerged state. The selection of appropriate measures is site dependant.
4.	HSE	All		<p>Response referenced “the Large Letter” and issues raised regarding GDA and risks from deliberate aircraft attack.</p> <p>Link to letter:</p> <p><a href="http://www.largeassociates.com/3150%20Flamanville/R3150-aircraft%20impact%20-%20FINAL.pdf">http://www.largeassociates.com/3150%20Flamanville/R3150-aircraft%20impact%20-%20FINAL.pdf</a></p>	<p><b>Response from HSE:</b></p> <p>The Large letter is a commentary on leaked documentation (apparently) produced by EDF in 2003. This is not the basis on which the capability of the EPR design against malicious aircraft impact will be judged. Detailed assessments against the threat from military and commercial aircraft impact have been produced by EDF and AREVA and are being reviewed as part of GDA. Production of a suitable safety case against the threat from malicious aircraft crash is a UK requirement.</p>
5.	HSE	All (specific comments received on Bradwell, Hartlepool and Oldbury)	D1	<p>Some respondents to the consultation questioned why transient holiday populations were not taken into account in the demographics assessment.</p> <p>Respondents also queried whether large urban populations had been considered in the Strategic Siting Assessment (SSA). For example at Bradwell it was asked whether any potential risks to Southend, Chelmsford, Colchester and Clacton had been considered in the SSA.</p>	<p><b>Response from HSE:</b></p> <p>Advice from ND’s Land Use Planning Team:</p> <p>At the national level that the SSA was carried out it would not have been practical to assess transient holiday populations, because this data is not readily available through the Census and ordnance survey data which was used by HSE for generic demographic assessment. However, should an application for development consent come forward, then as part of the more detailed site specific assessment for nuclear site licensing, which includes a consideration of emergency preparedness and response arrangements, HSE would consider the full range of transient</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>populations both short and long term in addition to workplaces.</p> <p>With regard to consideration of the potential risks posed to substantial urban populations within the area, including Southend, Chelmsford, Colchester and Clacton:</p> <p>For the SSA, HSE's generic demographic analysis was carried out to a radius of 30km from the proposed site. We should emphasise that the generic Site Population Factor (SPF) does not take into account any features of the design of a particular type of plant: it is simply a measure of the population density in the vicinity. Whilst this provides a useful measure for providing a screening assessment, the off-site risks associated with any particular development will be specific to the exact location of the nuclear plant, and will depend on the extent to which the installation meets the relevant risk targets in the Safety Assessment Principles, and would be considered by the HSE's NII during the process of nuclear site licensing.</p> <p><b>Additional info (see comment above) :</b> The generic assessment is such that any populations within 30km, found to exceed the semi urban criteria, would have been revealed on the nominated site – as 'red' grid squares.</p> <p>Also note what was stated in the BERR SSA Condoc 2008: The Government proposes that areas that meet the Semi-Urban and Remote criteria will, for the purposes of the SSA, be considered strategically suitable for the development of new nuclear power stations, subject to meeting all other relevant criteria. It should be noted that although a site may have <u>demographic features which fall below the SSA exclusionary criteria, this does not mean that the demographic features will be acceptable to the HSE's NII following its detailed regulatory assessment at the time of</u></p>
--	--	--	--	--	---

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					considering a nuclear site licence application.
6.	HPA	All Cumbria sites		Responses stated that they felt for the Cumbrian sites, the potential cumulative radiation dosage to the public needed to be considered by the IPC in consultation with the Environment Agency.	<p><b>Response from HPA:</b></p> <p>The regulatory process for nuclear sites in the UK considers the radiological impact of the planned operations of the site itself and this allows for the cumulative effects of the operations continuing for many years. This includes the impact of any build up of radioactivity in the environment. Account is also taken of any additional radiation exposures from neighbouring sites or from past activities at other sites. All such exposures are compared to the dose limit for members of the public. HPA supports the need for any application to the IPC for a new nuclear power station to address the cumulative effects of the operation at the new site and the overall radiation doses including those from current and past operations at any neighbouring sites.</p>
7.	Environment Agency and HSE	All Cumbria sites	D1/2	How did the sites fare during the November floods and has this changed the assessment given in the SSA? It would be helpful to understand both local impacts on the site, and on access / egress routes and whether this could affect emergency planning arrangements. Responses were received referring to the impact of closures of the bridge south of Sellafield.	<p><b>Response from HSE:</b></p> <p>As part of the natural hazards safety case, we would expect that consideration to site access was considered. With regard to the floods in Cumbria, the bridge at Holmrook 5 miles south of the Sellafield site was closed for five days and effectively cut off the southern route for evacuation should that have needed to be necessary for an off-site emergency at Sellafield. The northern route from Sellafield along the A595, was unaffected by the flooding and remained available for evacuation under the emergency plan, such that throughout the period of the extreme weather an evacuation route for Sellafield existed.</p> <p>The read across to Braystones is that this would be equivalent to the situation for Sellafield. For Kirksanton there was no flooding problem in that area.</p> <p>For REPPiR, weather considerations concentrate on a weather type that leads to a conservatively high dose</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>estimate, generally based on relatively light winds without precipitation. The scenarios for the sites are "reasonable foreseeable"</p> <p><b>Response from EA:</b></p> <p><b>Kirksanton:</b> We have received reports and observations from members of the public that sections of the proposed site predicted to be at fluvial risk were affected by surface water running off from high ground. The defended watercourse is not reported to have exceeded channel capacity.</p> <p><b>Braystones:</b> A Royal Haskoning report on the flooding at Braystones Village indicates that the River Ehen stayed within bank just North of Village itself. This leads us to believe that the site may not have been affected by fluvial flooding. . Since the site is on relatively high ground pooling of surface waters is less likely.</p> <p><b>Sellafield:</b> We have not had any reports of flooding for this site. No targeted post flood data collection has been performed by us.</p> <p><b>Access:</b> The A595 was affected in a number of places. Water was across the road to the North at Egremont followed by Holmrook and Duddon Bridge moving South. This could affect ingress and egress to all of the sites. Many other smaller roads were also affected, and further consideration would be expected at the detailed planning stage, if specific proposals come forward.</p>
8.	Environment Agency	All Cumbria sites	D10	How would the movement of radioactive particles, and the possible impact of new build on this movement, be assessed by the regulators (HPA/EA)?	<p><b>Response from HPA:</b></p> <p>The HPA is carrying out a study for the EA on the implications on public health from radioactive particles on beaches around Sellafield. This includes looking at both the likelihood of members</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>of the public who use the beaches coming into contact with a particle and the potential radiation doses that might result. Results of this study are due early in the summer 2010. In the meantime, HPA have provided formal advice to EA on when they would expect further action to be taken to protect members of the public based on particles being found on the beaches during on-going monitoring.</p> <p><b>Response from EA:</b></p> <p>The presence of radioactive particles in offshore sediments, and the consequences in terms of risks to the public, are currently subject to assessment as part of a formal programme of work on Sellafield Radioactive Particles in the Environment.</p> <p><a href="http://www.environment-agency.gov.uk/homeandleisure/110563.aspx">http://www.environment-agency.gov.uk/homeandleisure/110563.aspx</a></p> <p>Characterisation of the distribution of radioactive particles in beach sediments is well advanced in this area, and the current level of understanding indicates that risks to the public are very low, due to a combination of relatively low hazards associated with the particles found to date, and the very low probability of members of the public ingesting or inhaling these particles (they are very sparsely distributed).</p> <p>The mechanisms by which these particles are transported is being assessed as part of this programme of work. However, given the density of the particles, and the fact that the higher hazard particles tend to be relatively large, wind transport is not considered to be a significant mechanism for transport. This tends to be borne out by the existing distributions, with the vast majority remaining within the 3km stretch of coastline running NW from Sellafield site.</p> <p>The consequences of a new build sea discharge disturbing contaminated sediments will be assessed as part of the EA's assessment of any specific proposals for the sites, if made as part</p>
--	--	--	--	--	--



## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					of a formal application.
9.	Environment Agency	All Cumbria sites	D10	Concerns were raised during the consultation that the radioactive discharges from Sellafield could pose problems for the Isle of Man, and it was asked whether additional new nuclear power stations would increase this.	<p><b>Response from EA:</b></p> <p>Discharges from Sellafield site meet all relevant national and international requirements in terms of impact and doses to members of the public and the environment.</p> <p>The assessments of dose to members of the public are supported by a programme of environmental sampling and monitoring reported in the annual Radioactivity in Food and the Environment (RIFE) reports, a joint publication by the Environment Agency, Food Standard's Agency, Scottish Environment Protection Agency and Northern Ireland Environment Agency:</p> <p><a href="http://www.food.gov.uk/science/surveillance/radiosurv/rife/">http://www.food.gov.uk/science/surveillance/radiosurv/rife/</a></p> <p>Critical group doses ie to those members of the public who are the most exposed, are, as would be expected, highest close to site itself (within a few km). The highest dose at 230uSv/y for on-going discharges, remains well below the relevant statutory dose limit (1000uSv/y).</p> <p>Further afield, the 2008 RIFE report confirms that doses to critical groups on the Isle of Man are less than 2% of the statutory dose limit of 1000uSv/y (i.e. &lt;20uSv) (this for exposure to all artificial radionuclides in the environment, not just those from Sellafield discharges).</p> <p>Future discharges from any new nuclear power station would be assessed on the basis of the detailed proposals as and when they are formally submitted for assessment. Our preliminary assessments for GDA of the reactor designs indicate that doses arising from potential discharges from these reactors are well within dose limits and constraints. Furthermore we require that operators minimise their discharges and doses to members of the</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					public, so reducing impact further, through the use of the Best Available Techniques.
10.	Environment Agency	All Cumbria sites	D10	<p>Consultation respondents asked what the current status of the Irish sea off Sellafield was. In particular, if there is currently a high level of radionuclides, would this be expected to worsen if new nuclear build took place and what would be the protections to ensure that it didn't worsen?</p>	<p><b>Response from EA:</b></p> <p><b>See also response to issue 10 above.</b></p> <p>Environmental monitoring of the effects of radioactive discharges on the Irish Sea and the local environment is conducted on behalf of the UK Government by the Environment Agency.</p> <p>The findings of this monitoring are published annually in the Radioactivity in Food and the Environment (RIFE) report. This is a joint publication from the Environment Agency, the Food Standards Agency, the Northern Ireland Environment Agency and the Scottish Environment Protection Agency.</p> <p>The most recent RIFE report can be found at  <a href="http://www.food.gov.uk/science/surveillance/radiosurv/rife/">http://www.food.gov.uk/science/surveillance/radiosurv/rife/</a></p> <p>Critical group doses ie to those members of the public who are the most exposed, are, as would be expected, highest close to Sellafield site (within a few km). The highest dose of 230uSv/y for on-going discharges remains well below the relevant statutory dose limit (1000uSv/y).</p> <p>Radiation doses, including that arising from past phosphate processing that was carried out in the area, were less than 62 per cent of the public dose limit; this includes assessment of contributions from discharges from all power stations and nuclear facilities located on the Irish Sea coast.</p> <p>If detailed site-specific proposals are submitted for new nuclear build, the Environment Agency will assess the additional in-</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>combination radiological effects.</p> <p>Additionally, the RIFE environmental monitoring programme would be expanded to cover any sites of new build as &amp; when required.</p>
11.	Environment Agency / MWH	All Cumbria Sites		<p>Response made a number of detailed points on the impact of cooling and the flows of coastal water on the Cumbrian coast, including alleging that:</p> <ul style="list-style-type: none"> <li>- Fish would be killed by the coarse intake screens designed to remove them from the cooling flow in the reactors, whilst virtually none of the plankton entrained in the intake flows will survive passage through the cooling system itself.</li> <li>- Cooling water abstractions will therefore remove the top predators and kill all smaller components of the free-swimming and pelagic community in an uncertain proportion of the coastal zone water, and will also alter both the physical and chemical properties of the water that is discharged back to the environment.</li> </ul>	<p><b>Response from MWH:</b></p> <p>Some of these points have been covered under other comments but our response to the points is given below:</p> <ul style="list-style-type: none"> <li>• The concerns raised in relation to the effects of cooling water on entrainment of organisms and on water quality are important but not new. They have been considered at a strategic level in the HRA and AoS reports which conclude that the effects of cooling water on ecology and water quality could be potentially significant, especially when in-combination effects are considered.</li> <li>• The effects are very dependent on the detailed proposals that come forward in relation to both the requirements for cooling water (the reactor type is not yet known) and the proposed siting and design of intake and discharge structures. Without this information it is not possible to draw any definite conclusions or make firm recommendations to the IPC as to how many reactors could be developed.</li> <li>• These issues will be addressed when individual development applications come forward. Appendix 2 to the AoS makes recommendations to the draft Nuclear NPS on guidance that should be provided to the IPC. This includes recommendations for site level HRAs and detailed studies of cooling water discharges taking account of cumulative effects in the North West region.</li> </ul> <p>Thus, it is our opinion that the detailed issues raised in this and other comments can be dealt with effectively in the assessment of the development application and that there is currently insufficient information to provide more guidance at the strategic level.</p> <p><b>Response from EA:</b></p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>We have conducted a strategic assessment of cooling rather than a detailed scrutiny of specific proposals. Should such proposals come forward we would expect the Environmental Impact Assessment for the development consent and the application for the Environmental Permit for the discharge will require detailed survey of the sea and modelling of impacts on the environment, including thermal effects.</p> <p>It would be inappropriate to put restrictions on the capacity of any individual site at this stage but we would expect cumulative impacts of multiple sites to be considered if a number of detailed proposals come forward.</p> <p>Alternative cooling strategies are possible if the impacts of direct cooling prove to be unacceptable when the detailed considerations are made.</p>
12.	MWH	All Cumbria sites	HRA	<p>A concern was raised that the screening process appeared not to have identified whether or not it is possible to discharge multiple cooling water streams into the coastal waters of West Cumbria without threatening the Special Protected Areas at each end of the Cumbrian coast.</p>	<p><b>Response from MWH:</b></p> <p>The effects of the proposals for Kirksanton in combination with other plans and projects are considered in both the HRA and AoS reports. The effect on water quality of multiple cooling water discharges from nuclear power stations in the Cumbria area is recognised as a potentially significant effect.</p> <p>Each development application that comes forward will be subject to a site level EIA and HRA. These assessments will need to take account of interactions with other plans and projects in the area which would include the possible development of other nuclear power stations.</p> <p>A development application at Kirksanton will only be permitted if the developer is able to satisfy the requirements of the Habitats Directive by demonstrating that:</p> <ul style="list-style-type: none"> <li>• there are no significant effects, or that</li> <li>• potential effects can be avoided or mitigated so that there are no</li> </ul>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>adverse effects on the integrity of European sites, or that</p> <ul style="list-style-type: none"> <li>there are no alternatives, and that in these circumstances there is an IROPI case for why the development should proceed.</li> </ul>
13.	MWH / Environment Agency	All Cumbria sites		<p>Response detailed points on each of the Cumbria sites covering coastal erosion, visual impact, national and internationally designated sites and cooling.</p>	<p><b>Response from MWH:</b></p> <p>Several of the points raised by Friends of the Lake District are similar to other consultation comments and have been addressed by other responses. The overall conclusion is that the points raised by FLD have been considered within the AoS and HRA reports and do not change the conclusion of this work. FLD do not seem to appreciate that although strategic HRAs have been conducted, site level HRAs will still be required for development consent. Other, more specific responses to comments are given below.</p> <p>We consider that the points raised in relation to amenity/visual impacts have been considered by the AoS. Comments raised do not change appraisal conclusions.</p> <p>Braystones &amp; Kirksanton: concern raised by FLD about visual impacts from Lake District NP. This is in line with AoS appraisal, which identified potential adverse impacts.</p> <p>Braystones: concern raised by FLD about setting impacts on a Scheduled Monument and Listed Building. Both identified as potential adverse impacts in AoS, with a note to advise further investigation at EIA stage.</p> <p>Braystones: concern raised by FLD about traffic impacts on rural roads. This is in line with AoS appraisal, which identified potential adverse impacts.</p> <p>Kirksanton: concern raised by FLD about setting impacts on a Scheduled Monument. Identified as potential adverse impacts in AoS, with a note to advise further investigation at EIA stage.</p> <p><b>Response from EA:</b></p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>The issues raised are detail which would be addressed if detailed proposals are developed rather than as part of the current strategic assessments. To assess the impact fully will require detailed proposals, detailed environmental and physical surveys and modelling of impacts.</p> <p>These proposals, surveys and modelling will be required for Environmental Statement that will be assessed during the Environmental Impact Assessment for the Development Consent, the assessment will be carried out by the IPC and their consultees such as the Environment Agency. There will also be a detailed flood risk assessment that will be considered by the IPC and their consultees. Impact on coastal process and flood risk at and away from the site will be considered at this stage.</p> <p>We also expect that the impact on ecologically protected site will also be assessed as part of the Appropriate Assessment for the Habitats Regulations.</p> <p>The operator will need to apply for and obtain relevant Environmental Permits that fall to Environment Agency regulation, e.g. for the cooling water discharges. We will consider whether the environmental impacts are acceptable before we decide whether permits can be issued.</p>
14.	Environment Agency	Bradwell	D1	<p>Could the Environment Agency provide a response to the concern raised regarding a report of the Middlesex University Flood Hazard Research Centre published in March 2007 which according to a respondent, concluded that the Bradwell site would be at risk of flooding from rising sea levels and increased frequency of storm surges.</p>	<p><b>Response from EA:</b></p> <p>Middlesex University/ Greenpeace report used UKCIP02 predictions, whilst EDF's nomination report for Bradwell used storm surge predictions from UKCIP06 predictions. The Environment Agency considers that for a strategic assessment there was no significant differences between the considerations. The Environment Agency has advised that the Middlesex University/Greenpeace report contains a "worst case scenario" for ice sheet melt as described in the section headed "Climate</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>Surprise". This scenario is based upon a 2004 report and predicts a 5–6 metre sea level rise, which is significantly higher than the H++ ice melt scenario in UKCP09 which predicts a rise of approximately 2 metres. The Environment Agency consider that UKCIP09 is a better source for a "worst case scenario".</p> <p>In addition to meeting the requirements of EN-1, the revised draft NPS sets out that applicants should identify the potential effects of the credible maximum scenario in the most recent projections of marine and coastal flooding. Applicants must then be able to demonstrate that, where necessary, they could achieve future measures for adaptation and flood management at the site.</p> <p>Flood risks are treated as an external hazard at nuclear sites and they are expected to be very well protected. Should future climate change projections suggest that sites were at an increased risk there would be time for action to be taken to increase sites' protection or take other actions to deal with this increased risk.</p> <p>The Environment Agency's advice was based upon a strategic assessment, the developer/operator of any future nuclear power station would have to make detailed site-specific Flood Risk Assessments for both the development consent order and nuclear site licence applications.</p>
15.	HSE	All Cumbria sites	Other – emergency planning	<p>During the consultation a concern was raised about the proximity of a wind farm to the nominated site at Kirksanton and the potential hazard this could create. Could the HSE advise on this?</p> <p>Concerns were also raised relating to emergency planning which appeared to state that it is not possible to emergency plan for Kirksanton and Braystones. Although emergency planning had been flagged as an issue for local consideration, we would be grateful for the HSE's views as to whether</p>	<p><b>Response from HSE:</b></p> <p>At the strategic siting assessment phase, it is not possible to determine the magnitude of the threat that may be posed by a nearby wind farm to the nominated site at Kirksanton however there is no reason to believe it would be sufficiently high as to rule the site out. During any site licensing phase, all external hazards, including any nearby wind turbines, would be examined in considerable detail, and appropriate arrangements and safety justifications would need to be developed to take account of the potential threats. If a satisfactory safety case could not be made then the HSE would not permit construction of the power station.</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

				<p>emergency planning is possible for these two sites or if it should be assessed at this stage.</p>	<ul style="list-style-type: none"> <li>• it is not possible to say at this stage how large a DEPZ for a hypothetical plant located in the nominated areas at Braystones or Kirksanton would be. Hence it is not possible to say whether local population centres (caravan sites, a prison) would fall within such a zone.</li> <li>• the feasibility of implementing emergency countermeasures would be looked at in some detail in the event that a development proposal/site licence application was submitted, and would take into account any population centres that fall within the prescribed DEPZ</li> </ul>
16.	Environment Agency	Bradwell	D10	<p>Concerns were raised during the consultation about the impact of cooling water outfalls on the Blackwater Estuary and in particular on oyster beds and the local oyster industry.</p> <p>It was reported in the Colchester Daily Gazette (7th May 2009) that a professor of ecology at Essex University had said native oysters would be particularly affected by changes in the environment and although research was inconclusive the onus was on the developer to show there would be no impact.</p> <p>In addition one response cited work they carried out with research scientists from Essex University which determined that the utilisation of 10% of the total exchange volume of the estuary on each tide could have significant implications for marine species including oysters.</p> <p>A study by CEFAS stating that the optimum environmental result for a new station would be for water intake to come from the deep estuary channel and for outflow to happen south of the deep channel to the east of the inlet was also cited.</p>	<p><b>Response from EA:</b></p> <p>We have read the comments within the Colchester Daily Gazette article and the extracts from studies by the University of Essex and CEFAS, provided in the response from Colchester Borough Council. The information provided in the consultation does not change our original advice.</p> <p>The design for any potential power station is a matter for the energy company proposing the development, as is location of the cooling water intake and outlet.</p> <p>We will consider these matters in detail if specific proposals, come forward together with relevant impact modelling studies and detailed local surveys. At that time it would also become clear where the inlet and out fall would be located.</p> <p>An operator would need an Environmental Permit issued by the Environment Agency for the cooling water discharges. If proposals come forward, we would consider the acceptability of the environmental impacts before we decide whether a permit can be issued.</p> <p>Depending on the location of the abstraction point, the design and ongoing mitigation measures to ensure the impacts of the abstraction of cooling water are acceptable would be considered, if proposals come forward, either as part of an application to abstract from controlled waters or as part of the development consent application.</p>



## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					Alternative cooling strategies are possible if the impacts of direct cooling prove to be unacceptable when detailed proposals and assessment are made.
17.	HSE	Bradwell	D3	1998 report on fuel element debris storage is cited in a response, does this affects advice that the nearby decommissioning station at Bradwell would not form a hazardous facility to any new station?	<p><b>Response from HSE:</b></p> <p>There is no stipulation that “new nuclear plants cannot be built near to any hazardous industrial processes”. There is however a requirement that the implications of siting a new nuclear plant adjacent to a potentially hazardous industrial plant are understood, and that at the strategic siting stage it is not seen as likely that the potential threats from such a plant would preclude deployment of a new nuclear power station. There are two main issues to be considered here, direct effects from activities on the adjacent site which may affect any new plant, such as explosion, missile generation etc, and indirect effects such as the need to shelter or evacuate. It has been judged that at a strategic level, neither of these concerns are sufficiently large to rule out the future use of the site. During any site licensing phase, these would be examined in considerably more detail, and appropriate arrangements and safety justifications developed to take account of the potential threats.</p> <p>The Bradwell site operator’s current safety case considers external hazards as a matter of course. That site is currently undergoing a period of decommissioning whose end point is to place the stored waste in passively safe form. Any new power station will require a safety case that takes external hazards into account, and that of Bradwell A would be updated to take account of the presence of the new station.</p> <p><b>Bradwell Safety Case:</b></p> <p>“1 A November 1998 HSE ILW report expressed the views of HSE on the timescales for the treatment of ILW at that time. The Nuclear Decommissioning Authority (NDA) is now responsible</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>for decommissioning timescales and one of their strategic priorities is driving hazard reduction.</p> <p>2 The 10 yearly Periodic Safety Review (PSR) of the Bradwell site safety case has commenced, and covers the period beyond 2012. In preparation for the completed PSR the continued storage of Fuel Element Debris (FED) has been reviewed. This review, which takes into account the effects of ageing, supports the assessments and categorisation of faults in the site safety case, demonstrates that the FED vaults remain fit for purpose and provides confidence that they will continue to do so during the period to the next PSR.</p> <p>3 An exercise to characterise the FED in the vaults was conducted that involved removal of each of the vault lids to allow visual observation of the contents and take samples of the FED material. Nothing was observed that would undermine the safety case.</p> <p>4 The Nuclear Site Licence requires that adequate arrangements are made and implemented for dealing with any accident or emergency arising on the site and their effects. This is satisfied by provision of the approved Emergency Plan.”</p>
18.	HSE	Bradwell	C1	<p>The following questions were raised during the consultation:</p> <ul style="list-style-type: none"> <li>- How would intermittent flooding of the ‘Strood’ (the causeway connecting Mersea Island with the mainland be accounted for when drawing up emergency plans?</li> <li>- What specific measures would be in place for evacuation of Mersea Island as covered in the ‘Extendibility’ part of the Emergency Plan?</li> <li>- How would residents of Mersea Island be kept informed of procedures/ instructed what to do in the event of an emergency and would they be informed when alarms were being tested?</li> </ul>	<p><b>Response from HSE</b></p> <p>The DEPZ for the Magnox station at Bradwell does not encompass Mersea Island. In the event of a new power station being built, the DEPZ would need to be determined on the basis of the radiological risk posed by the particular design. It is not possible to say how large that zone might be, although it seems unlikely that it would extend further than the zone determined for the old Magnox station.</p> <p>With regard to extendibility of any future emergency plan: the purpose of using an extended release scenario use to test the plan’s extendibility is to make the local authority and others involved in emergency planning aware of factors which may influence the choice and timing of emergency countermeasures, rather than to determine a particular course of action in advance.</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

