

# Environment Agency permitting decisions

## Variation

This is a draft decision document. This document:

- explains how the application has been considered;
- shows how all relevant factors have been taken into account in our decision making process; and
- justifies the draft decision.

The document is in draft at this stage because we are yet to make a final decision. The assessment is based on information received up to date of 13/01/2015 (this is date of the last consultation response we received). Before we make this decision we want to explain our thinking to you, the public and other interested parties, to give you a chance to understand that thinking and, if you wish, to make relevant representations to us. We will make our final decision only after carefully taking into account any relevant matter raised in the responses we receive. Our mind remains open at this stage and, although we believe we have covered all the relevant issues and reached a reasonable conclusion, our ultimate decision could yet be affected by representations made during the consultation on this draft decision. However, unless we receive information that leads us to change our decision, we will finalise the current draft decision.

In this document we may give the impression that our final decision has been reached; but as we have explained above, this is not the case. The language we use enables this document to become the final decision document in due course with no more re-drafting than is absolutely necessary.

We try to explain our decision in this document as accurately, comprehensively and plainly as possible.

## Variation

We have decided to issue the variation for the Whitburn Mine Water Scheme operated by The Coal Authority.

The permit number is [EPR/EP3622XS/V002](#)

This variation changes various aspects of the original permit issued in November 2010. The original permit allowed a 3 month discharge of untreated mine water to the North Sea for the purpose of a pump test to determine the composition of the mine water and the discharge volume required to protect the Tyne and Wear Aquifer. Under the Environmental Permitting Regulations (England and Wales) 2010, permits can not be time limited, although activities and conditions within the permits can have time limits imposed. Therefore, while the permit remained “active” the activity under the permit was conditioned to end on 30/04/2011.

Following the pump test the discharge time limit has been removed. The following changes have also been made:

- The outlet has been moved further out to sea;
- The discharge is made via a diffuser to aid in dispersal of the effluent;

- The maximum iron loading has been increased from 150kg/day to 200kg/day (300kg in exceptional circumstances);
- The requirement for MCERTS standard flow monitoring have been added to the permit.

Due to local interest in the site this application was deemed a Site of High Public Interest.

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

## **Purpose of this document**

This decision document:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the specific conditions in the permit other than those in our generic permit template.

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

## **Structure of this document**

- Key issues
- Annex 1 the decision checklist
- Annex 2 the consultation, web publicising and newspaper advertising responses
- Annex 3 Legal Duties

## Key issues of the decision

### Context of the application

During the latter part of the 20<sup>th</sup> century there was widespread closure of deep coal mines in the north east of England. The Westoe-Wearmouth mining block, situated in the vicinity of Newcastle-upon-Tyne, consisted of interconnected workings, one of which is the Whitburn Colliery. The dewatering pumps in this mining block were switched off in 1993 which allowed water levels to rise within the mines.

The operator (the Coal Authority) predict that mine water levels may reach Ordnance Datum (OD) (which is the mean sea level as defined by Ordnance Survey) in the next 5 to 10 years. This means that the mine water will be at significant risk of polluting the overlying Permian Magnesian Limestone Aquifer. Northumbrian Water Limited abstracts raw water from this aquifer, and treats and distributes it as potable water to approximately 30,000 residents within the South Tyneside and Sunderland area.

The operator needed to consider a long term strategy to pump the mine water out of the mining block to prevent it reaching OD. In order to do that a suitable pumping rate needed to be determined.

### Summary of Permit issued on 26/11/2010

The operator applied for a permit to discharge untreated mine water on the 08<sup>th</sup> September 2010. The proposal was to discharge the mine water for the purpose of a temporary pump test. The aims of the pump test were to;

- Determine the mine water quality at Whitburn;
- Determine connectivity and demonstrate control of rising water levels;
- Assess the visual impact of an untreated discharge to sea; and
- Assess the extent of dispersion from a short sea outfall.

The permit for the pump test was issued on 26<sup>th</sup> November 2010. The permit only allowed the discharge to last for 5 months and included limits for;

- Maximum daily discharge volume of 2592 m<sup>3</sup>/d
- Maximum rate of discharge of 30 litres per second (l/s)
- Suspended solids (measured after drying at 105°C) of 250mg/l
- Iron as Fe (total) of 150kg/day

The permit required monitoring to be carried to assess the composition of the mine water. Monitoring parameters included:

- Iron as FE (dissolved)
- Aluminium as Al
- Ammoniacal nitrogen (expressed as N)
- Chloride
- Conductivity
- Manganese as Mn
- Nitrate as N
- pH
- Sulphate
- Visible oil and grease

As part of the determination of this permit consultations were sent to the following organisations; The National Trust, Sunderland City Council, South Tyneside Council, North Eastern Sea Fisheries Committee, Northumbrian Water, CEFAS and Natural England.

