

S.73 APPLICATION TO VARY CONDITIONS 3 AND 4

ENVIRONMENTAL STATEMENT ADDENDUM

CHAPTER 12: HYDROGEOLOGY

**Ffos-y-Fran Land Reclamation Scheme, East of Merthyr
Tydfil CF48 4AE**

Merthyr (South Wales) Limited

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12.1.0 Introduction

S.73 Application Context

- 12.1.1 Planning permission for the operational surface coal mine at Ffos-y-Fran was originally granted under planning permission ref. A-PP 152-07-014 ('the original application'). The description of development was as follows:

"Application by Miller Argent (south Wales) Limited for the Ffos-y-Fran Land Reclamation Scheme, incorporating the extraction of coal by open cast methods, and being the final phase of the east Merthyr Reclamation Scheme."

- 12.1.2 The above permission was subsequently varied under a S.73 planning application (application ref. P/08/0316) which sought consent for:

"[The] Variation of condition 37 of planning permission A-PP 152-07-014 to permit the limited dispatch by road of up to 5% of the annual output of coal from the Ffos-y-Fran land reclamation scheme or a maximum of 50,000 tonnes of coal per annum (whichever is the lesser) via Cwmbargoed Disposal Point."

- 12.1.3 The application was refused by Merthyr Tydfil County Borough Council but the proposals were subsequently allowed at Appeal (Appeal ref. APP/U6925/A/10/2129921). The Appeal Decision was issued by an appointed Inspector on the 11th of March 2011 and contained a comprehensive list of updated conditions, thereby superseding the original planning permission for the site as detailed above (permission ref. A-PP 152-07-014).

- 12.1.4 The purpose of this S.73 application is to allow for an extension to the lifespan of the mine. As such, the application seeks to vary the following conditions as contained within Appeal Ref. APP/U6925/A/10/2129921:

- **Condition 3** – "All coal extraction from the development hereby permitted shall cease no later than 06 September 2022"; and
- **Condition 4** – "Final restoration of the land shall be completed no later than 06 December 2024 and aftercare shall be undertaken for a period of not less than 5 years upon certification of completion of each phase of the progressive restoration scheme."

- 12.1.5 The S.73 application, as submitted, seeks to extend the lifespan of the minerals' extraction by a further 9 months. As such, the timescales stipulated within the above conditions will be varied to match this extended life span for the mine. No alterations are proposed to the extraction area or working practices at the mine as previously consented.

Consideration of S.73 Application

- 12.1.6 Extension to the lifespan of the minerals' extraction by 9 months is the sole consideration of the S.73 application and its implication for the original hydrogeological impact assessment. No other alterations to the original application are proposed and as such are not considered in the application.

- 12.1.7 The following information was submitted in support of the original application (ref. A-PP 152-07-

014) for minerals consent at the site:

- Planning Application Submission, including Forms, Notices & Certificates, Application Drawings by Leek & Weston Ltd (Planning Agent) ; and
- Environmental Statement, including Chapter 12: Hydrogeology, under the Town and County Planning Act 1990

12.1.8 A groundwater monitoring scheme was submitted to the Planning Authority to discharge Condition 44 of the permission. This included the location, number and depth of monitoring boreholes and the frequency of the monitoring of level, quality and the analytical suites required, prior to, during and after excavation and restoration.

- Miller Argent (10th August 2005) Ffos-y-Fran Land Reclamation Scheme Groundwater Monitoring Scheme for Discharge of Condition 44 Final.

12.1.9 The above technical assessments and associated documents have been reviewed in the undertaking of this Environmental Statement Addendum and the findings contained herein.

Purpose and Structure of Chapter

12.1.10 This chapter of the Environmental Statement Addendum (ESA) considers the impact of the proposed material amendments on the planning policy and context of the area.

12.1.11 Within this UES chapter, consideration is given to the following, within the context of the proposed material amendment:

- changes in legislation, policy and guidance relating to noise and vibration;
- changes in baseline conditions;
- changes in assessment of effects; and
- changes in proposed mitigation.

12.2.0 Methodology

- 12.2.1 This section describes the changes to legislation, guidance, and planning policy since the original application and describes the assessment methodology of Chapter 12 of the original ES.

