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Environment Agency

The Planning Inspectorate
Temple Quay House Temple Quay
Bristol
Avon
BS1 6PN

Our ref: NA/2022/115883/02-L01
Your ref: NET ZERO TEESSIDE PROJECT CONS

Date: 23 June 2022

Dear Sir/Madam

EN010103: THE NET ZERO TEESSIDE NATIONALLY SIGNIFICANT INFRASTRUCTURE PROJECT. DEADLINE 2 SUBMISSIONS. LAND IN THE VICINITY OF THE SSI STEEL WORKS SITE, REDCAR, TEESSIDE, TS10 5QW

Please find enclose our representations for Deadline 3 for this Development Consent Order (DCO) on behalf of the Environment Agency (EA).

Please do not hesitate to contact if you have any questions or require further clarification.

Yours faithfully

Lucy Mo
Planning Technical Specialist - Sustainable Places

[redacted]

Summary of EA representations

Deadline 2 Submission - 9.7 Applicants' Response to the Examining Authority's Written Questions [REP2-016]
We have provided points of clarity or advice regarding the Applicant's response to the Examining Authority's Written Questions.

Deadline 2 Submission - 5.10 Other Consents and Licences (Clean) [REP2-007]
The Applicant may require a Radioactive Substances (RAS) permit from the Environment Agency.

Deadline 2 Submission - 9.8 Appendix GH.1.1b: Preliminary Onshore Ground Investigation for Net Zero Teesside Ground Investigation Report [REP2-043]
Based on the information submitted, we do not fully agree with the Preliminary Onshore Ground Investigation. We have concerns regarding the materials to be reused on site and their implications on controlled waters. We consider that the risk assessment does not contain sufficient details in the context of the proposed DCO and that there are outstanding areas which require ground investigation. We have also highlighted a number of sections of the report which require further information or clarity.

Deadline 2 Submission - 2.1a Schedule of Changes to the draft Development Consent Order [REP2-004]
With respect to requirement 13 - Contaminated land and groundwater, we would welcome revisions to section 2 (a) to state that a 'preliminary risk assessment and risk assessment that is supported by site investigation scheme'.

In order to ensure that the site does not pose any further risk from hazardous and non-hazardous substances to the water environment and groundwater, we would welcome amendments to this requirement necessitating the production of a monitoring plan in respect of contamination and any further remedial works.

In terms of requirement 25 - restoration of land used temporarily for construction, we recommend that this requirement is revised to accommodate for remediation of the land temporarily used for construction.

EA representations

Deadline 2 Submission - 9.7 Applicants' Response to the Examining Authority's Written Questions [REP2-016]

Question GEN.1.6

The Applicant proposes a Heat Recovery Stream Generation (HRSG) stack with an inner diameter of 6.5m. Representative monitoring of emissions from such a wide stack may prove technically difficult. Therefore an early review of the requirements of M1 monitoring guidance is recommended, as this may impact the final design and height.

Question GEN.1.7

The Applicant proposes an absorber stack with an inner diameter of 6.6m. Representative monitoring of emissions from such a wide stack may prove technically difficult therefore an early review of the requirements of M1 monitoring guidance for wet emissions is recommended, as this may impact the final design and height.

Question AQ.1.13

The 70% threshold is a trigger for detailed dispersion modelling not a damage threshold.

Question AQ.1.14

Emissions are regarded as insignificant if the Process Contribution is less than 1% of the critical level/load either alone or in-combination.

Question DLV.1.11:

The Applicant's proposal to reduce the final stack height of the absorber and HRSG with a corresponding increase in stack width must be considered alongside the limited availability of air emissions monitoring equipment capable of sampling such wide stacks. An early review of the requirements of M1 monitoring guidance is recommended as this may impact the final stack design and height.

Deadline 2 Submission - 5.10 Other Consents and Licences (Clean) [REP2-007]

The Applicant may also require a Radioactive Substances (RAS) permit for naturally occurring radioactive waste (NORM) generated during pigging off-shore pipelines and to regulate radioactive monitoring equipment.

Deadline 2 Submission - 9.8 Appendix GH.1.1b: Preliminary Onshore Ground Investigation for Net Zero Teesside Ground Investigation Report [REP2-043]

General Comments

- An updated Desk Study has not been submitted in support of this document. We would welcome clarity on when the updated Desk Study will be submitted as part of the DCO. The Desk Study would inform the design

and appropriateness of the ground investigation undertaken. It is not clear whether potential point sources of historic contamination such as tanks, fuelling stations and electrical substations have been targeted.

- The Penarth Group and Glacial Till are considered to be Secondary Undifferentiated Aquifers. The document should be updated to reflect this.
- Previous ground investigation has been undertaken on the site. However, it does not appear that previous ground investigation exploratory boreholes have been monitored (level or groundwater quality) as part of the current works. The rationale for this approach should be provided since they could provide invaluable / supplementary information on baseline conditions.
- No works were undertaken in the north west that encountered the Penarth Group and Mercia Mudstone Group. Therefore groundwater characteristics in these rock units are not known and additional ground investigations on these areas would be required.