				<p>In addition, one member of the public present at the West Mersea public discussion related an incident when alarms at the then operating station were sounding and expressed concerns at the difficulty they experienced in finding out what had happened. Sounding of the alarms in this case was apparently a test.</p>	<p>Any known factors such as periodic road flooding would be one factor which would feed into such outline planning for very remote scenarios.</p> <p>Sirens are provided as part of the onsite response. In the event of a need to implement any off-site counter measures, contact with people within the DEPZ will be done in accordance with the Off-Site Plan for that site.</p>
19.	HPA	Bradwell		<p>Responses raised a concern that the KIKK/COMARE did not weight for areas being down wind of a nuclear power station such as West Mersea. Could the HPA provide further advice on this?</p>	<p><b>Response from HPA:</b></p> <p>Analyses conducted by COMARE have examined rates of childhood cancer around all nuclear sites in Great Britain over a prolonged period, from the 1960s to the 1990s. In doing so, they took account of changes over time in local populations, based on information from censuses. It is true that the COMARE analyses – in common with the KIKK study did not weight results according to the prevailing wind.</p> <p>The direction of the prevailing wind is only one factor which influences people's exposure to radionuclides released into the environment. Of more importance are individual habits such as the amount of locally produced food eaten and the time spent outdoors.</p>
20.	MWH	Bradwell	D7	<p>It was asked during the consultation, whether the Colne SSSI and Sandbeach Meadows SSSI had been assessed in the AoS/HRA and if so, were they considered likely to be unaffected by potential development?</p>	<p><b>Response from MWH:</b></p> <p>The Colne Estuary SSSI and Sandbeach Meadows SSSI were both considered in the AoS for Bradwell although the conclusions in respect of these sites are not set out in detail in the main body of the AoS site report.</p> <p>The Colne Estuary SSSI overlaps with a number of European Sites of nature conservation interest. Specifically, the Colne Estuary SSSI lies within the Colne Estuary (Mid-Essex Coast Phase 2) SPA and Ramsar sites and most of the SSSI also falls within the Essex Estuaries SAC. The Colne Estuary SSSI shares the same</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>nature conservation interests as the overlapping European Sites. The European Sites in the vicinity of Bradwell have been assessed in the Bradwell HRA Report, the findings of which are summarised in the Bradwell AoS. The HRA concludes that adverse effects cannot be ruled out at several of the European Sites, including the Colne Estuary SPA and Ramsar sites and the Essex Estuaries SAC. Given the complex nature of the Mid-Essex SPA/Ramsar designations, the HRA notes that impacts need to be considered in the wider context which would include the effects on the component SSSIs. The conclusions for the European Sites are also applicable to the Colne Estuary SSSI although SSSI's themselves were not specifically addressed in the HRA as this process only considers impacts upon internationally designated sites.</p> <p>Sandbeach Meadows SSSI is included in the baseline information (Appendix 4) and is discussed in the appraisal matrix (Appendix 2) of the Bradwell AoS. Sandbeach Meadows is a terrestrial site and lies on the Dengie Peninsula approximately 4 km to the SE of the nominated site. The grassland within the site supports nationally important numbers of Brent geese in winter. However, the assessment of effects on Biodiversity and Ecosystems presented in Appendix 2, does not identify any strategic significant effects on Sandbeach Meadows SSSI.</p>
21.	MWH	Bradwell	D7	<p>Respondents asked whether Biodiversity Action Plan (BAP) habitats and species had been assessed in the AoS/HRA. Could MWH advise please?</p>	<p><b>Response from MWH:</b></p> <p>Site AoS report states “biodiversity could also be affected at a more local level if important habitats/species (for example, UK Biodiversity Action Plan habitats/ species or legally protected species) are present within, or in close proximity to, the site.” A list of BAP species/habitats is included in appendix to Bradwell Site AoS. Essex BAP is included in plans/programmes review</p>
22.	Environment Agency	Bradwell	D3	<p>Some respondents felt it unlikely that impacts of forthcoming Shoreline Management Plans could be mitigated against solely through suitable design.</p>	<p><b>Response from EA:</b></p> <p>The Draft Shoreline Management Plan for Essex and South Suffolk recognises the pressure on coastal defences but indicates “hold</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>the line” for the Bradwell shoreline for all three epochs covered in the plan, that is through to 2105, eg for the Bradwell on Sea zone the wording is;</p> <p>“The current line will be held throughout all epochs. The defence is under pressure but there are overriding constraints for realignment.”</p> <p>There are a number of zones relevant to the nominated site and the conclusions are similar for all the relevant zones. See <a href="https://consult.environment-agency.gov.uk/portal/re/flood/anglian/smp150310/consult?pointid=1267785100247">https://consult.environment-agency.gov.uk/portal/re/flood/anglian/smp150310/consult?pointid=1267785100247</a></p> <p>Our view, contained in the advice was that “Consideration should be given to mitigation of the resulting ‘coastal squeeze’, under the Habitats Regulations, in the form of compensatory habitat.”</p>
23.	Environment Agency	Bradwell	D6	<p>Some respondents stated that the operation of the previous power station was particularly damaging to native oyster populations.</p>	<p><b>Response from EA:</b></p> <p>We are unable to make detailed considerations at this stage because there is no detailed proposal and suitable modelling of cooling water discharges cannot be done until there is a detailed proposal accurately stating discharge locations, volumes etc..</p> <p>We are not aware of any recent published research on the impact of the existing power station on the oyster beds, the most recent published research relates to the early 1990s.</p> <p>We included the following in our advice on access to suitable sources of cooling “...the Environment Agency believes that in inner estuarine sites, direct cooling may not be the most appropriate methodology over the longer term. Each case should be examined separately “. Alternatives to direct cooling are possible, these alternative would avoid most of the thermal and other discharge impacts on the estuary.</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>We have read the comments within the Colchester Daily Gazette article and the extracts from studies by the University of Essex and CEFAS, provided in the response from Colchester Borough Council. The information provided in the consultation does not change our original advice.</p> <p>The design for any potential power station is a matter for the energy company proposing the development, as is location of the cooling water intake and outlet.</p> <p>We will consider these matters in detail if specific proposals, come forward together with relevant impact modelling studies and detailed local surveys. At that time it would also become clear where the inlet and out fall would be located.</p>
1.	HSE	Bradwell	C1	<p>Could HSE confirm that Essex County Council (the Emergency Planning Authority for Bradwell) would be responsible for the decision to include Mersea Island in the Extendibility section of the emergency plan?</p>	<p><b>Response from HSE:</b></p> <p>Essex CC is the current emergency planning authority for the Bradwell area - and unless there are local government changes we assume this would be the case for any new nuclear station at Bradwell. Our emergency planning team has no comments to make on the proposed statement.</p>
2.	HSE	Bradwell/All sites	Seismic	<p>Response to the consultation commented that whilst assurances had been provided that the reactors themselves would be resistant to an earthquake, no assurance had been received about cooling systems, such as pipe-work on the seabed or cooling towers or facilities for storage of radioactive waste.</p> <p>Could the HSE confirm that assessment of a site's resistance to earthquake would include an assessment of all the associated</p>	<p><b>Response from HSE:</b></p> <p>As part of the licensing process for the site, the safety categorisation and classification of the structures, systems and components will be reviewed. This will identify all items which require seismic resistance, either because of the safety function they perform or because their failure may directly or indirectly challenge safety of the facility. As part of the emergency arrangements for the site adequate on-site resources will be available following a major earthquake to deal with the anticipated safety requirements.</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

				infrastructure of the power station?	
3.	HPA	Bradwell	Health	<p>Response raised a concern that a study by Busby and Bramhall, 2002 suggested excess levels of cancer and higher levels of breast cancer mortality arising from the Bradwell power station. The response also suggested that there had been a reworking of the data on childhood leukaemia in the Blackwater area following the KiKK study and that this indicated a possibility of higher levels of cancer than in the population at large.</p> <p>Can the HPA provide any further detail on these studies cited in the response?</p>	<p><b>Response from HPA:</b></p> <p>HPA is not aware of any reworking of data on childhood leukaemia in the Blackwater area following the KiKK study. COMARE in its 10th report did not find associations between the incidence of childhood leukaemia and residence near nuclear power plants in the UK, including Bradwell. COMARE has commented on the report by Busby and Bramhall (2002) and related reports; COMARE concluded that "Analyses using correct mortality figures and the most appropriate expected values do not indicate any significant excess of cancer mortality around Bradwell, nor do they indicate any substantial or statistically significant risk of breast cancer mortality in groups of wards bordering the Blackwater estuary"  <a href="http://www.comare.org.uk/statements/comare_statement_bradwell.htm">http://www.comare.org.uk/statements/comare_statement_bradwell.htm</a>.</p>
4.		Braystones	FFLC	<p>Some respondents raised concerns that the building of a new power station would potentially lead to the closure of Beckermert Village school due to the school being within the evacuation zone.</p>	<p><b>Response from HSE:</b></p> <p>In the absence of detailed development proposals it is not possible to determine the extent of any DEPZ required under REPPiR, hence not possible to say if the school would be in the DEPZ.</p> <p>For a new nuclear power station anywhere, REPPiR requires there to be an off-site emergency plan to address all reasonably foreseeable radiation emergencies. It is possible (or indeed likely) that based on detailed fault analysis a new nuclear power station may not present a risk which constitutes a radiation emergency extending very far (if at all) from the site fence. In this case we would - as a matter of precaution, specify a DEPZ which extends for a reasonable distance around the site (eg. 1km from the reactor centre point) for which we would expect to see off-site emergency plans. The detail we would expect to see emergency plans would be consonant with the off-site radiological risk.</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

5.	MWH	Braystones		Response stated that some relevant internationally designated sites, including the Upper Solway Flats and Marshes SPA/Ramsar, River Derwent and Bassenthwaite Lake SAC have not been included in the assessment.	<p><b>Response from MWH:</b></p> <p>Sites considered in the HRA in the list from CWT are Drigg Coast SAC and River Ehen SAC. The sites not considered in the HRA are Morecambe Bay SAC/SPA/Ramsar, Duddon Estuary SPA/Ramsar, Upper Solway Flats and Marshes SPA/Ramsar, Solway Firth SAC, River Derwent and Bassenthwaite Lake SAC and River Eden SAC. All of these sites lie further than 20km from the nominated site, as verified by Natural England's Nature on the Map. The HRAs have not considered sites beyond 20km of the site boundary, thus these have been intentionally excluded. We note that although these European sites are more than 20km from Braystones, several of them fall within the 20km radius for other nominated sites and so are considered in other HRA reports as appropriate. For example, the Kirksanton HRA includes effects on the Duddon Estuary SPA/Ramsar.</p>
6.	CAA	Dungeness	D4	Concerns were raised about the possible impact of expansion of Lydd Airport on the existing Dungeness A and B stations.	<p><b>Response from CAA:</b></p> <p>As previously highlighted, all parties should be aware that aerodrome safeguarding responsibility rests with the relevant aerodrome operator / licensee. Accordingly, in respect of any potential aerodrome safeguarding issue, there is a need at some stage to ensure that the consultation takes into account the views of the licensee at Lydd Airport.</p> <p>In respect of the statement in the attached document, "the CAA is proposing that this concession be transferred to any new or amended Restricted Area associated with a new power station", that is not the CAA's proposal, merely a suggested way to mitigate potential impact upon Airport related operations that might be caused by any new (or amended) Restricted Area. As such, it would be for the Airport licensee to make the proposal to allow Lydd related aircraft to transit any new/amended Restricted Area.</p> <p><b>Response from HSE:</b></p>



## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					HSE have issued a no objection letter to Shepway District Council on the current proposed changes to Lydd Airport. HSE have also written to Shepway District Council outlining our position on the potential effect on a “C” station on the site. HSE have provided a response to queries raised by LAAG including a number of FOI requests. It remains the position of HSE that we have no objection to the current proposed changes in use of Lydd Airport.
7.	HSE	Hartlepool	D3	Some responses during the opportunity for public comment asked whether a number of industrial facilities close to the nominated site had been considered in the assessment.	<p><b>Response from HSE:</b></p> <p>Based on Health and Safety Executive records, there are three neighbouring ‘upper Tier’ COMAH establishments whose land use planning consultation zones interact with the nominated site (see map at Annex B), namely:</p> <ul style="list-style-type: none"> <li>• Huntsman Pigments at Greatham Works, Tees Road Hartlepool. All of the nominated site is within the Consultation Distance, known as the Outer Zone which is coterminous with the Public Information Zone.</li> <li>• Norseia Pipeline Ltd (c/o Conoco Phillips) at Seals Sands Middlesborough. All three Land Use Planning Zones (Inner, Middle and Outer) transect the nominated site. The Inner Zone transects the existing power station and the adjacent, eastern area of the nominated site.</li> <li>• Fine Organics, Seal Sands, Billingham, Middlesborough. The nominated site is; entirely within the site’s Consultation Distance, known as the Outer Zone and which is coterminous with the Public Information Zone; but is beyond the Inner Zone. However, the Middle Zone transects the existing power station and the adjacent Eastern area of the nominated site.</li> </ul>
8.	HSE	Hartlepool	D3	Some respondents commented that the Government was actively encouraging hazardous activities to take place in the Teesside Environmental Recycling and	<p><b>Response from HSE</b></p> <p>There is no regulatory stipulation that new nuclear plants cannot be built near to any hazardous industrial processes. There is however</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