### **Summary of the monitoring required by permit issued on 26/11/2010**

The impact of pumping at 10 l/s showed a decrease in water levels at Whitburn. However they were only held steady at Westoe and continued to rise, albeit more slowly, at Bolden and Wearmouth. The physical impact of the discharge was observed as localised staining of the intertidal zone within the first few days of the test, though scouring of the sea and re-distribution of beach material during storm events reduced the visual impact of the ochre. There was also elevated turbidity and an orange tinge to the seawater surrounding the outfall during low tide and calm sea conditions. Whilst Natural England (NE) observed the staining, there was no observed ecological impact during the test.

During pumping the iron concentration within the mine water settled at a mean of 145mg/l. This meant that pumping was limited to around 10 l/s in order to comply with the iron load limit in the permit, which was 150kg/day. To ensure that water levels are controlled sufficiently to protect the aquifer a pump rate between 10 and 20 l/s is required. This means that the daily load of total iron has been increased accordingly.

Other than iron, no other significant concentrations of contaminants, such as organics, were found in the mine water during the trial. This means that only iron needed to be addressed under the River Basin District Typology, Standards and Groundwater Threshold Values (Water Framework Directive) (England and Wales) Directions 2010 which implement the Priority Substances Directive 2008/105/EC.

### **2014 application to vary the permit**

Following the issue of the permit on 26/11/2010 the operator applied to vary the permit for the former Whitburn Colliery.

### **Variation vs Bespoke application**

There were some queries regarding why the operator applied for a variation rather than a new bespoke permit. Under the Environmental Permitting Regulations (England and Wales) 2010, permits can not be time limited, although activities and conditions within the permits can have time limits imposed. Therefore, while the permit remained "active" the activity under the permit was conditioned to end on 30/04/2011. Applying for a variation keeps everything within the same file and the operator keeps the same permit number. It also means the original permit does not need to be surrendered. We have assessed what was applied for; it makes no difference to our permitting processes whether this was in the form of a new application or a variation. The application to vary attracted the same application fee, the same advertising process and the same risk assessments as an application for a new permit.

### **Increase of Total Iron limit and visible ochreous plumes**

The application requested that the total iron load limit is raised to 200kg/d on an everyday basis. However the operator requested to be allowed to discharge up to 300kg/d in an emergency situation. 200kg/d is in line with a study undertaken by

Newcastle University regarding the interaction of iron and sea water (*Towards Regulatory Criteria for Discharging Iron-rich Mine Water into the Sea* (Paul L Younger 2008)). This study concluded that loads of iron up to 200kg/d should not cause a visible plume in the sea, we agree with that conclusion. We included a limit for 200kg/d of Total Iron in Table S3.1 of the varied permit. In addition, Table S1.1 also contains a condition stating that if a plume is visible at the monitoring point specified in the permit, the discharge shall cease until a time the plume has dispersed, unless the Environment Agency agrees that it may cease beforehand on account of demonstrable risk to the aquifer. Monitoring for any plumes is also a requirement set out in the Operating Technique specified in Table S1.2.

We have also specified in Table S1.1 of the permit that a discharge of 300kg/d of total iron is permissible at times when the when the operator identifies an imminent threat, beyond the control of the operator, to the water quality of the magnesian limestone aquifer. As part of this condition the operator needs to notify the Environment Agency in writing when it identifies that threat. The operator also needs to identify measures required to achieve compliance with the 200kg/day limit and submit these to the Environment Agency for written approval within 1 month of identifying the threat. The operator shall implement any approved measures within three months of identifying the threat and the discharge of 300kg/d shall not continue for longer than 3 months. The monitoring data supplied by the operator and any done by us will be available on the public register.

#### Water Framework Directive 2000/60/EC (WFD)

It is important to note that the total iron limit of 200kg/d we imposed includes both particulate iron and dissolved iron. The Environmental Quality Standard (EQS) for iron is for the dissolved form which is 1mg/l as an annual mean in sea water (The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010). Limiting the total iron discharged is a more precautionary approach and will ensure that the EQS is met well within the estimated distance for the mixing zone, or zone in which the EQS is exceeded. Modelling undertaken by the operator submitted with this variation application concluded that, providing the effluent contained no more than 145mg/l of total iron and was discharged at a maximum of 30 l/s, the EQS for dissolved iron be met within 21m of the outlet. Based on a permitted load of 200 kg/d and a maximum flow of 30 l/s, the expected concentration of total iron in the discharge will be 77 mg/l. This concentration is about half of that modelled, which further ensures that the EQS should be met well within the 21m mixing zone.

The proposed outfall for the scheme is designed to achieve a minimum of dilution of 50 times and average dilution of several hundred. The design will ensure rapid mixing through the water column which will ensure that all substances contained in the discharge will meet their relevant EQS everywhere outside the mixing zone and prevent visible staining. For total iron, the concentration in the plume will be about 1.5 mg/l following the minimum initial dilution. The permit includes reference in Table S1.1 to the twin Tideflex valve diffuser system which will ensure the mine water is mixed with the surrounding sea water.