Changes in Legislation, Guidance, and Planning Policy

Minerals Technical Advice Note 2 (MTAN2)

- 12.2.2 This sets out detailed advice on the mechanisms for delivering the policy for coal extraction through surface and underground working by mineral planning authorities (MPAs) and the coal mining industry. All mineral workings have the potential to affect the water environment by changes to the quantity and quality of surface or ground water resources. The advice note requires that careful risk assessment of the consequences of any adverse impact of extraction on the water environment is acceptable or that they can be made so by mitigation measures. This includes the impact of dewatering during the operational phase and the 'rebound' of groundwater levels during and after the restoration phase. This include the impact on groundwater resources and on water interests that rely on groundwater; ecological sites, river flow and water abstractions.

The Water Framework Directive

- 12.2.3 The key piece of Legislation that protects the UK's water environment is the European Union's Water Framework Directive (2000/60/EC), which has been transposed into law as 'The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. These regulations protect all elements of the water cycle and seeks to enhance the quality of groundwaters, surface waters, estuaries and coastal waters.

Good Practice Guidance

- 12.2.4 Relevant UK guidance on good practice for construction projects is detailed in the following documents:
- Control of Water Pollution from Construction Sites - Guide to Good Practice, CIRIA 2002; and
 - Environmental Good Practice on Site C741, CIRIA 2015.
- 12.2.5 The Pollution Prevention Guidelines (PPG), which were officially withdrawn on the 17th of December 2015, and their replacement guidance series Guidance for Pollution Prevention (GPPs) identified below provide environmental good practice guidance for England that are relevant to the proposals:
- GPP 1: Understanding your environmental responsibilities - good environmental practices (October 2020)
 - GPP 2: Above Ground Oil Storage Tanks (January 2018)
 - PPG 3: Use and Design of Oil Separators in Surface Water Drainage Systems (April 2006)
 - GPP 4: Treatment and disposal of wastewater where there is no connection to the public foul sewer (November 2017)

- GPP 5: Works and maintenance in or near water (January 2017)
- GPP 13: Vehicle washing and cleaning (April 2017)
- GPP 21: Pollution incident response planning (July 2017)
- GPP 22: Dealing with spills (October 2018)
- GPP 26: Safe storage - drums and intermediate bulk containers (February 2019)

Welsh Environmental and Water Policy

12.2.6 Key national policy relevant to the original application includes:

- Environment Act 1995, Chapter 1A, General functions of the agency and the Natural Resources Body for Wales

12.2.7 Key national policy relevant to the current application includes:

- the Natural Resources Wales local authority services and the water environment (<https://naturalresources.wales/media/2627/wfd-docs-eng.pdf>);
- the Welsh Government's Water Strategy for Wales: Supporting the sustainable management of our natural resources (<https://gov.wales/sites/default/files/publications/2019-06/water-strategy.pdf>);
- the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (UK) (<https://www.legislation.gov.uk/uksi/2017/571/contents/made>);
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (<https://www.legislation.gov.uk/uksi/2017/407/contents/made>);
- Flood and Water Management Act 2010 (UK) (<https://www.legislation.gov.uk/ukpga/2010/29/contents>); and
- The Welsh Government's Planning Policy Wales Ed. 11 February 2021 Chapters: 2, 3, 5 & 6 (https://gov.wales/sites/default/files/publications/2021-02/planning-policy-wales-edition-11_0.pdf).

Assessment Methodology

12.2.8 No specific assessment criteria were specified in the original ES. A conceptual site model was proposed based on the geological and hydrogeological setting of the site and informed by a site water balance. This was used to provide a qualitative assessment of potential impact and their likely severity.

Study Area

12.2.9 The study area included the excavation area of 92 hectares within a 229-hectare site, situated east of the then A4060 Merthyr Slip Road. Several observation boreholes were present within the site boundary at the time, however, data from boreholes located beyond the site boundary were also

referred to and the surface water catchments of Bargoed Taff, River Rhymney and Nant Morlais all of which could be impacted by site activities .

Assessment Criteria

- 12.2.10 There are no changes to the sensitivity criteria, magnitude of change (impact) or significance of effect from those set out within the original ES.
- 12.2.11 There are no changes to the sensitivity criteria from those set out within the original ES.

Mitigation Hierarchy

- 12.2.12 No Hierarchy for mitigation to avoid, reduce, remedy or compensate for any identified effects was presented in the original ES.

Effects Not Requiring Further Assessment

- 12.2.13 No effects have been identified that do not require further consideration within this ESA.

12.3.0 Changes in Baseline Conditions

Original ES Baseline

- 12.3.1 The baseline at the time of the original application were set out within Sections 12.5.1 to 12.5.17 of the original ES.