				Reclamation Centre, neighbouring the Hartlepool site, which could be damaging to the existing station's water uptake pipe.	a requirement that the implications of siting a new nuclear plant adjacent to a potentially hazardous industrial plant are understood, and that at the strategic siting stage it is not seen as likely that the potential threats from such a plant would preclude deployment of a new nuclear power station. There are two main issues to be considered here, direct effects from activities any nearby industrial site which may affect any new plant, such as explosion, missile generation etc, and indirect effects such as the need for staff to shelter or evacuate. It has been judged that at a strategic level, neither of these concerns is sufficiently large to rule out the future use of the site. During any site licensing phase, external hazards would be examined in considerably more detail, and appropriate arrangements and safety justifications developed to take account of the potential threats.
9.	MWH	Hartlepool	D6	One respondent commented that, neither projections nor modelling were presented in the AoS relating to sediment deposition or erosion on the designated sites or the estuary despite existing historical knowledge	<b>Response from MWH:</b>  The AoS assessment looked at strategic level impacts. It would not be appropriate to undertake detailed modelling of aspects such as sediment deposition and erosion at the AoS/SEA stage. Nor would it be feasible to produce meaningful results without much more detailed information on their proposals than nominators were required to submit. This type of detailed modelling will, however, require to undertaken as part of the assessment at the detailed project design stage.
10.	MWH	Hartlepool	D6	Response questioned if the HRA fully appreciated the importance of the remaining undeveloped areas adjacent to the estuary for SPA species and felt further consideration of the loss of functional land (used by SPA species in particular as high tide roosts) needed to be considered further, especially as it may be difficult to mitigate for this loss.	<b>Response from MWH:</b>  The HRA acknowledges that the development of the nominated site should avoid direct land-take from the SPA. There may also be areas outside the designated sites that are also used by species identified as using the designated sites. However, for a strategic level HRA it was not appropriate to acquire the detailed site survey data that would be necessary to assess potential effects on areas adjacent to the SPA at that level of detail. It will be for the project level HRA to assess the proposed project design and the likely effects on all protected species concerned, including those associated with the SPA, through full appropriate surveys for all

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					species concerned.
11.	MWH	Hartlepool	D7	A concern was raised in the consultation responses that the Teesmouth NNR had not been sufficiently considered in the AoS site report, in particular the seal populations resident there.	<p><b>Response from MWH:</b></p> <p>Teesmouth NNR has been reviewed in detail in the AoS Site Appendix baseline and the importance of the seal population is noted. Seals are also noted as potential receptors in the appraisal in the Site AoS appendix. The NNR is not mentioned in the site AoS report.</p>
12.	MWH	Hartlepool	D7	A concern was raised in the consultation responses that the AoS had omitted the Hartlepool Power Station Local Wildlife Site, located within the site boundary from its assessment.	<p><b>Response from MWH:</b></p> <p>Hartlepool AoS appendix states “Local Wildlife Sites: Information to be obtained from a local records centre at the appropriate time.” LWS is not a statutory designation and is more appropriately assessed at the project level, as impacts will be local, rather than strategically significant.</p>
13.	MWH	Hartlepool	D8	A concern was raised in the consultation responses that the AoS had failed to consider an historic wreck located at Seaton Carew.	<p><b>Response from MWH:</b></p> <p>Designated wreck site is mentioned by name in the Site AoS appendix (baseline section). It is mentioned in the AoS Site Report baseline (but not by name). There are possible effects on the wreck site from flood defence works and the need to avoid or mitigate adverse effects should have been mentioned in the cultural heritage section of the AoS. However, we do not consider that the risk of interference with the wreck is a strategically significant effect.</p> <p><b>Response from HSE:</b></p> <p>As part of the review of the design, during site licensing, consideration will be given to all potential external hazards to the site or its dependent functions. This would include threats from hazards such as known wrecks.</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

14.	HSE	Heysham	D3	<p>During the consultation a concern was raised regarding the proximity of the existing power stations (and the nominated site) to Heysham Harbour. Reference was made to an alleged incident in which 5,000 tonnes of ammonia nitrate was stored on the quayside and the concern was that this could have been detonated causing an explosion damaging to the power stations.</p>	<p><b>Response from HSE:</b></p> <p>It is not clear whether or not this observation refers to a ‘one off’ event or whether it is implying regular handling of ammonium nitrate. However, HSE has no records for the consented presence of ammonium nitrate at Heysham Port. The legitimacy of this would be a matter for further queries to the relevant Local Authority – Lancaster City Council who regulate the necessary planning controls.</p> <p>The presence of Ammonium Nitrate is controlled under the Planning (Hazardous Substances) Act 1990 and the Regulations made under that Act. The Act requires hazardous substances consent (HSC) to be obtained for the presence of hazardous substances at or above specific amounts,</p> <p><b>Response from Lancaster City Council:</b></p> <p>There is no evidence that a hazardous situation occurred as described. The position regarding substances which would normally be controllable under the regulations, being classified as in transit, is explained in the DCLG's guide for industry to Hazardous Substances Consent . When in transit by road or sea a specific hazardous substances consent is not required for temporary storage on a dock or quay whilst awaiting transfer to a ship or rail. This position would be different if regular and lengthy storage on site occurred, and the harbour or other terminal had hazardous materials covered by the consents regime regularly being stored in the vicinity</p> <p>Although in the case described it is likely that “in transit” provisions would have applied, there are strict safety regimes for monitoring and controlling hazardous materials in transit through the port at all times and there is considerable on site security to ensure that all risks are managed appropriately in the vicinity of the power station.</p>
-----	-----	---------	----	--	--

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

15.	MWH	Heysham	D7	<p>Comments were made about the presence of Heysham Nature Reserve, a County Wildlife Site and Heysham Golf Course Reedbed. Although the presence of the former was acknowledged in the AoS for Heysham, there was no indication as to what levels of protection the reserve has as a County Wildlife Site.</p>	<p><b>Response from MWH:</b></p> <p>County Wildlife Site (CWS) is not a statutory designation and CWSs are of importance at the local level. Impacts on CWSs are, therefore, not considered of strategic significance and should be assessed at project Environmental Impact Assessment level.</p>
16.	MWH	Heysham	D10	<p>Comments were received stating that the statement below, from Paragraph 5.9.93, contradicts the conclusion that the site therefore passes criterion D10:</p> <p><i>“...the return of cooling water from a new power station to the coastal waters at Morecambe Bay at elevated temperatures has the potential to cause failures to existing water quality standards.”</i></p>	<p><b>Response from MWH:</b></p> <p>The text referring to return of cooling waters is a general statement noting the potential for adverse effect of any discharges. However, all discharges will be subject to a regulatory regime of consenting and monitoring by the EA. This will require dischargers to meet a discharge consent standard set by the Agency. In setting the discharge standard, the Agency will be mindful of both the existing water quality and statutory environmental standards. Dischargers will need to satisfy the Agency that they can meet the standards set which will be monitored during operation.</p>
17.	MWH	Heysham	D8	<p>Response said that consideration in the SSA of the coastline around Heysham Head, a coastal cliff, had been inadequate and in particular that there had been no consideration of potential impacts upon the Scheduled Ancient Monument here.</p>	<p><b>Response from MWH:</b></p> <p>The Scheduled Monument (St Patrick’s Chapel at Heysham Head) has been identified in appendix to the AoS site report. The Site Report states that there are 3 SAMs, but does not name them. Site appendix concludes “Immediately surrounding the site, there may be potential effects on the settings of historic assets. The significance will depend on distance, topography and the ability to mitigate.” Site report concludes “There is the potential for adverse effects on local designations, but these are unlikely to be considered as being of national strategic significance”. Although the SAM is 2km away, setting impacts are likely, but must be seen in the context of the existing power station.</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

18.	HPA	Hinkley		<p>A number of general comments with regards to transmission lines and health impacts were made during the consultation.</p>	<p><b>Response from HPA:</b></p> <p>HPA has recommended the adoption in the UK of the exposure guidelines published by the International Commission on Non-ionizing Radiation Protection (ICNIRP). These guidelines are based on the avoidance of known adverse effects of exposure and for power frequency electric and magnetic fields, these include acute direct effects of induced currents in the body on the central nervous system (CNS) and indirect effects such as the risk of painful spark discharge which arises from contact with metal objects exposed to the field. The HPA advises that the exposures encountered in most situations near to power lines will comply with the ICNIRP guidelines.</p> <p>HPA takes the concerns about possible long term health impacts around power lines seriously. Its view is that the balance of scientific evidence over several decades of research has not proven a causal link with cancer or any other disease. HPA has concluded that the studies that suggest health effects, including those concerning childhood leukaemia, cannot be used to derive quantitative guidance on restricting exposure. However, the results of these studies represented uncertainty in the underlying evidence base, and taken together with people's concerns, provided a basis for an additional recommendation for Government to consider the need for further precautionary measures, particularly with respect to the exposure of children to power frequency magnetic fields. This advice has been taken forward in the UK by the Stakeholder Advisory Group on ELF EMFs (SAGE) which is set up to explore the implications for a precautionary approach to extremely low frequency electric and magnetic fields, and to make practical recommendations to Government.</p> <p>In SAGE's First Interim Assessment, consideration was given to mitigation options such as the 'corridor option' near power lines, and optimal phasing of power lines to reduce electric and magnetic fields. HPA has given advice to Health Ministers on the First Interim Assessment of SAGE. The evidence to date suggests that</p>
-----	-----	---------	--	--	--

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>in general there are no adverse effects on the health of the population of the UK caused by exposure to ELF EMFs below the guideline levels. The scientific evidence, as reviewed by HPA, supports the view that precautionary measures should address solely the possible association with childhood leukaemia and not other more speculative health effects. The measures should be proportionate in that overall benefits outweigh the fiscal and social costs, have a convincing evidence base to show that they will be successful in reducing exposure, and be effective in providing reassurance to the public. HPA advises that the EMF association with childhood leukaemia is weak and unproven and supports no cost/low cost options to reduce EMF exposure.</p> <p>HPA supports the SAGE recommendation to implement optimal phasing of high voltage dual circuit power lines to reduce ELF EMF exposures in their vicinity. HPA notes that optimal phasing is generally desirable for other reasons in the electricity industry and is considered to be of low cost. HPA noted that the “corridor option” considered by SAGE for separating new dwellings from high voltage power lines and vice versa is not supported by cost benefit analysis, even assuming a causal link between exposure to ELF EMFs and childhood leukaemia. Therefore a decision to implement this precautionary option should be weighed against other health benefits obtainable from the same resources. HPA recommends that, within the existing government planning framework, the attention of local authority planning departments and the electricity companies be drawn to the evidence for a possible small increase in childhood leukaemia which may result from siting new buildings very close to power lines, or new power lines very close to existing buildings.</p> <p>The Government response to the SAGE report is given in the written Ministerial Statement by Gillian Merron, the Minister of State, Department of Health, published on 16th October 2009: The Government supports the implementation of the low-cost options and those points recommended by SAGE members and supported by the HPA in its first assessment. It supports the</p>
--	--	--	--	--	--

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>optimal phasing of overhead power lines in those circumstances where this would significantly reduce public exposure to ELF EMF and would be cost effective to do so. The power lines corridor option is considered to be disproportionate in the light of the evidence base on the potential health risks arising from exposure to ELF/EMF and the Government has no plans to take forward this action.</p> <p>HPA's advice (as summarised above) has been promulgated through its responses to individual planning applications for power lines, through input to the consultation on the National Policy Statement on Electricity Networks Infrastructure (EN – 5) and through consultation on the voluntary codes of practice which are being developed by the Electricity Networks Association to take forward the Government's response to SAGE.</p> <p>HPA keeps under review emerging scientific research and/or studies that may link EMF exposure with various health problems and will continue to provide advice as necessary.</p>
19.	HPA	Hinkley		<p>A number of consultation respondents made statements relating to apparent health effects from existing power stations, in particular at Hinkley Point and Oldbury.</p> <p>Respondents also made reference to the findings of the 2008 KiKK report from Germany.</p> <p>Could the HPA / COMARE provide any further advice in response to these comments?</p>	<p><b>Response from COMARE:</b></p> <p>COMARE is currently undertaking a further review of the incidence of childhood cancer around nuclear power stations, with particular reference to the KiKK study and COMARE's 10th and 11th reports, at the request of the Department of Health. COMARE has set up a subgroup of committee members and external experts to conduct this review. The conclusions reported in the 10th report have been supported by similar studies in France and Finland, which are being considered by the subgroup. Additional epidemiological studies based on the UK database have already been commissioned for this work. It is not possible to provide any preliminary findings at this stage; however COMARE hopes that the outcome of its review will be available later in 2010.</p> <p><b>Response from HPA:</b></p>



## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>The Committee on Medical Aspects of Radiation in the Environment (COMARE), a scientific advisory committee providing independent authoritative expert advice on health risk to humans exposed to natural and man-made radiation, has investigated the incidence of cancer around nuclear installations in the UK over more than 20 years. In particular, in its 10th report (COMARE 2005) no evidence was found of excesses of childhood leukaemia or other childhood cancers around British nuclear power plants. Furthermore, in its 11th report (2006), COMARE examined the distribution of childhood cancer throughout Great Britain and concluded that many types of childhood cancers do not occur in a random fashion; in other words, clustering is a general feature of childhood leukaemia or other childhood cancers.</p> <p>The KIKK study did report a statistically significantly increased risk of leukaemia amongst children less than 5 years of age living within 5 km of nuclear power plants in Germany. However, re-analysis of the data used for the COMARE 10th report for the same age range did not show a statistically significant association between leukaemia and proximity to British nuclear power stations (Bithell et al, Radiation Protection Dosimetry 2008, 2010); a similar study in France also did not show an association (Laurier et al, Journal of Radiological Protection, 2008). As part of its current work programme, COMARE has set up a subgroup of committee members and external experts to provide comment on these findings.</p> <p>COMARE has also investigated reports of cancer clusters in adults around, for example, Hinkley Point and Oldbury power stations; these reports were not substantiated. Further details of COMARE statements and reports can be found at <a href="http://www.comare.org.uk">http://www.comare.org.uk</a></p>
20.	HPA	Hinkley/General Health		Responses stated that the KIKK report had been based on different reactor types.	<p><b>Response from HPA:</b></p> <p>The response above considers the KIKK study. The second part of the response considers the different reactor types found in Germany and currently in the UK. A study carried out for the</p>


## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					European Commission considered radiation exposures from discharges from civil nuclear sites in the pre 2004 European Union (RP 153: 'Implied doses to the population of the EU arising from reported discharges from EU nuclear power stations and reprocessing sites in the years 1997 to 2004', available on the EU website at <a href="http://ec.europa.eu/energy/nuclear/radiation_protection/publications_en.htm">http://ec.europa.eu/energy/nuclear/radiation_protection/publications_en.htm</a> ). Discharges and subsequent doses vary between different nuclear reactor sites but are generally greater for the older UK sites than for the German PWR reactors. In the UK lower doses were estimated for the PWR at Sizewell B than for the older UK reactors. Therefore, it is not considered likely that the findings of the KIKK study are related to reactor type.
21.	HSE	Hinkley/Nuclear General		Response made a statement that the European Pressurised Reactor design uses: "high burn up fuel and therefore increases risk of accident".	<p><b>Response from HSE:</b></p> <ul style="list-style-type: none"> <li>• in the Generic Design Assessment for the EPR, the HSE's NII are considering the evidence submitted by Areva/EdF relating to fault frequencies and their radiological consequences. The HSE's NII will require the effects of fuel burn-up to be taken into account in the fault analyses.</li> <li>• before allowing construction of an EPR based design to begin, HSE's NII will need to be satisfied with all aspects of the operators safety case, which will need to take account of the maximum anticipated fuel burn-up</li> </ul>
22.	OCNS	Hinkley Point		<p>A statement was made in responses that the OCNS had produced a report stating that there is not enough land at Hinkley Point to provide security for nuclear stations.</p> <p>Could the OCNS provide any further advice in response to this statement?</p>	<p><b>Response from OCNS:</b></p> <p>In the OCNS submission to DECC on their assessment of Hinkley Point in relation to the size of site to accommodate operations at question A3 we said:</p> <p>There appears to be insufficient land to provide effective defence-in-depth for a reactor (including its associated turbine hall), spent fuel and intermediate level waste stores and other plant important to the safe operation of the nuclear power</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>station in the following area:</p> <ul style="list-style-type: none"> <li>east of longitude grid reference 32128, as the land area is of inadequate size</li> </ul> <p>Elsewhere in that submission we said:</p> <p>OCNS estimates that a rectangular area of adequate width (approximately 30 hectares) within the nominated site is required to provide effective defence-in-depth for the reactor building (including the associated turbine hall), spent fuel and intermediate level waste stores and other plant important to the safe operation of the nuclear power station. .... As the nominated site comprises a total area of 203 hectares it is reasonable to conclude that there is enough land for the secure operation of at least one new nuclear power station.</p>
23.	MWH	Kingsnorth	D7	<p>One respondent commented that although the HRA identified the loss of potentially functionally linked land it should also have considered that this land may also be used as a high tide wader roost. The respondent also felt that marsh harrier could potentially be affected by disturbance from construction and operation of a nuclear power station at this site and these potential effects should have been included in the AoS. In addition, the respondent stated that although the AoS mentioned Northward Hill RSPB reserve, it should also have considered Nor Marsh and Motney Hill reserve.</p>	<p><b>Response from MWH:</b></p> <p>Marsh harrier is an Annex I species under the EC Birds Directive and is protected in Kent in The Swale SPA; impacts upon which have been fully assessed within the AoS. The AoS appendix for The Swale SPA notes “In summer, the site is of importance for Marsh Harrier <i>Circus aeruginosus</i>”. It is not mentioned by name in the site report, but impacts on The Swale SPA (and thus, by association, the species that depend upon it) are outlined in the main text.</p> <p>The AoS Appendix states that “There are four RSPB Reserves within 20km of the Kingsnorth site, with one falling within 5 km.” Nor Marsh and Motney Hill falls within 20km of the site (see map below) but was not mentioned in the assessment by name.</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					 <p>That development on the nominated site might impact roosting birds has been taken into account in several places in the HRA site report, including:</p> <p>Para 2.39: “During the construction/ decommissioning phases of the development, increased disturbance is likely from a range of sources (lighting, noise and vibration) and may divert birds from their chosen roosting, feeding and breeding sites.”</p> <p>Para 3.14: “Project level assessment (with detailed information on bird movement patterns in relation to breeding, feeding and roosting) is needed in order to fully determine impacts.”</p> <p>Para 3.24: “More site specific detail (and possibly further information on bird movement patterns in relation to breeding, feeding and roosting) is needed in order to fully determine impacts.”</p> <p>Table 4: “Require noise, light and visual impacts to be managed at a site level through phasing and timing that takes account of breeding, roosting.”</p>
--	--	--	--	--	--

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

24.	EA / MWH	Kirksanton		<p>Some consultation respondents stated that the abstraction and discharge of cooling water to and from the sea would have a damaging effect on the marine life of Morecambe Bay and the Duddon Estuary and that important marine habitats such as blue mussel beds and Sabellaria reefs would be threatened by these discharges.”</p>	<p><b>Response from MWH:</b></p> <p>While it is correct that Mussel beds and Sabellaria reefs have not been mentioned specifically in the HRA report for Kirksanton, they do not raise issues that are not already addressed in the HRA. This concludes that adverse effects cannot be ruled out for several European sites in the vicinity, including Morecambe Bay SAC/SPA/Ramsar and Duddon Estuary SPA/Ramsar for reasons such as water quality changes and habitat and species loss. The possible adverse effects of cooling water abstraction/discharge on organisms due to temperature increases, other changes in water quality and damage due to impingement at intakes is noted.</p> <p>Mussel beds are noted features of the large, shallow inlets and bays of the Morecambe Bay SAC (and a qualifying feature of the SAC). Sabellaria alveolata reefs occur on the west coast of Britain and are particularly extensive between Morecombe Bay and the Solway Firth. Sabellaria alveolata reefs are a UKBAP priority habitat. They are sensitive to changes in sediment regime and to physical damage, but may benefit from warmer water and can tolerate poor water quality. There is evidence, for instance, of increased winter growth of Sabellaria alveolata in the vicinity of the discharge of warmed cooling water from Hinkley Point power station.</p> <p>See the website for the UK Marine SAC project that was completed in 2001:</p> <p><a href="http://www.ukmarinesac.org.uk/communities/biogenic-reefs/br6_1.htm">http://www.ukmarinesac.org.uk/communities/biogenic-reefs/br6_1.htm</a></p> <p>Studies at Hinkley Point, Somerset, found that growth of the tubes in the winter was considerably greater in the cooling water outfall, where the water temperature was raised by around 8-10° C, than at a control site, although the size of the individual worms themselves seemed to be unaffected (Bamber &amp; Irving, 1997).</p>
-----	----------	------------	--	--	--

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

				<p>The full reference for the paper is:</p> <p>Bamber, R.N. &amp; Irving, P.W. 1997. The differential growth of Sabellaria alveolata (L.) reefs at a power station outfall, Polychaete research, 17, 9-14.</p> <p>Up to date information on the distribution and reef-forming tendencies of S. alveolata and S. Spinulosa are given in the following note, which confirms that the reefs of the Cumbria coast are likely to be formed by S. alveolata:  <a href="http://www.cheshire-biodiversity.org.uk/downloads/Sabellaria%20Reefs%20description.pdf">http://www.cheshire-biodiversity.org.uk/downloads/Sabellaria%20Reefs%20description.pdf</a></p> <p><b>Response from EA:</b></p> <p>We were aware of the potential impacts of the cooling water abstraction and discharge when we provided our original advice, the information provided in the consultation does not change our original advice.</p> <p>The design for any potential power station is a matter for the energy company proposing the development, as is locations of the cooling water intake and outlet.</p> <p>We would consider these matters at the detailed assessment stage if specific proposals together with relevant impact modelling and local surveys come forward. We would expect the developer to provide these as part of the development consent and environmental permit applications.</p> <p>Alternative cooling strategies are possible if the impacts of direct cooling proved to be unacceptable during detailed assessment.</p>
--	--	--	--	---

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

25.	Environment Agency	Kirksanton	D1	<p>Detailed response made the following points:</p> <ol style="list-style-type: none"> <li>1. Flooding in vicinity of the site (if not the site) is severe and hard surface of large area for power station would exacerbate risk to surrounding area.</li> <li>2. Risk of holding tanks at power station (as proposed by nomination) becoming full, leading to overtopping of flood defences. I don't know how likely this scenario is or whether holding tanks have to be sufficient to avoid such a scenario- is this something that is planned or regulated for, and of what relevance is the accompanying LA report which also says there is a risk of overtopping of local defences and consequently a risk to people – would these also be looked at as part of licensing?</li> </ol>	<p><b>Response from EA:</b></p> <ol style="list-style-type: none"> <li>1. We included a comment, in our SSA advice, on the need for careful design of the drainage of this site to avoid impact downstream. When detailed proposals are made the developer would need to show that the power station and its flood risk protection would not increase the flood risk elsewhere.</li> <li>2. Whilst nomination mentioned the use of holding tanks, as would be expected at this stage, there is no detailed proposal for a drainage system at this time. A more detailed assessment would be carried out at the planning stage</li> </ol>
26.	Environment Agency	Kirksanton	D10	<p>A statement was made by a consultation respondent that the cumulative radioactive discharges from Kirksanton, the existing Heysham power station, and the other nominated sites in Cumbria could cause mutations in bio-organisms.</p> <p>Could the Environment Agency advise on this?</p>	<p><b>Response from EA:</b></p> <p>We would ensure that the impact of proposed discharges from any new nuclear power stations on people and the environment are acceptable and within relevant dose limits and constraints. In doing so we will consider cumulative impacts arising from radioactive discharges from other nearby sites and we will also consider the impact on non-human species.</p>
27.	EA / MWH	Kirksanton		<p>During the consultation a point was raised by respondents that the coast at Kirksanton is shallow and that this would cause problems for erosion and flooding.</p>	<p><b>Response from MWH:</b></p> <p>The concern raised is whether the shallow coastal waters and gently sloping shore will create difficulties for any jetty construction which, in turn, could affect sediment movement, flood risk and ecosystems.</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>We agree that the shallow waters along this stretch of coast, especially within the Duddon Estuary, may be an issue if a Marine Off-Loading Facility (MOLF) or jetty is to be constructed. The MOLF/jetty would have to be accessible from water deep enough to allow vessels to berth and could require dredging to maintain access. Detailed studies for the siting and design of the MOLF/jetty will need to be carried out and should consider impacts on sediment transport patterns and marine ecology on this stretch of coast and in the Duddon Estuary.</p> <p><b>Response from EA:</b> We are aware of this general point. If any such specific proposals come forward we would expect the Environmental Impact Assessment or the Flood Risk assessment or the “Appropriate Assessment” (for the Habitats Regulations) required to support the development consent application to consider and propose suitable protective measures. It might be that an alternative to a local Jetty would be proposed.</p>
28.		Kirksanton	FFLC	<p>Some respondents raised concerns that the direction of the wind had not been taken into account in the assessment of the nominated site at Kirksanton.</p> <p>Could the HSE advise as to whether the direction of the wind is taken into account for emergency planning and if these concerns could be seen as problematic for the formation of an emergency plan at Kirksanton? Would these concerns be considered at the licensing stage?</p>	<p><b>Response from HSE:</b></p> <ul style="list-style-type: none"> <li>- it is not possible to say at this stage whether a DEPZ for a hypothetical plant located in the nominated area would be large enough to have consequences for Millom</li> <li>- the feasibility of implementing emergency countermeasures would be looked at in some detail in the event that a development proposal/site licence application was submitted</li> </ul> <p>Regarding wind direction: the determination of off-site radiological risk does not assume a single prevailing wind direction: all wind directions are considered. Likewise the on and off-site Emergency Plans do not assume a particular wind direction. However, in the event of an emergency, the prevailing wind direction would likely be a factor in the determination the response (i.e. where sheltering/evacuation might be advised). In drawing up the off-site</p>



## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					emergency plan, the capacity of local roads will be a factor in considering the feasibility of evacuation from the DEPZ. Detailed planning for evacuation beyond the the DEPZ would go beyond the requirements of REPPiR. Any considerations of extendibility beyond the DEPZ would only be expected to be in outline.
29.	HPA	Kirksanton	n/a	Some respondents felt that EN-6 had been inaccurate in stating in paragraph 5.11.127 that: "there is no historical analysis of childhood leukaemia, non-Hodgkins lymphoma and other malignant tumours at this site" (Kirksanton) and inferred that the Black Report (1984) had been contradicted by this statement.	<p><b>Response from COMARE:</b> The 4<sup>th</sup> report (1996) gave an update on the incidence of childhood cancer and leukaemia in the vicinity of Sellafield and confirmed the excess of leukaemia in the village of Seascale originally reported in the Black report in 1984. The analyses gave no evidence that the raised incidence of childhood leukaemia in Seascale extends to the two county districts nearest to Sellafield (which include Millom). COMARE has established a subgroup to review and update the incidence of childhood leukaemia and other cancers in the vicinity of Sellafield and of Dounreay up to the present time, in accordance with recommendation 5 of the 11th report. Additional epidemiological studies are being conducted at the committee's request.</p> <p><b>Response from HPA:</b> The 1984 Black Report did indeed consider possible enhanced levels of childhood cancer at Millom which were investigated together with the greater incidence of childhood cancers found at Seascale. Later work by COMARE found that there was still an increased incidence of childhood cancer at Seascale but that this did not extend to other regions around Sellafield (COMARE 4<sup>th</sup> report, 1996).</p>
30.	CAA / OCNS	Kirksanton		Responses asked if a smaller restricted area could be considered for any new nuclear development at Kirksanton.	<p><b>Response from Civil Aviation Authority:</b> The Restricted Areas around nuclear power station are not put in place for aviation purposes; the size of any such area is something to be considered from a safety perspective. It could be feasible to mitigate impact on local aviation by the establishing SI permitting specific operations to take place with the Restricted Area. Whether</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>this is appropriate or not is a safety consideration.</p> <p><b>Response from HSE:</b></p> <p>HSE supports the maintenance of a restricted flying zone around nuclear licensed sites – this is seen as a prudent measure for reducing risk to the site from low over flying aircraft. The Air Navigation (Restriction of Flying (Nuclear Installations) Regulations 2007 set out the current restricted airspace around the UK’s nuclear sites. The size of the restricted zone is determined by the Civil Aviation Authority following consultation with relevant Government Departments. These zones are typically 2 miles in radius and 2000 feet in height, although some variation has been allowed to accommodate local circumstances. The particular circumstances at Kirksanton would need to be examined to determine the size of any restricted zone associated with that site.</p>
31.	MWH	Kirksanton	<p>A number of comments were made by consultation respondents regarding possible mistakes on the AoS / HRA site reports. These possible mistakes related to flood risk and are outlined below:</p> <p>Respondents stated that the site at Kirksanton is not defended by a coastal defence scheme and there are no coastal defences which could be upgraded. Respondents stated that the building of any such defences would have to be extensive to avoid their being breached.</p> <p>Respondents also state that there are soft earth defences along the banks of Kirksanton Pool, but that Kirksanton Pool is not tidal as it passes the designated site.</p> <p>Could MWH provide further advice on these comments including whether there were are mistakes in the AoS / HRA and if / how they</p>	<p><b>Response from MWH:</b></p> <p>The EA’s local flood defence staff in Penrith have been consulted and have confirmed that there are no existing manmade defences protecting the proposed site and so the statement about existing defences in Section 4 of the AoS is incorrect. The nearest defences are in Haverigg and although these defences have been noted to impact on sediment accumulation further east in the Duddon Estuary, they will have no direct or indirect effect on flood defence at the proposed site.</p> <p>Thus, although parts of the coastline here are defended, the proposed site itself is not protected by a man-made coastal defence scheme.</p> <p>There are incorrect references to defences in the following sections of the AoS site report: summary of key findings, 4.75, 5.82, 6.5 and Table 6.2. There is also a reference to defences on p52 of the Flood Risk part of Appendix 4. These references should be corrected and a note should be inserted explaining the absence of coastal defences.</p>	

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

				affect the conclusions reached?	<p>The absence of defences does not affect the assessment of flood risk at the site which was based on the Environment Agency's flood risk map as reported in para 4.76 of the AoS. The majority of the site is located in Flood Zone 1 (low probability), but there are small areas in Flood Zones 2 (medium probability) and 3 (high probability). The areas in Flood Zones 2 and 3 are at risk of flooding from Kirksanton (Haverigg) Pool. This is principally a fluvial flood risk although there may be tidal influences on this watercourse.</p> <p>The absence of defences does mean that if defences need to be constructed to protect the power station from either fluvial or tidal flooding, these will be new works rather than upgrading of existing defences. The implications of such works for coastal processes and ecology are covered under the next point.</p>
32.	MWH	Kirksanton		<p>Respondents commented that avoidance of adverse effects on the sandbanks and other habitats due to dredging would be impossible and that any coastal defence or MOLF construction would affect the sediment flow along the coastline. Respondents also stated that wildlife, including the Natterjack toad population, could not be relocated to a temporary location without disturbance and associated negative effects.</p>	<p><b>Response from MWH:</b></p> <p>As noted in the comment, the HRA report recommends avoidance of direct habitat loss within European Sites through careful site layout and design. However, the HRA report goes on to say that "Direct loss of habitats which cannot be avoided within the coastal fringe but outside of these European Sites should be mitigated through reinstatement of affected habitats, as well as habitat creation to maintain connectivity of wildlife corridors around the nominated site".</p> <p>Construction of a MOLF/jetty and coastal defences may have impacts on the Duddon Estuary and Morecambe Bay European Sites, ecology and sediment transport. Currently the draft Shoreline Management Plan policy for the Haverigg to Hartrees Hill Policy Unit (that includes the length of coast adjacent to the nominated site) is for no active intervention and this may require reappraisal in light of any proposed development.</p> <p>The potential impacts associated with possible construction of a</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>MOLF or coastal defences have been identified and are discussed in sections 5.17 and 5.83 of the AoS report. These impacts will be considered further and possible mitigation measures investigated at the detailed project design stage.</p> <p>Similarly, the need for detailed site surveys for Natterjack Toads, and possible mitigation measures if their presence is confirmed, are discussed in the HRA Report. The overall conclusion of the HRA is that further assessment supported by detailed data at project level is required to determine whether development at the nominated site could be undertaken without adversely affecting the integrity of European Sites. This conclusion is not affected by the comments raised.</p>
33.	MWH	Kirksanton		<p>Respondents stated that RSPB Hodbarrow is part of the Duddon Estuary Special Protection Area and Morecambe Bay Special Area of Conservation and that it is not correct to state that it is not a designated site.</p>	<p><b>Response from MWH:</b></p> <p>Hodbarrow RSPB reserve is not designated in its own right, but is covered by the European designations of the Duddon Estuary SPA and Morecambe Bay SAC within which it lies. This comment refers to text in the NPS – there is no similar reference to it not being a designated site in either the AoS or HRA.</p>
34.	MWH	Kirksanton		<p>Responses were received stating that distances in kilometres to specific places from Kirksanton were inaccurate and that consistency of measurements should be observed throughout the AoS.</p>	<p><b>Response from MWH:</b></p> <p>The comment that it is 64km from Kirksanton to J36 is accurate. The statement in the AoS site report could have been more clearly phrased. It states that the M6 is ‘some 30km away’ – it is approximately 38km as the crow flies, However, it emphasises that the route is along winding roads and not direct. The distance inaccuracy would not affect the conclusions of the assessment.</p> <p>The AoS reports consistently use kms throughout – there is no reference to miles. We assume that this comment refers to text in the NPS.</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

35.	MWH	Kirksanton		<p>Some respondents stated that the following wording in the NPS was an error:</p> <p><i>“In any event, in the case of the nominated site, people living and working nearby have had a long time to get used to there being an adjacent nuclear plant so this is unlikely to be a problem at this location.”</i></p> <p>Could MWH provide a response to this comment?</p>	<p><b>Response from MWH:</b></p> <p>The wording is not appropriate for Kirksanton where there is no existing adjacent nuclear plant. Arguably the presence of the Sellafield reprocessing plant some 27 km north of Kirksanton might give local people some familiarity of living and working in the same area as a nuclear facility, but that was not what was intended by this wording.</p>
36.	MWH	Kirksanton		<p>Some respondents felt that given Sellafield reprocessing plant and other buildings are 17 miles north of Kirksanton and the large BAE shed at Barrow is approximately 8 miles due SSW and neither of these are visible from the village, new nuclear build would at Kirksanton would radically change the landscape.”</p> <p>Could MWH provide further advice on this issue?</p>	<p><b>Response from MWH:</b></p> <p>The comments about Sellafield and Barrow are in the context of describing the landscape character of the wider area. It is not stated that these are visible from the village, but that they are visible from the surrounding hills. This is important in assessments for the designated landscapes in the surrounding area. It is noted that the site lies in a mainly agricultural setting. These comments do not change the conclusion drawn in the AoS that there are potential significant adverse effects on landscape at the local and sub-regional level and, as part of a Cumbria cluster, impacts may be of strategic (regional) significance.</p>
37.	MWH	Kirksanton		<p>Respondents stated that with regard to Soils, Geology and Land Use, HMP Haverigg is not located within the area of the site; but is adjacent to it.”</p>	<p><b>Response from MWH:</b></p> <p>This comment is correct. Should read ‘adjacent to’.</p>
38.	MWH	Kirksanton	AoS / HRA	<p>Further comments were received from respondents regarding the possible impact on internationally designated sites such as the Duddon Estuary Special Protection Area and Ramsar Site, and the Morecambe Bay Special</p>	<p><b>Response from MWH:</b></p> <p>These comments concern points that are addressed in the Kirksanton HRA Report and do not raise any new issues. Further information on some of the points (Natterjack toads and Sabellaria reefs) made is included in our response to other comments.</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

				<p>Area of Conservation. Further concerns were raised about the possible impact on the Natterjack toad and mussel beds and Sabellaria reefs.</p> <p>Do these comments raise new issues and could MWH provide further advice on them?</p>	<p>The argument set out in the letter is that the proposal for Kirksanton would not be able to comply with the Habitats Directive because of the loss of marine and land-based habitats in the Duddon Estuary and the difficulty of compensating for any loss of internationally protected habitats and species.</p> <p>The HRA Report for Kirksanton addresses the potential impacts and effects identified in the letter and concludes that further assessment supported by detailed data at project level is required to determine whether development at the nominated site could be undertaken without adversely affecting the integrity of European Sites.</p> <p>It is only through the detailed project level HRA that the specific nature of the impacts and effects identified in the HRA Report for Kirksanton, can be considered; and appropriate avoidance and mitigation measures be developed to protect European site integrity. At this strategic level no definitive conclusions can be reached with regards to the tests of the Habitats Directive – including whether habitat compensation (under the terms of the Directive) will be necessary.</p> <p>Natural England agreed with the findings, conclusions and recommendations for this site.</p> <p>The information presented in this comment does not lead us to change our conclusion for Kirksanton.</p>
39.	HSE	Kirksanton / Sellafield	Other	<p>One respondent stated that the emergency plans for Sellafield were activated in November 2009.</p>	<p><b>Response from HSE:</b></p> <p>During the floods in Cumbria, the Nuclear Off-Site Plan for Sellafield was not activated.</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

40.	MWH	Kirksanton	AoS appendices	Responses stated that Kirksanton is in an isolated rural area with no public transport and that contrary to information given in the AoS Appendices, there is no rail stop.”	<p><b>Response from MWH:</b></p> <p>Perhaps this has been confused because there is a rail stop at Millom and we were originally told the site was in Millom. It does not impact the appraisal, which states the possibility of using rail for transport of construction workers and materials which would be a possibility, even if there is not currently a stop at Kirksanton.</p>
41.	Environment Agency/MWH	Kirksanton	EA	<p>Respondents asked which regulatory body would be responsible for reviewing abstraction and discharge licences and how frequently this review would take place?</p> <p>Respondents also expressed a concern that the site does not have mains sewerage and that a source of de-mineralised water had been assumed.</p>	<p><b>Response from EA:</b></p> <p>The Environment Agency issues abstraction licences, all new licences will be time limited, typically 6 to 12 years, if our intention is that the licence is renewable we will carry out a review before the licence expires. We would need to consider any detailed proposals when they are made however it is unlikely that the abstraction at Kirksanton of sea water for the main cooling system would be require a licence.</p> <p>The Environment Agency issues and reviews Environmental Permits for water discharges. There is no fixed period for review.</p> <p>Most, if not all, of the existing nuclear power stations have their own sewage treatment plants, we would expect new developments to include a new treatment works.</p> <p>We expect the operator to produced demineralised water on-site using either fresh or sea water. The operator will need to secure a suitable source of fresh water for the site. A license would likely be required to abstract from the River Ehen.</p> <p><b>Response from MWH:</b></p> <p>We have seen and agree with the comments on these points made by the Environment Agency in their response to DECC. Taking account of the Agency comments, our responses are as follows:</p> <ul style="list-style-type: none"> <li>• The Environment Agency issues abstraction licences that are time limited, typically for 6 or 12 years. If a licence is to be</li> </ul>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