Under the WFD there is EU level guidance (Technical Guidelines for the identification of mixing zones pursuant to Art. 4(4) of the Directive 2008/105/EC, EC

2010) which states that the concept of mixing zones can be utilised by member states if they so wish when assessing discharges of pollutants (listed in Annex 1 Part A of the Priority Substances Directive as priority substances) to surface waters or transitional and coastal waters. The same principles explored for mixing zones for priority substances can be applied to National, Regional or local lists of Specific Pollutants under Annex VIII of Directive 2000/60/EC. We have always applied the concept of mixing zones to discharges containing pollutants and as Iron is classed as a specific pollutant in our National list, we have applied the use of mixing zones in our assessment of this discharge of mine water at Whitburn. The regulator has discretion over the size of the mixing zone within which the EQS can be exceeded as long as the status of the water body does not deteriorate. We are satisfied that the size of the mixing zone is acceptable. The mine water discharges into the Tyne and Wear coastal water body, the current WFD status of this water body is good. This water body is large stretching from Newbiggin-by-the-Sea to Hartlepool, the distance between the two is approximately 58km. The width of the water body is about 2 km, so that the area of the water body is about 116 square kilometres (or 11,600 hectares). Given that the estimated mixing zone for this discharge is less than 0.05 hectares, the mixing zone is very small and will not cause any deterioration of the status of the coastal water body.

#### Bioaccumulation of iron in aquatic species

Bioaccumulation in aquatic species, such as fish, was raised as a possibility in the application and further queried by Natural England as part of their consultation response. They were concerned about impact on the food chain which may impact on the European protected sites situated on the coast. We have carried out a review of the available literature on this matter (see end of page 6). Iron toxicity experiments on fish held in aquaria showed that in natural iron-rich water bioaccumulation is negligible and bioaccumulation in gills, liver and gut only occurs at concentrations greater than  $8\text{mg/L}^{-1}$ , where physiological stress to the fish is also observed (Lappivaara *et al.* 1999). This is well above the EQS value of  $1\text{mg/L}^{-1}$ , which will be met within 21m of the outlet. There is no evidence in the literature to suggest there are adverse effects on piscivorous seabirds caused by iron bioaccumulation. The Environment Agency's report, 'Proposed EQS for WFD Annex VIII substances: Iron (total dissolved)' published in 2007, states that iron is an essential element that has been shown not to bioaccumulate in higher organisms due to the body's ability to regulate its requirements for iron and not storing excessive amounts which may be harmful. The Environment Agency does not consider secondary poisoning of predators when calculating the EQS for iron in seawater due to this minimal risk.

Following further consultation with Natural England, who also expressed concern about in combination impact between other mine water discharges further down the coast (Horden and Dawdon discharges, see Annex 2 below), Natural England agreed with our conclusion that that there would be no likely significant effect on the protected sites.

#### Smothering of benthic communities from iron particles

Further issues have been raised during the consultation process (see Annex 2) surrounding the deposition of iron on the sea bed and the impact on the flora and fauna which may be present. The modelling suggests that there will be no significant deposition of ochreous iron particles on the shoreline or on the sea bed.

However, to verify the modelling and assess any potential impact of the discharge of minewater at Whitburn, we required the operator to carry out further monitoring. The operator conducted chemical monitoring and ecological surveys at two existing mine water discharge sites at Horden and Dawdon, approximately 22km and 16km south of the Whitburn discharge. Whilst these two mine water discharges both receive treatment, they are of a much higher volume and therefore their pollutant load is almost identical to the smaller Whitburn discharge and so provided a comparison to demonstrate any long term impact of the discharge. A summary of the volume and limits is in Table 1 below.

Table 1- Permitting summary of Horden, Dawdon and Whitburn

| Site     | Maximum volume per day (m <sup>3</sup> ) | Rate of discharge (l/s) | Total Iron (kg/d)                 |
|----------|--|-------------------------|-----------------------------------|
| Whitburn | 2,592                                    | 30                      | 200                               |
| Horden   | 17,280                                   | n/a                     | 173 (written in permit as 10mg/l) |
| Dawdon   | 12,960                                   | 150                     | 216                               |

In addition to the monitoring undertaken as part of the previous version of the permit and that submitted with the variation application, we also required the operator to undertake further chemical monitoring and an ecological survey at Whitburn. This was to determine background conditions and submit an operating technique to outline their plans for monitoring the mine water discharge in the future. This information was requested via a Schedule 5 Notice.