Specific Comments

Section 4.4 (Limitations of Report)

This report is considered to be a preliminary exploratory ground investigation as defined in BS 10175 and not a detailed main ground investigation. However, it is acknowledged that further ground investigation(s) will be undertaken.

Section 5.6 (Proposed Construction)

Reference is made to Wood Drawing NS051-PI-LAY-007-00001-001 Rev B03. However, this drawing has not been included within the report.

Section 6.4.3 (Ground gas and groundwater level monitoring)

Can it be clarified what the review of historic wells installed by AEG exactly means? Does it mean that further monitoring was undertaken in these wells or that they were inspected.

Section 6.6.2 (Geo-environmental testing) and Appendix E (Contamination Assessment)

It appears that the range of analysis may not fully include all relevant Contaminants of Concern for the historic land uses as detailed in the relevant DoE Industry Profile. A limited range of chemical analysis has been undertaken for soil leachate and which fails to cover the full range of Contaminants of Concern. We strongly recommend that the chemical analysis undertaken on soil, soil leachate and groundwater is consistent and for the same range of Contaminants of Concern.

Limited groundwater analysis was undertaken with respect to Polychlorinated Biphenyl (PCB) but we are aware that these contaminants may be associated with historic electrical substations located on the site. Further information is required on this.

We require clarity regarding whether deviating samples were recorded as part of

the laboratory analysis and whether these had an impact on sample integrity.

Section 7.1 (Identified Ground Conditions)
This section refers to geological cross sections (DRG-009 to DRG 011). The inferred geological boundaries do not appear to concur with their geological descriptions. There is also an incomplete sentence in the fifth paragraph.

Section 8.5 (Tidal Variability)
We require further groundwater monitoring to be undertaken to confirm that groundwater within the various geological units at the site are not affected by tidal influence.

Section 9.5 (Slag Expansivity Testing) and Section 10 (Soil and Groundwater Chemistry)
Clarity is required on what exactly the chemical properties are of the blast furnace slag and basic steel slag. These materials are likely to be processed and reused, and will have an impact on groundwater quality on site and potentially the wider area including the Tees Bay.

Sections 10.4, 10.5 (Summary of Risk to Surface Water and Groundwater Quality) and 16.6 (Generic Quantitative Risk Assessment)
We do not fully agree with the conclusions of these sections, as the baseline conditions have not been established and there are areas where ground investigation has not been undertaken. Furthermore, limited groundwater quality of the onshore CO2 export pipeline corridor was undertaken. Please refer to our comments on Appendix G.

Where contaminants are recorded above respective Generic Assessment Criteria, it should be indicated whether these are hazardous or non-hazardous substances. It should be highlighted what measures would be introduced to prevent and limit these substances from entering and presenting a risk to controlled waters and sensitive areas such as Tees bay, meeting the objectives of the Water Framework and Groundwater Directives.

Section 14.1.3 (Reuse of Materials)
It is acknowledged that crushed or processed slag would result in the exposure of a larger unweathered fresh surface area. We therefore do **not agree** that there are no “constraints on the re use of material from a potential contaminative perspective”. The reuse of processed slag materials will result in an impact on quality of controlled water receptors including potentially sensitive ecological areas including the Tees Bay area. We require further information regarding the extent of the reuse of crushed and/or processed slag.

Section 15 (Recommendations for Further Work)
We agree that groundwater monitoring (quality and water levels) should be undertaken for a further period of at least 12 months to establish adequate

baseline groundwater conditions and tidal / seasonal variation. We have assumed that “quality” would comprise electrical conductivity **and** chemical analysis of groundwater to confirm baseline chemistry. Confirmation is required on this matter.

We agree that additional geo-environmental ground investigation **is required** at **a)** future stages in the project design, **b)** in those areas where it has not been possible to investigate (i.e. workshops, furnace stockhouse, sinter plant and overhead conveyors) **and c)** in the north western area to allow assessment of potential migration of groundwater off site and the presence of complex cyanide and **d)** along the alignment of the proposed onshore CO2 export pipeline corridor.

Section 14.2 (Foundations) indicates that piles may be a potential foundation solution. Therefore section 15 should also highlight the requirement for a foundations risk assessment with respect to controlled waters. This risk assessment should provide information on the foundation methodology, pollution pathways and pollution prevention measures to prevent the entry of hazardous and non-hazardous contaminants into controlled waters. The applicant should refer to relevant guidance on piling through contaminated land. We would expect that once foundation design has been confirmed for structures that further specific / detailed ground investigations would be undertaken in these areas to inform the risk assessment.