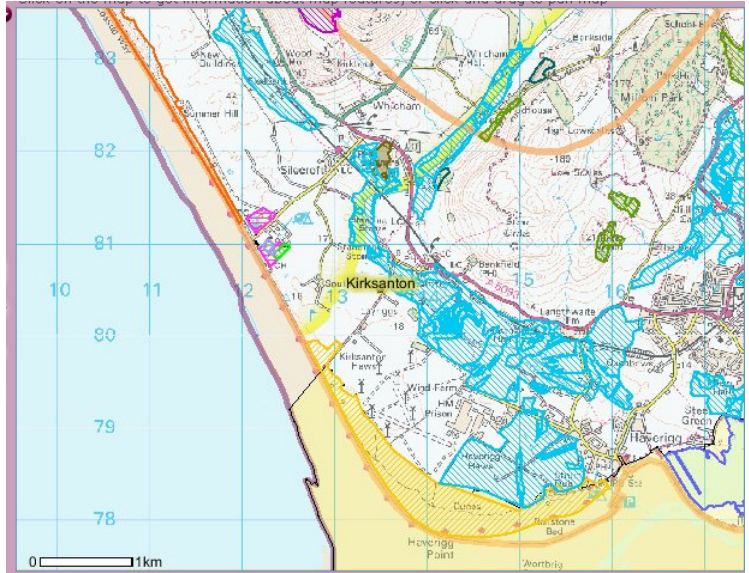
					<p>renewed, a review will be conducted by the Agency before it expires. However, seawater abstractions (e.g. for cooling water) are unlikely to require an abstraction licence.</p> <ul style="list-style-type: none"> <li>Discharges to either rivers or marine waters will need to be permitted by the Agency. Any reviews of discharge consents would be undertaken by the Agency but there is no fixed period for review.</li> <li>Nuclear power stations normally have their own wastewater treatment works and so are not reliant on the local sewerage network.</li> </ul> <p>Abstractions for the production of de-mineralised water would be subject to the same licensing requirements as other abstractions. Any waste stream discharged as a result of the de-mineralisation process would also require a discharge consent.</p>
42.	MWH	Kirksanton	AoS	Responses were concerned that a developer would have to dredge the RAMSAR at Kirksanton to build a marine landing facility or flood defences.	<p><b>Response from MWH:</b></p> <p>See also the response to other comments. Potential impacts of MOLF construction and dredging on sediment transport and ecology have been identified and discussed in detail in sections 5.17 and 5.83 of the AoS report. If clarification is required, further detail can be added specifically linking these impacts to the Ramsar site.</p>
43.	MWH	Kirksanton	AoS	Responses commented that the nearest railway station to the site is not 5km away at Millom, as stated in the AoS, but is at Silecroft which is 1 to 2 km away.	<p><b>Response from MWH:</b></p> <p>Millom station is closer to the nominated site than Silecroft. Silecroft is closer to the village of Kirksanton, but the nominated site is south of Kirksanton itself. Silecroft is also a request stop, with Millom having more facilities.</p>
44.	MWH	Kirksanton	AoS	Response commented that the reference to Tranquillity and Light Pollution on page 29, para 4.54 of EN-6 was misleading in stating that Kirksanton was not the most tranquil area in the country as very few areas could be described as such and that lowland areas of this tranquillity were rare according to the	<p><b>Response from MWH:</b></p> <p>This is an accurate representation of data taken from the county CPRE tranquillity map, which shows that the area around Kirksanton is not one of the most tranquil areas in the county. It is not intended to represent the area as being less tranquil than it is. It is also outlined in the baseline that the area around the</p>



## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

				CPRE map.	<p>nominated site is rural, with farmland and open views.</p> <p>These objections would not affect the assessment, which concludes that “during operation there are likely to be long-lasting adverse, direct and indirect landscape and visual impacts on the surrounding area, including many areas of the Lake District National Park, with limited potential for mitigation.”</p>
45.	MWH	Kirksanton		<p>Comments were received that disagreed with the following paragraph from the NPS:</p> <p><i>“This coastal belt area has a strong industrial history and extensive urban fringe areas with large, highly visible factories and manufacturing and processing plants, particularly near Workington, Whitehaven, Sellafield and Barrow.”</i></p> <p>A respondent stated that the nearest of the towns referenced was Whitehaven which is an hour’s drive from Kirksanton and therefore the industrial heritage described was unrelated to the nominated site.</p> <p>The respondent also stated that Barrow was not 11.6km from the nominated site (as stated in paragraph 4.36 ) by shortest road travel.</p>	<p><b>Response from MWH:</b></p> <p>The comments about Sellafield and Barrow are in the context of describing the landscape character of the wider Cumbria area. There is industrial history as close as Millom where there was an ironworks fed from local iron mines. The mines ceased production in 1967 and the iron works closed in 1968. However, the statements do not imply that the area around the nominated site is still industrial. This local area is clearly described as rural.</p> <p>The appraisal concludes that “during operation there are likely to be long-lasting adverse, direct and indirect landscape and visual impacts on the surrounding area, including many areas of the Lake District National Park, with limited potential for mitigation.” Significant potential effects have been identified, therefore these statements do not have an impact on the appraisal.</p> <p>The Barrow reference is in the health section (access to hospitals) and we agree that the nominated site is indeed about 40km from Barrow A&amp;E by road.</p>
46.	MWH	Kirksanton		<p>Respondents made particular mention of the nature of the local habitats including the coastal sand dune network, and some respondents felt it was unclear what mitigation could reduce or eliminate impacts, or replace</p>	<p><b>Response from MWH:</b></p> <p>Detailed mitigation measures are more appropriate at site-level assessment, rather than at the strategic level. Further investigation at site level is suggested in the AoS. Nominated site boundary</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

				habitats given that they are complex and the length of time they have taken to form.	does not include direct land take from Duddon Estuary /Morecambe Bay sites and mitigation suggestion in AoS does not state that any loss from these sites could be directly compensated. More detailed recommendations contained in HRA (and referred to in AoS) include site layout to avoid direct habitat loss, reinstatement of affected habitats (for example through retention of seed bank and subsequent monitoring of vegetation communities), wildlife corridors etc.
47.	MWH	Kirksanton		Concerns were expressed about Priority Habitat along the coastal strip at Kirksanton. It was commented that the nominated site at Kirksanton will directly affect two of these habitats, Coastal and Floodplain Grazing Marsh and Coastal Habitats Above High Water. It was highlighted that this could damage these habitats and prevent them from performing their function which is to allow corridors for movement of plant and animal species.	<p><b>Response from MWH:</b></p>  <p>There is some overlap with the nominated site boundary and the yellow band in the map above (coastal sand dunes). There will be no direct land take of grazing marsh (coastal habitats above high water is not a UKBAP priority habitat, but a term applied to the Cumbrian coast which includes sand dunes, shingle etc.) UKBAP priority habitats are referred to in Appendix to the Kirksanton site report, but not described in detail. Potential significant impacts on</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					UKBAP priority habitats are identified, with suggestions for further investigation at the site level. Mitigation suggestions include compensation for habitat loss/wildlife corridors to maintain networks etc. Impacts on UKBAP priority habitats are nationally significant, but it is difficult to find an area of land in the UK where no UKBAP priority habitat exists, thus the site cannot be ruled out on this basis alone.
48.	HSE	Kirksanton		Do HSE agree that The Health Service Primary Care Trusts (PCTs) are responsible for making appropriate arrangements for the treatment and care of any casualties arising from a nuclear accident both on and off site, including any who might have been exposed to radiation or contaminated by radioactivity. This would include a consideration of access routes.?	<p><b>Response from HSE:</b></p> <p>Our emergency planning team has suggested no amendments to the proposed statement.</p> <p>In the case of modern [nuclear] plants, improvements in design standards and safety assessment methods have resulted in successive reductions in the size or consequences of the reference accident. For these plants the reference accident may not require any actions beyond the site boundary. The need for a detailed emergency planning zone in such cases arises from the desirability of having a foundation for responding to larger accidents. For the larger modern plants a minimum zone of 1 km radius has been specified within which detailed planning for the protection of individuals takes place, but this could be extended where necessary to avoid splitting communities. These plans provide the necessary base from which an emergency response can be made and could be extended should an accident greater than the reference accident ever occur.</p>
49.	HPA	Oldbury		Response commented that in relation to the existing site at Oldbury, medical evidence points to increased incidence of carcinomas of the prostate, breast cancer and childhood leukaemia local to existing Nuclear Power	<p><b>Response from HPA:</b></p> <p>See previous reply above relating to cancer clusters.</p> <p><b>Response from COMARE:</b></p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

				Stations and that there are known clusters in Chepstow and parts of the Severn Vale.	Following a report on an excess of myeloid leukaemia in 0-4 year olds in Chepstow (Busby,2001, Childhood leukaemia and cancer in Chepstow, opposite Oldbury nuclear power station), the 10 <sup>th</sup> report considered the incidence of ML at ages 0-4 within 25km of nuclear power plants. The result for Oldbury is found not to be significant. The analysis included 14 cases in the 25-year period 1969–1993 as compared with the 3 found by Busby (2001) in the 17-year period 1974–1990. The 10 <sup>th</sup> report concluded there was no evidence of a statistically significant increase of childhood leukaemia in the vicinity of Oldbury, consistent with all nuclear power plants in the UK.
50.	HPA	Oldbury		Response commented that the South West Cancer Observatory had published data shown to have been inaccurate and misleading, however did not provide further details on the statements.	<b>Response from HPA:</b>  Without further details of the statements concerning the South West Public Health Observatory, it is not possible to comment further. That said, HPA has no reason to doubt the impartiality or abilities of the Observatory.
51.	Environment Agency	Oldbury	D1	Response commented that the Nuclear NPS sets out that in the application for development consent, the applicant will need to satisfy the regulators that its application has taken account of the potential effects of the credible maximum scenario in the most recent projections of marine and coastal flooding.	<b>Response from EA:</b>  The credible maximum scenario is referred to in section 4.5.2 and 4.2.15. This is a scenario that is not expected to happen, but for which the site should be designed to be adapted to if current predicted climate change proves to be an underestimation. The proposed power stations will probably not be built with this level of protection.

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

52.	Environment Agency	Oldbury	D10	Responses commented that water vapour plumes from cooling towers at Oldbury would contribute to microclimate change in a vulnerable wetland habitat. Horizon say there is no evidence that this is the case.	<p><b>Response from EA:</b></p> <p>We would expect there to be some micro-climate effects local to the cooling towers. However it is not possible to say at this stage whether these effects would be significant to local wetland habitats and whether or not the effects would be adverse or beneficial. More details of the design of the cooling towers is required before studies of the potential impacts can be effectively made. We would expect this detailed impact assessment to be available for any proposed consultations and the outcome of consultation reflected in the Environmental Impact Assessment for the development consent application</p>
53.	Environment Agency	Oldbury/General	D10	Response raised concerns that using sea water for cooling towers is not viable due to the accumulation of solids which would require significant land waste disposal.	<p><b>Response from EA:</b></p> <p>Cooling tower are successfully operated at other coastal locations. In these locations cooling water systems are purged with additional water to avoid excessive concentrations of salt and solids. At locations where the water contains significant quantities of suspended solid, filtration of sea water may be necessary before it is used. It likely that it will be acceptable to return the filtered solids to the sea with the purge water. This process would require an environmental permit and any potential impacts will be fully assessed in determining an application for the permit.</p>
54.	MWH	Owston Ferry		Response commented that it was unclear how the assessment of Owston Ferry concluded there were potential effects on Thorne SAC, which was 14km from Owston, but not on the closer Hatfield SAC, 9km from Owston.	<p><b>Response from MWH:</b></p> <p>The HRA concludes that there would be no LSEs for Hatfield SAC. It concludes that there would be uncertain LSEs on water resources/quality for the Thorne SAC. Similar uncertainty is not expressed for Hatfield, as "Hatfield Moor SAC, was however screened out given the lack of hydrological connectivity between it and either of the sites at Owston Ferry.</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

55.	Environment Agency	Sellafield	D10 / General	Respondents expressed concerns about the possible impact of further development at Sellafield on the River Ehen. The respondent cited the effect of associated development from the existing facility at Sellafield on the River Calder.	<p><b>Response from EA:</b></p> <p>This is a general concern about the River Ehen, it does not relate to any specific proposal and therefore it is difficult to be specific about how the matter might be dealt with. However we would expect that the Environmental Impact Assessment and the “Appropriate Assessment” (for the Habitats Regulations) that would be required to support any development consent application for this site would consider impact on and propose measures to protect the River Ehen.</p>
56.	HSE	Sellafield	D3	Respondent raised a concern that the risk of a major event from the legacy facilities at Sellafield was too high.	<p><b>Response from HSE:</b></p> <p>Although risks are posed by legacy nuclear facilities at Sellafield, the Health and Safety Executive’s Nuclear Installations Inspectorate is satisfied that Sellafield Limited is taking reasonably practicable steps to reduce these risks. These facilities have not been judged by the Health and Safety Executive to pose an unacceptable risk to other operating nuclear facilities on that site. As any nuclear power station on the nominated site would be at a greater distance it would thus be at an even lower risk from these facilities.</p>
57.	MWH	Sellafield	D10	Page 44 of the AoS states that past assessments have outlined the engineering options to avoid disturbance of radioactive particles. Could MWH provide more detail?	<p><b>Response from MWH:</b></p> <p>The comments on P44 are explained in slightly more detail in Appendix 2 of the Sellafield Site AoS and include the option of tunnelling for the outfall to avoid sediment disturbance. The appendix refers to the report: “Potential New Build in Cumbria” prepared for Cumbria Partners by ERM and IDM, March 2006. This in turn draws on the Consultative Environmental Statement prepared by Ove Arup in April 1994. “</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