The chemical monitoring of the sea water at Whitburn included total and dissolved iron, arsenic, copper, lead and mercury. Also measured were suspended solids, salinity and dissolved oxygen. All the measured parameters were comfortably below the relevant EQS. The results of the benthic (sea bed) survey showed that the seabed environment is dominated by limestone bedrock with intermittent clustering of boulders and gullies which have collected cobbles and sand. The turbulent marine environment has resulted in a scoured rock environment with patches of mobile sand. Common species were identified in the vicinity, such as common sea star, velvet swimming crabs, filter feeding organisms and encrusting fauna were found on the harder substrate. Given the low concentration of pollutants measured found in the mine water the discharge will not detectably increase the concentrations of these substance in the sea water. Similarly the concentrations of iron discharged and the turbulent nature of the sea in this location will not cause benthic smothering of the seabed and therefore there will be no impact on the species in the vicinity of the outfall.

The results of the sea water sampling at both Horden and Dawdon showed that key chemical parameter (the same as measured at Whitburn) concentrations were all well below the relevant EQS indicating that the discharges here are having no discernible impact on the surrounding environment. Equally the benthic surveys showed an equally turbulent environment as at the Whitburn site with similar species observed. Both the Horden and Dawdon discharges have been permitted since 2004 and 2007 respectively and the surveys showed no evidence of ocherous deposits on the sea bed. Given these two discharges are of a very similar nature to the Whitburn discharge and of much higher volume, the results of the analysis and survey provided further evidence that the Whitburn mine water discharge will have no impact on the surrounding environment.

### Toxic Waste

Concern has been raised by consultees (see Annex 2) that toxic waste was dumped into the Westoe and Wearmouth mining block. However we are not aware of any evidence to support this. The analysis of the mine water during the pump test showed that it did not contain significant quantities of contaminants and pollutants other than iron. However we have included conditions in the permit which require the operator to monitor and report to us the mine water quality and sea water quality surrounding the outlet for a number of hazardous pollutants other than iron to ensure that any change in mine water chemistry is identified and action taken to remedy the situation.

### Treatment

Given the modelling evidence and the subsequent sea water analysis and benthic surveys at Whitburn, Horden and Dawdon we do not believe treatment is necessary for the mine water discharge at this stage. The load of iron discharged from the untreated mine water at Whitburn is of a similar load to the treated discharges at Horden and Dawdon due to the vast difference in volumes. Because the surveys and monitoring show there is little impact of the discharges on the environment at Horden and Dawdon we can infer that a similar situation will occur at Whitburn and there will be no risk to the WFD status of the coastal water body. In addition the cost of treatment would be substantial and require significant land acquisition in an area which has high public amenity. It would also induce power and carbon costs, sludge disposal, transport and infrastructure costs. In any event, the permit includes limits which will ensure that there is no deterioration of the coastal water body. Table S1.1 in the permit outlines requirements that the discharge should cease if an ochreous plume is observed (subject to the protection of the magnesian limestone aquifer) and that should the higher load of 300kg/d of total iron be discharged (subject to condition in Table S1.1) the operator will identify measures required to achieve compliance with the Total Iron limit in Table S3.1 and implement any measures (which may mean the installation of treatment) within three months, the discharge of 300kg/d will not continue longer than three months.

Given the evidence submitted with this application and having regard for consultee responses we have decided to issue to the variation.

**References as specified in section on Bioaccumulation-** Johnson I, Sorokin N, Atkinson C, Rule K and Hope S-J (2007) *Proposed EQS for WFD Annex VIII substances: Iron (total dissolved)*. Published by Environment Agency.

Lappivaara J, Kiviniemi A and Oikari A, 1999 *Bioaccumulation and subchronic physiological effects of waterborne iron overload on whitefish exposed in humic and nonhumic water*. *Archives of Environmental Contamination and Toxicology*, 37,196–204.

## Annex 1: decision checklist

This checklist should be read in conjunction with the Duly Making checklist.

| Aspect   | Justification / Detail  | Criteria met<br>Yes |
|--|---|---------------------|
| <b>Consultation</b>  |   |                     |
| Scope of consultation  | The consultation requirements were identified and implemented. The decision was taken in accordance with RGN 6 High Profile Sites, our Public Participation Statement and our Working Together Agreements.  | ✓                   |
| Responses to consultation, web publicising and newspaper advertising | The web publicising, consultation and newspaper advertising responses (Annex 2) were taken into account in the decision.<br><br>The decision was taken in accordance with our guidance.   | ✓                   |
| <b>Operator</b>  |   |                     |
| Control of the facility  | We are satisfied that the applicant (now the operator) is the person who will have control over the operation of the facility after the grant of the application. The decision was taken in accordance with EPR RGN 1 Understanding the meaning of operator.  | ✓                   |
| <b>European Directives</b>   |   |                     |
| Applicable directives  | All applicable European directives have been considered in the determination of the application.  | ✓                   |
| <b>The site</b>  |   |                     |
| Extent of the site of the facility                                   | The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility including discharge points.<br><br>A plan is included in the permit and the operator is required to carry on the permitted activities within the site boundary.  | ✓                   |
| Biodiversity, Heritage, Landscape and Nature Conservation            | The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat .<br><br>A full assessment of the application and its potential to affect the sites, species and habitats has been carried out as part of the permitting process. We consider that the application will not affect the features of the site, species and habitat.<br><br>Formal consultation has been carried out with Natural England. The consultation responses (Annex 2) were | ✓                   |