The reuse of processed slag materials creating fresh unweathered surfaces will increase the entry of hazardous and non-hazardous substances into controlled waters thus having a detrimental impact on groundwater quality and potentially sensitive ecological areas including the Tees Bay area. Therefore the requirement for longer term monitoring of groundwater quality to measure this should be included in DCO Requirement 13.

Appendix E. Section 22.3E.3 (Potential Receptors)
The North Sea should be referred to as a potential receptor. River Fleet is also in close proximity to the site so it should be confirmed whether this is also considered a receptor. This may also need to be addressed within the Desk Study.

Appendix G (Contamination Assessment Controlled Waters)
It is stated that previous ground investigation results have been included within the previous Desk Study. However, it would be extremely beneficial for the previous soil and soil leachate results to be included within this assessment. It is accepted that it is not appropriate for previous groundwater analysis to be included since these may not be representative of current conditions.

We wish to reiterate the following with respect to Controlled Waters Risk Assessment and Generic Assessment Criteria (GAC) hierarchy. The GAC hierarchy for assessment of groundwater should be Drinking Water Standards

(DWS), followed by Environmental Quality Standards (EQS) and where no appropriate GAC are available, laboratory detection limits should be used. The GAC hierarchy for assessment of surface waters should be Environmental Quality Standards (EQS) followed by DWS, then laboratory detection limits if no GAC value is available. In the absence of Water Quality Standards, it needs to be made clear what contaminants are recorded above laboratory detection limits.

It is noted that for some Polycyclic Aromatic Hydrocarbons (PAH) compounds AECOM have derived their own GAC criteria. Further details should be included to highlight how the criteria has been derived and why laboratory detection limits have not been used.

For those contaminants which exceed the GAC hierarchy as detailed above, there needs to be discussion / correlation of groundwater concentrations alongside total soil concentrations and soil leachate results. From this, it can be inferred whether contamination may originate on site or off site and whether soil concentrations presents a short term or longer term source to groundwater contamination.

All water quality standards used in the assessment should be fully sourced / referenced, particularly if a water quality standard for one determinant and has been used as a substitute for another (e.g. Toluene for Aromatic fractions). In relation to the EQS value for benzo(a)pyrene this is used for a marker for other compounds of Speciated PAH (Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)-perylene and Indeno(1,2,3-cd)-pyrene). Therefore, where benzo(a)pyrene is identified above EQS values, these other compounds should also be considered within the risk assessment. It should also be highlighted where laboratory detection limit for a contaminant are higher than the respective water quality standard. In these cases, it should be assumed that concentrations **are** above the respective water quality standards.

Section 24.5.3 G.5.3 (Discussion) states that PAH compounds are generally immobile in the sub surface and there is unlikely a significant impact off the site. We do not agree wholly with this comment, since it is apparent that PAH compounds have leached from soil into groundwater, which subsequently may flow off site.

A **risk assessment** taking into account CIRIA C552 should be undertaken including the preparation of a schematic site conceptual model. The risk assessment should also take into consideration for example the impact of the proposed development including reuse of processed slag on controlled waters receptors, the contamination identified including potential free product, relic structures which may form preferential pathways and proposed piled foundation solution.

It is indicated that the main surface water receptors are the River Tees and Tees Bay. However, the $C0_2$ export corridor is in close proximity to the North Sea therefore this should be highlighted as a critical receptor.

Appendix I (GQRA Screening Tables)
This appendix presents the groundwater chemical analysis results from all boreholes from the various rounds of monitoring with respective to groundwater quality and surface water quality. However, a large portion of Appendix G discusses the results of groundwater chemical results **within the different strata** with respect to groundwater quality and surface water quality. Therefore, it would be helpful if tables were included that presented groundwater results within the different strata from the relevant exploratory monitoring wells, with respect to groundwater quality and surface water quality. Furthermore, the screening tables for soil leachate do not appear to have been included.

Deadline 2 Submission - 2.1a Schedule of Changes to the draft Development Consent Order [REP2-004]
Requirement 13 - Contaminated land and groundwater
For clarity and in accordance with the EA's Land Contamination Risk Management Guidance, we would welcome revisions to section 2 (a) to state that a 'preliminary risk assessment and risk assessment that is supported by site investigation scheme'.

As the DCO will involve the reuse of process slag, and in order to ensure that the site does not pose any further risk from hazardous and non-hazardous substances to the water environment and groundwater, we would welcome amendments to this requirement necessitating the production of a monitoring plan in respect of contamination and any further remedial works

Requirement 25 - Restoration of land used temporarily for construction
This requirement accommodates for the restoration of land used temporarily for construction. However, it does not take into account the remediation of land temporarily used for construction. For example, remediation measures would need to be undertaken for fuel and oil spillages. We therefore recommend that this requirement is revised to accommodate for remediation of the land temporarily used for construction.