58.	MWH	Sellafield		<p>Respondents raised concerns about the possible impact of development at Sellafield on the area's species diversity. In par</p>	<p><b>Response from MWH:</b></p> <p>Sellafield AoS states in paragraph 4.12 "Legally protected species within the area include great crested newts, with presence records of natterjack toad, otter, red squirrel and common species of reptile falling within 10km of the nominated site. Nationally important invertebrate species and rare and uncommon plants are also known to occur." Any other species present on the site would need to be picked up in a site-level assessment and could not be identified at the strategic level.</p>
59.	MWH / EA	AoS / HRA / D2		<p>Respondents commented that the AoS was incorrect with regard to the statement that there are existing coastal defences at Kirksanton.</p>	<p><b>Response from MWH:</b></p> <p>The suggested response to comments about flood defences at this site has been discussed under different comments of this table. The new points raised are discussed below.</p> <p>There are two references to cliffs within the general description of the characterisation of the whole West Cumbria coastline. This appears to have been carried over into site-specific details within the Flood Risk section of Appendix 4 of the AoS report. Discussions with EA staff confirm that there are no cliffs at the site. The nearest cliffs are at Selker Point 10km north of the site, although there are some steep banks 2km north of the site. The paragraph in Appendix 4 is already to be modified in response to comment A36 so clarification on the location of cliffs should also be provided when revising this section.</p> <p>The suggested response to comments about sediment transport and shoreline management at this site has already been discussed in response to earlier comments. We note that the draft Shoreline Management Plan for the shores of the Duddon Estuary contains some lengths where the policy is "No Active Intervention" and other lengths where the policy is "Hold The Line". For those lengths where the policy is Hold The Line, the SMP has justified the policy on social, environmental and economic grounds taking account of local land use and environmental factors. The AoS is suggesting</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>that should a development application for a nuclear power station at Kirksanton come forward, the SMP policy for this length of coast would need to be revisited in the light of the proposed change in land use.</p> <p><b>Response from EA:</b></p> <p>See sections of this table regarding flood risks.</p> <p>This does not change our strategic advice on the availability of cooling. Should detailed proposals come forward a detailed assessment would be required.</p> <p>Alternative cooling strategies are possible if the impacts of direct cooling prove to be unacceptable when the detailed considerations are made.</p>
60.	Environment Agency	Sizewell	D2	<p>Response commented that MARINET evidence indicated that there is a risk to the stability of the Sizewell coast, and to the extent to which it will erode, from the exacerbating effects of offshore aggregate dredging and that there are proposals to increase this dredging.</p>	<p><b>Response from Environment Agency:</b></p> <p>To obtain a licence, companies who have been successful in a tender round run by The Crown Estate must obtain a Dredging Permission (DP) from the government, a procedure which includes the submission of an Environmental Impact Assessment (EIA). If a favourable DP is granted, the Crown Estate will issue the applicant with a production licence. Stringent studies are required to ascertain whether there is any possibility of negative impacts upon the coastline. These are through Environmental Impact Assessments and Coastal Impact Studies. Throughout the production of these studies consultation is undertaken with statutory agencies and the public. It is only after this process has been undertaken that licences are granted. Licences are not granted where a credible objection remains unresolved. The Environment Agency are a consultees in the EIA and permission process.</p> <p>We are aware of the dredging in area 430 which is located 15 miles off shore of Southwold. The licence for this area was last</p>



## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					considered in 2007 which was before we advised DECC in the suitability of the Sizewell nomination and was taken into account in our assessment of the potential suitability of the site. Although previous studies show that there is no evidence that aggregate dredging could have an impact upon the shoreline, we would expect any developer of the Sizewell site to consider the dredging activity in their assessment of coastline behaviour when applying for a Development Consent Order.
61.	HPA	Sizewell		Response claimed that the radiation risk model used by COMARE in their 10th and 11th reports was severely challenged and concluded to be unsatisfactory by independent scientists. In particular, the findings of the CERRIE Committee report were cited.	<p><b>Response from HPA:</b></p> <p>The Health Protection Agency continues to endorse the approaches adopted by the International Commission on Radiological Protection (ICRP) in developing an internationally agreed system for protection against ionising radiation. The various concerns raised by respondents about the conventional approach to radiation risk have been considered in depth in a recent HPA publication. This publication is available on the HPA website (Risks from ionising radiation, Mobbs S F, Muirhead C R and Harrison J D, HPA-RPD-066 available through <a href="http://www.hpa.org.uk">www.hpa.org.uk</a>).</p> <p>The HPA continues to assess recent findings and is at the forefront of research on radiation risks from external and internal sources of exposure. HPA endorses the approaches adopted by the International Commission on Radiological Protection (ICRP) in developing an internationally agreed system for protection in various situations of exposure. The system of protection recommended by the ICRP is based on sound scientific analyses published by international bodies, principally the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR).</p> <p>There is growing understanding of the role of stem cells in the process of carcinogenesis and in the cellular interactions that maintain these cells in tissues. ICRP is currently reviewing data in this area, considering tissue radiosensitivity in terms of cancer</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

				<p>induction, and the location of stem cells as targets for short range emissions. The location of stem cells is currently taken into account in calculating doses from internal emitters in the respiratory and alimentary tracts and in the skeleton (ICRP, 2007). The extent to which radiation damage to other cells may be important remains to be determined. There are suggestions that such non-targeted effects may add to the radiation response, or conversely, may be protective. The United Nations Scientific Committee on Atomic Radiation (UNSCEAR 2008) has reviewed data on non-targeted effects of radiation and concluded that knowledge and understanding of these processes are insufficiently developed to inform judgments on dose- response at low doses. This conclusion was also reached by ICRP (2007) and endorsed by the HPA (2009). As noted by ICRP, human epidemiological studies remain the primary source of quantitative risk data and all contributing processes should be accounted for adequately. However, uncertainties remain on the mechanisms operating at low doses and the associated risks. HPA scientists are participating in collaborative European projects on low dose radiation effects, including NOTE which has provided valuable insights into the complexity of non-targeted effects (Goodhead 2010).</p> <p>ICRP (2007) discusses the issue of dose averaging within tissues at low doses, particularly in the case of radionuclides with short range emissions for which energy deposition may be highly heterogeneous so that only a proportion of cells within a tissue are hit. However, considering the stochastic nature of radiation induced cancer and hereditary effects, it is not clear that this heterogeneity is of significance in circumstances in which both energy deposition and target cells are randomly distributed within a tissue. The UK Committee Examining Radiation Risks of Internal emitters (CERRIE) commissioned a review of data on the carcinogenicity of radioactive particles relative to more uniform irradiation. The available evidence from animal and in vitro studies indicates that the use of average dose to tissues will provide a reasonable estimate of risk from radioactive particles, within a factor of three (Charles et al. 2003, CERRIE 2004). This conclusion is supported</p>
--	--	--	--	---

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

					<p>by human data for plutonium-239 induced lung cancer and Thorotrast (thorium oxide particles) induced liver cancer and leukaemia.</p> <p>Follow-up studies of the A-bomb survivors provide the best single source of information on radiation induced cancer and other health effects. These risk factors apply to short, homogeneous, high external doses of gamma radiation at a high dose rate. An important recent publication is the third analysis of cancer in UK radiation workers, exposed to low doses of radiation over many years (Muirhead et al. 2009). The results show a clear dose-response relationship, consistent with the extrapolation of A bomb risk factors to low doses. There are only a few epidemiological studies on internal emitters in which there are individual estimates of exposure that can be used to provide reliable estimates of risks. The best direct evidence of risks from internal emitters comes from studies of lung cancer following exposures to radon in mines and homes, bone cancer in radium exposed patients and workers, and liver cancer and leukaemia in patients given injections of Thorotrast (Harrison and Muirhead 2003,). The risk estimates from these studies are consistent with those from the A-bomb survivor study when account is taken of the greater effectiveness of alpha particles in causing cancer.</p>
62.	MWH	Sizewell		<p>Response stated that the AoS incorrectly identified Minsmere SSSI as part of Sizewell Belts and Leiston-Aldeburgh SSSIs.</p>	<p><b>Response from MWH:</b></p> <p>Unable to find a reference in the AoS Site Report or Site Appendices to the statement that Minsmere SSSI is part of Sizewell Belts/Leiston. Both correctly identify Minsmere as a separate SSSI.</p>
63.	Environment Agency	Wylfa		<p>One consultation respondent asked whether the findings of the latest Shoreline Management Plan (SMP2) for Anglesey would be available to influence the assessment.</p> <p>Could the EA explain whether SMP2 are likely to necessitate a significant change to the</p>	<p><b>Response from EA:</b></p> <p>The consultee raises similar issues for Oldbury and Hinkley Point. The draft of SMP2 for St Ann's Head to Great Ormes Head (Wylfa) is current being prepared, and is expected to be consulted upon next winter. The two other relevant SMP2 are in draft and have been subject to recent public consultation, we expect that they will</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

				assessment?	<p>be issued later this year.</p> <p>As a general point we would expect developers to take account of the latest information available when they bring forward their proposals and relevant applications.</p> <p>Wylfa The current position is “do nothing” as no intervention is necessary on this hard rock coast.</p> <p>Oldbury The draft SMP2 continue the existing preferred strategy of “hold the line”</p> <p>Hinkley Point The draft SMP2 recognises the potential use of the land to the west of the existing power stations for a new power station. If a new power station is build the preferred plan for this shore changes from “no active intervention” to “hold the line” .</p>
64.	MWH	Wylfa	D6	Responses questioned the assessment that no adverse effects would result from water resources and quality impacts on the Llyn Dinam SAC. Response felt that potential pathways exist to make this a possibility and that receptors at the site are also sensitive to groundwater quality; that this site should be taken forward for more detailed assessment at the project stage to both confirm underlying trends of ground water quality improvement and to ensure that potential pathways between the proposed development and the site are unlikely to transfer any negative impacts in relation to groundwater quantity or quality.	<p><b>Response from MWH:</b></p> <p>This has been dealt with in changes to updated Wylfa HRA Site Report. A sentence has been added to para 3.17 to state that to confirm assertions of no impact on water quality, “a detailed assessment of the groundwater connections between Llyn Dinam SAC and Wylfa should be considered at the detailed project stage.”</p>

## Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)

65.	MWH	Wylfa	D8	<p>Responses noted: the existing facility is visible from the Amlwch and Parys Mountain Landscape of Outstanding Historic Interest and that no reference was made to this designation in the AoS.</p> <p>No reference is made to the LANDMAP landscape assessments for the area, a potentially significant omission given the lack of a National Landscape Character Maps for Wales.</p>	<p><b>Response from MWH:</b></p> <p>Landscape impacts from this site are covered in the Wylfa Site AoS Report, para 4.54, which states “There is also potential for intervisibility with the Parys Mountains, 8km to the east, which are identified on the Cadw Register of Areas of Outstanding and Special Historic Landscape.”</p> <p>At the time the report was assembled LANDMAP data was unavailable, with the following information noted in the AoS Appendix to the Wylfa report “The potential direct effects of the new nuclear power station on the site itself from construction to decommissioning cannot be assessed against published local landscape type descriptions, in this instance, as this emerging Welsh Landmap information is yet to be published.”</p> <p>LANDMAP/CCW tranquillity maps have not been cited, but information was drawn from CCW (interactive maps and draft LCAs) and historic environment data was sourced from Cadw. The data sourced from CCW and Cadw should have been cited in Table 4.1, and the reference to National landscape Character Areas should also be removed. This is an omission in the AoS Report.</p> <p>That the source of the data differs from that suggested by CCW would not affect the conclusions drawn in the AoS, which identifies potential landscape/visual effects on the Anglesey Area of Outstanding Natural Beauty (parts of which are within the nominated site boundary) and North Anglesey Heritage Coast and impacts on views from surrounding mountain areas.</p>
-----	-----	-------	----	--	--

### References

## **Advice received on responses to the public consultation on the draft Nuclear National Policy Statement (NPS)**

CERRIE (2004) Report of the Committee Examining Radiation Risks of Internal Emitters, October 2004.

Charles MW, Mill AJ and Darley PJ (2003). Carcinogenic risk of hot particle exposures. *J. Radio. Prot.* 23, 5-28.

Goodhead DT (2010) New radiobiological, radiation risk and radiation protection paradigms. *Mutat. Res. Fundam. Mol. Mech. Mutagen* (2010), doi: 10.1016/j.mrfmmm.2010.01.006 (in press).

Harrison JD and Muirhead CR (2003) Quantitative comparisons of cancer induction in humans by internally deposited radionuclides and external radiation. *Int. J. Radiat. Biol.* 79, 1-13.

HPA (2009) HPA advice on the application of ICRP's 2007 recommendations to the UK. RCE 12, HPA Chilton.

ICRP (2007) The ICRP Recommendations of the International Commission on Radiological Protection. ICRP Publication 103, Vol. 37, Nos. 2-4 (2007).

Muirhead CR, O'Hagan JA, Haylock RGE, Phillipson MA, Willcock T, Berridge GLC, Zhang W (2009) Mortality and cancer incidence following occupational radiation exposure: 3rd analysis of the National Registry for Radiation Workers. *British Journal of Cancer* 100, 206-212.

UNSCEAR (2008) United Nations Scientific Committee on the Effects of Atomic Radiation. Effects of Ionizing Radiation. UNSCEAR 2006 Report to the General Assembly with annexes, United Nations, New York.