| Aspect  | Justification / Detail   | Criteria met |
|---|--|--------------|
|   |  | Yes          |
|   | taken into account in the permitting decision.   |              |
| <b>Environmental Risk Assessment and operating techniques</b> |  |              |
| Environmental risk  | <p>We have reviewed the operator's assessment of the environmental risk from the facility.</p> <p>The operator's risk assessment is satisfactory. However we asked the Operator to undertake further monitoring to substantiate the results of their risk assessment.</p> <p>The assessment shows that, applying the conservative criteria in our guidance on Environmental Risk Assessment – H1 Annex D, D1 and D2, all emissions may be categorised as environmentally insignificant with the exception of iron which required a limit to be placed in the permit.</p> | ✓            |
| Operating techniques  | <p>We have reviewed the techniques used by the operator and compared these with the relevant guidance notes.</p> <p>The proposed techniques / emission levels for priorities for control are in line with the benchmark levels contained in the Technical Guidance Note (TGN) - How to comply with your environmental permit: guidance for sewage and trade effluent discharges that are classed as water discharge or groundwater activities (EPR7.01) and we consider them to represent appropriate techniques for the facility.</p>                                   | ✓            |
| <b>The permit conditions</b>                                  |  |              |
| Updating permit conditions during consolidation.              | <p>We have updated previous permit conditions to those in the new generic permit template as part of permit consolidation. The new conditions have the same meaning as those in the previous permit(s).</p> <p>The operator has agreed that the new conditions are acceptable.</p>   | ✓            |
| Incorporating the application                                 | <p>We have specified that the applicant must operate the permit in accordance with descriptions in the application, including all additional information received as part of the determination process.</p> <p>These are specified in the Operating Techniques table in the permit.</p>  | ✓            |
| Emission limits   | We have decided that emission limits should be set for the   | ✓            |

| Aspect                        | Justification / Detail  | Criteria met |
|-------------------------------|---|--------------|
|                               |   | Yes          |
|                               | <p>parameters listed in the permit.</p> <p>It is considered that the numeric limits described below will prevent deterioration of receiving waters. We have imposed numeric limits because either a relevant environmental quality or operational standard requires this.</p> <p>Total iron – 200kg/d<br/>Suspended solids –250 mg/l<br/>pH – 6-9</p>   |              |
| Monitoring                    | <p>We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods and to the frequencies specified.</p> <p>These monitoring requirements have been imposed in order to protect the environment. We made these decisions in accordance with our guidance EPR 7.01.</p> <p>We have included monitoring on the effluent and also environmental monitoring for the surrounding area.</p> <p>Based on the information in the application we satisfied that the operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate.</p> | ✓            |
| Reporting                     | <p>We have specified reporting in the permit.</p> <p>Reports should be submitted to the Environment Agency annually. We made these decisions in accordance with our guidance EPR 7.01.</p>  | ✓            |
| Considerations of foul sewer  | <p>We agree with the operators justification for not connecting to foul sewer.</p>  | ✓            |
| <b>Operator Competence</b>    |   |              |
| Environment Management System | <p>There is no known reason to consider that the operator will not have the management systems to enable it to comply with the permit conditions. The decision was taken in accordance with Regulatory Guidance Note 5 on Operator Competence.</p>  | ✓            |

## Annex 2: Consultation, web publicising and newspaper advertising responses

Summary of responses to consultation, web publication and newspaper advertising and the way in which we have taken these into account in the determination process. (Newspaper advertising is only carried out for certain application types, in line with our guidance.)

|   |
|---|
| <b>Response received from</b>   |
| A member of the public – received via email on 28/06/14 at 12:59  |
| <b>Brief summary of issues raised</b>   |
| Query regarding if the mine water being pumped into the North Sea will pollute the sea in any way. They point out that if the mine water can potentially pollute ground water, is pumping to the sea a good idea.   |
| <b>Summary of actions taken or show how this has been covered</b>   |
| We have acknowledged the representees comments about the proposal via a letter which was sent on the 11/07/2014. The comments have also been addressed in the above Key Issues section of this document. A copy of the draft permit was made available to the them during the minded to consultation. |

|   |
|---|
| <b>Response received from</b>   |
| A member of the public – received via letter at the Newcastle office on 12/08/14  |
| <b>Brief summary of issues raised</b>   |
| <p>Concerns raised regarding;</p> <ul style="list-style-type: none"> <li>• The lack of EIA (Environmental Impact Assessment);</li> <li>• Concern surrounding the flow and possible breach of conditions on original permit;</li> <li>• Concern surrounding proposed flows and possibility of environmental harm;</li> <li>• Concern surrounding toxic waste and the possibility of that waste combining with mine water chemicals and causing harm;</li> <li>• Local concerns surrounding sea bed features which may hold material in local fishing grounds;</li> <li>• Concern about how accidents will only be detected after the discharge has occurred.</li> </ul> <p>Other comments raised regarding how the representee feels we are not a competent authority.</p> |
| <b>Summary of actions taken or show how this has been covered</b>   |
| We have acknowledged the representees comments about the proposal via a letter which was sent on the 07/10/2014 and have also been addressed in the above Key Issues section of this document. We can only note comments which are pertinent to the proposal, any comments received regarding other regulated facilities have not been taken into consideration during the determination process. The pertinent comments have also been addressed in the above pages of this document. A copy of the draft permit was made  |

available to them during the minded to consultation.

**Response received from**

Northumbrian Water Limited – received via email on 02/07/2014

**Brief summary of issues raised**

No issues raised. Northumbrian Water supports the application because it protects their groundwater supply.

**Summary of actions taken or show how this has been covered**

No action necessary although a copy of the draft permit was made available to the Northumbrian Water during the minded to consultation.

**Response received from**

Durham Heritage Coast (part of Durham County Council) – received via letter on 23/07/2014.

**Brief summary of issues raised**

Durham Heritage Coast recognise that there will be no detectable impact on the inshore waters of the defined heritage coast. However they feel it would be prudent to sample water south of the River Wear before any discharge commences and then again after to provide clear evidence that there is no impact on the heritage coast.

**Summary of actions taken or show how this has been covered**

We have acknowledged Durham Heritage Coasts comments about the proposal via a letter which was sent on the 18/09/2014. The comments have also been addressed in the above Key Issues section of this document. A copy of the draft permit was made available to the council during the minded to consultation.

**Response received from**

Durham County Council – received via email on 28/07/2014

**Brief summary of issues raised**

Durham County Council recognise the comments raised by Durham Heritage Coast, but also wish to add comments regarding;

- which way and the speed of the sea current;
- concern over a proper assessment because this is a variation;
- the historic dumping of toxic waste; and
- the lack of treatment.

**Summary of actions taken or show how this has been covered**

We have acknowledged Durham County Councils comments about the proposal via a letter which was sent on the 18/09/2014. The comments have also been addressed in the above Key Issues section of this document. The comments have also been addressed in the above pages of this document. A

copy of the draft permit was made available to the council during the minded to consultation.

**Response received from**

Natural England – received via email on 21/07/2014

**Brief summary of issues raised**

Initial comments made requiring further information about the following points before they can respond to the official consultation forms sent to them;

- the sampling regime of the discharge;
- the trigger levels for the extended increases in contaminants which could initiate a reduction in the discharge;
- a monitoring regime to test the assumption that the EQS will be met within 25 meters of the outlet and;
- the potential in combination effect with background iron levels in the North Sea and future application.

Further comments made on 3/12/2014 after the provision of the above information;

- More detailed analysis of the potential for bioaccumulation of iron in the food chain, which may impact on the sea bird which form part of the designated sites;
- Further information regarding the potential in-combination between the Whitburn Mine Water Scheme and the other Coal Authority discharges (the Horden and Dawdon discharges) further down the coast.

**Summary of actions taken or show how this has been covered**

We have acknowledged Natural England's (NE) comments about the proposal via revised consultation forms which was sent on the 07/01/2015.

Because NE felt they couldn't comment on the proposal fully until they had seen a detailed monitoring plan for the proposal we have asked the CA, via a Schedule 5 Notice seeking further information, to supply monitoring plans for both the effluent and environment. Once this information was received from the Operator we then received further comments on the proposal which were addressed by revising the consultation forms which we use to consult with NE. Following the inclusion of the requested information NE were satisfied we had alleviated their previous concerns and had no further comments to make on the proposal. They agreed with our conclusions of no impact on the Sites of Special Scientific Interest and European Sites which were assessed as part of this application and signed off the consultation forms on the 13/01/2015.

Detail on their comments have also been addressed in the above pages of this document. A copy of the draft permit was made available to the NE during the minded to consultation.

**Response received from**

South Tyneside Council – received via letter on 06/08/2014

**Brief summary of issues raised**

South Tyneside Council raised concern over the following points;

- The application submitted is a variation on the existing permit rather than a new permit application;
- They wish to ensure that the proposed discharge complied with all requirements of the Water Framework Directive;
- Concern over contaminants in the mine water which may change over time, in particular iron and salinity but also from deterioration of contaminated washery tailings which were disposed of in the mine shaft;
- Concern over monitoring arrangements;
- Concern over the lack of treatment, which they see as desirable in this case;
- Concern surrounding the proposed increase in iron loading and the possibility of an ochreous plume, especially ones which may impact on the foreshore.
- They wish to be kept informed of the results and interpretation of the monitoring of the discharge and any impacts on coastal waters.

**Summary of actions taken or show how this has been covered**

We have acknowledged South Tyneside Councils comments about the proposal via a letter which was sent on the 18/09/2014. The comments have also been addressed in the above Key Issues section of this document. A copy of the draft permit was made available to the council during the minded to consultation.

**Response received from**

Marine Management Organisation (MMO)

**Brief summary of issues raised**

No issues raised. The MMO and the Environment Agency have consulted each other on each organisations respective permit application. The application to the MMO is regarding the construction of the pipe and outfall, rather than the discharge itself. The outcome of the MMO application depends what we impose for the water discharge activity, therefore the MMO do not have any comments to make on the application at present.

**Summary of actions taken or show how this has been covered**

We have had a meeting with the MMO to discuss working together on the CA proposal. We sent the MMO a minded to consultation so they can view our decision on the permit. This will help them start the process of determining the MMO application.

**Response received from**

Sunderland City Council – received via letter on 19/08/2014

**Brief summary of issues raised**

Sunderland City Council recommended conditions for the permit which will help ensure that there are no visible or environmental impacts are caused. Conditions include;

- Monitoring the mine water shaft levels should be monitored and compared to the iron loading in the discharge to ensure that the proposed 200kg/d limit is not breached;
- If the total iron loading exceeds 200kg/d for multiple days, pumping shall be reduced until the loading falls back to the permitted load, subject to aquifer protection. Suitable assessment of any environmental impact shall be carried out if continuation of the exceedance is expected.
- If a visible plume is detected within coastal waters, visible from shore, the pumping rate shall reduce to allow the plume to disperse and investigations be undertaken to ensure this does not happen on a persistent basis.

#### **Summary of actions taken or show how this has been covered**

We have acknowledged Sunderland City Councils comments about the proposal via a letter which was sent on the 18/09/2014. The comments have also been addressed in the above Key Issues section of this document. A copy of the draft permit was made available to the council during the minded to consultation.

#### **Response received from**

North Eastern Inshore Fisheries Conservation Authority. (NEIFCA) - received via letter on 25/07/2014

#### **Brief summary of issues raised**

The NEIFCA had many comments surrounding the environmental impacts the mine water will have on the marine environment. These are summarised below;

- Concern surrounding the higher flow rate and loading levels considering the pump test reached its load limit at 10l/s;
- Concern that the application does not consider the long term impacts on the discharge, especially with regard to benthic smothering;
- Concern that there appears to be no consideration of wave action which may influence localised sediment transport, which could result in a more extensive plume towards the shore;
- They query how the particulate deposition estimate has been derived in the modelling;
- There appears to be no reference to substrate complexity in the modelling;
- Concern that there is no risk assessment or impact assessment has been undertaken to determine the effect of significant iron loading at the discharge site with regard to algal growth, particularly in regard to the in-combination impact with Whitburn WwTW outfall as well.
- They query the impact that 300kg/d limit has on the models and reports submitted;
- Concern that the models and reports refer to conservative estimates and not pessimistic as well; and
- They would like to find out if the proposed site was used for waste disposal.

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| <b>Summary of actions taken or show how this has been covered</b> |
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| We have acknowledged NEIFCA comments about the proposal via a letter which was sent on the 18/09/2014. The Operator had answered many of the queries raised by the NEIFCA these were forwarded on to them as an appendix to the letter which can be viewed on the public register. We are satisfied that the Operators answers to the comments were satisfactory. The comments have also been addressed in the above Key Issues section of this document. A copy of the draft permit was made available to NEIFCA during the minded to consultation. |
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| <b>Response received from</b> |
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| National Trust |
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| <b>Brief summary of issues raised</b> |
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| No response |
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| <b>Summary of actions taken or show how this has been covered</b> |
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### **Annex 3 Legal duties**

We have dealt with the Water Framework Directive 2000/60/EC in the main body of the determination report. Additional relevant legal duties are:

#### ***Section 84(1) Water Resources Act 1991 (Duty to achieve and maintain water quality objectives for specified waters)***

- The Bathing Waters (Classification) Regulations 1991 (SI 1991/1597) and Bathing Waters Direction; Bathing Water Regulations 2008 (SI 2008/1097).

The discharge will not impact on any designated bathing water.

- The Surface Waters (Shellfish) (Classification) Regulations 1997 (SI 1997/1332)
  - The discharge will not impact on any freshwater fish or shellfish waters.

#### ***Section 4 Environment Act 1995 (pursuit of sustainable development)***

Consideration has been given to whether additional requirements should be imposed in relation to the Agency's principal aim to contribute to attaining the objective of sustainable development under Section 4 of the Environment Act 1995, but it is felt that existing requirements are sufficient in this regard and no other appropriate requirements have been identified.

Defra's guidance document entitled 'The Environment Agency's Objectives and Contributions to Sustainable Development: Statutory Guidance' (2002) requires us, when making this decision, to protect, enhance and restore the environmental quality of (amongst others) groundwater and coastal surface water, and in particular to

- Address both point source and diffuse pollution
- Implement the Water Framework Directive
- Ensure all other water quality standards are met.
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We consider that our decision achieves these objectives.

#### ***Section 5 Environment Act 1995 (our duty to prevent, minimise, remedy or mitigate the effects of pollution of the environment when exercising our power to determine this application)***

Our decision meets this requirement because permit conditions will prevent deterioration of the receiving water body and by issuing the permit to allow the discharge the groundwater body overlying the abandoned mines will also be protected from deterioration by rising mine waters (refer to Key Issues section of this document)

#### ***Section 6(1) Environment Act 1995 (conservation duties with regard to water)***

Consideration has been given to whether any additional requirements should be imposed in relation to the Agency's duty to promote the conservation and enhancement of the natural beauty and amenity of coastal waters, and the

conservation of flora and fauna which are dependent on an aquatic environment. It is felt that the conditions of the environmental permit as a whole will be sufficient in this regard, and no other appropriate requirements have been identified.

**Section 6(6) Environment Act 1995 (duty of the Agency to maintain improve and develop salmon fisheries, freshwater fisheries, lamprey, smelt and eel fisheries)**

The assessment of the impact of this discharge on the receiving coastal water body (see key Issues section of this document) shows that the Environmental Quality Standard for Iron will be met within 21m of the outlet, there are no known salmon, lamprey, smelt or eel fisheries and/or migratory in the vicinity of the outlet. The discharge will not impact on freshwater fisheries due to the receiving water body being coastal.

**Section 7 Environment Act 1995 (pursuit of conservation interests)**

Section 7(1)(c) of the Environment Act 1995 places a duty on the Agency, when considering any proposal relating to its functions, to have regard amongst others to any effect which the proposals would have on the economic and social well-being of local communities in rural areas, and to take into account any effect which the proposals would have on the beauty or amenity of any rural area.

Consideration has been given to whether any additional requirements should be imposed in terms of the Agency's duty to have regard these duties, but it is considered that the conditions of the environmental permit as a whole will be sufficient in this regard.

**Section 39 Environment Act 1995 (costs and benefits duty)**

The Agency has a duty under section 39 of the Environment Act 1995 to take into account the likely costs and benefits of granting the application ('costs' being defined as including costs to the environment as well as any person).

By granting the application we will be protecting a groundwater body which is used as a source of drinking water for approximately 30,000 residents of the Sunderland area. Our decision outlined in the Key Issues section of this document outlines how the discharge of mine water will not impact on the receiving water body and it's the most appropriate way to deal with the issue of rising mine waters.

**Section 85 Countryside and Rights of Way Act 2000**

Section 85 places a duty on Agency to have regard to the purpose of conserving and enhancing the natural beauty of the area of outstanding natural beauty (AONB) when exercising or performing any of our functions in relation to, or so as to affect, land in an such an area.

The site is not within an AONB.

***Section 28G Wildlife and Countryside Act 1981/ The Conservation of Habitats and Species Regulations 2010***

Under section 28G of the Wildlife and Countryside Act 1981 the Agency has a duty to take reasonable steps to further the conservation and enhancement of the flora, fauna or geological or physiographical features by reason of which a site is of special scientific interest (SSSI).

Under regulation 61 of the above Regulations, the Agency must, before granting any permit to discharge, assess whether it is likely to have a significant effect on a European site (Special Areas of Conservation and Special Protection Areas) and if so assess the implications of the discharge upon that site in light of its conservation objectives.

It is not envisaged that any SSSI, Special Area of Conservation or Special Protection Area could be affected by this discharge. Natural England agree with this conclusion.

***Section 40 Natural Environment and Rural Communities Act 2006.***

Section 40 places a duty on the Agency to have regard, so far as is consistent with the proper exercise of its functions, to conserving biodiversity. 'Conserving biodiversity' includes; in relation to a living organism or type of habitat, restoring or enhancing a population or habitat.

The assessment of the impact of this discharge on the receiving coastal water body (see key Issues section of this document) shows that the discharge will not impact on any protected species and/or habitats designated under NERC Act, firstly because there are none known in the vicinity of the outlet and secondly that the main pollutant contained in the discharge (iron) will receive dilution to enable it to meet the EQS within 21m of the outlet further reducing any risk to any protected species potentially found further away.