Original ES Future Baseline

- 12.3.2 The future baseline at the time of the original application were set out within Sections 12.6.1 to 12.7.5 of the original ES.

Current Baseline

- 12.3.3 The current baseline is formed by the operational minerals extraction site whereby approximately 90% of the originally proposed excavation area has been worked and at least partially restored, approximately 10% is open void and the remainder is yet to be worked.

Changes in Baseline

- 12.3.4 As detailed above, the baseline has changed as approximately 90% of the originally proposed excavation area has been worked and at least partially restored, approximately 10% is open void and the remainder is yet to be worked. Apart from the above, there has been no significant changes to the baseline presented in the original ES.

12.4.0 Assessment of Effects

- 12.4.1 The assessment of potential effects in the original ES considered the impact of the excavation and restoration of the site in Sections 12.6 and 12.7 respectively. Two potential options for the working of the site were considered; from south to north and from north to south. The site has been worked from south to north and only options relating to this method are summarised below.

Excavation Impacts

- 12.4.2 During dewatering of the excavation the proposed discharge will result in an increase in base flow in one or more of the outfalls to Nant Gyrawd, Nant Cwm Blacs and Nant Morlais valleys.
- 12.4.3 As coaling advances the excavation void will be progressively backfilled and this could affect the existing sub-pavement drainage system which is connected by shafts and cross measure drives to the Lower Four Feet and higher seams, to the east and south and possibly to the west of the excavation area.
- 12.4.4 Removal of the Dowlais Fault as part of the coaling operation could affect the overall distribution of groundwater between the aquifers to the north-east and south-west of the fault.
- 12.4.5 When dewatering of the excavation stops, the base flow in the Nant Morlais will decrease for a short period whilst water levels recover to the east of the 'barrier' within the excavation.
- 12.4.6 In addition to a potential effect on flows in the Nant Cwm outfall referred to above, a number of springs that provided dry weather base flows would be removed by the excavation works, but these will be replaced by water discharging from the water treatment facilities on site.
- 12.4.7 A number of springs that provided dry weather base flows would be removed by the excavation works, but it was stated that these will be replaced by water discharging from the water treatment facilities on site, so no significant impact was predicted.
- 12.4.8 It was stated that base flows within the Bargoed Taff and Nant Gyrawd would not be affected by pit dewatering as they are geographically and stratigraphically remote from the Site.

Restoration Impacts

- 12.4.9 It was concluded that the volume of infiltration carried by the sub-pavement drainage system and its associated reservoirs would be unaffected by the excavations once the restoration scheme is complete, although it was acknowledged that there may be some change to the balance of flows from particular outfalls.

Water Quality and Acid Rock Drainage Impacts

- 12.4.10 Potential impacts on water quality and from acid rock drainage (ARD) were also considered, the conclusions are summarised below:
- No significant concentrations of toxic or phytotoxic elements were, although low levels of possible leachate contaminants were identified, no significant impact on water quality from the working or restoration of the site was identified.
 - Due to the levels of alkalinity in the waters it was concluded that there is a high capacity for

the existing mine water to neutralise any potential acid rock drainage, and no significant impact was therefore predicted.

Additional Effects

- 12.4.11 No additional effects beyond those identified in the original ES are anticipated as no alterations are proposed to the extraction area or working practices at the mine as previously consented and the proposal is limited to an extension of the lifespan of the minerals' extraction by a further 9 months.

Additional Cumulative Effects

- 12.4.12 No direct/indirect effects, secondary, cumulative, short/medium/long term, permanent/temporary and beneficial/adverse effects are anticipated to arise from the proposal to extend the mines lifespan.

Consideration of Original ES

- 12.4.13 There are no changes or differences from the assessment of effects contained within the original ES

12.5.0 Requirement for Additional Mitigation or Monitoring

- 12.5.1 There is no requirement for any additional mitigation required beyond that outlined within the original ES.

Original ES Mitigation

- 12.5.2 A summary of the original ES mitigation is given below for the excavation and restoration phases of the project as well as the water quality and ARD impacts.

Excavation Impacts

- 12.5.3 It was considered that the overall dry weather quality of outfalls to Nant Gyrawd, Nant Cwm Blacs and Nant Morlais valleys would be improved along with that of the Taff downstream of its confluence, because the ratio of good quality mine water, to other inflows, would be increased.
- 12.5.4 The effectiveness of the sub-pavement drainage system would be maintained by the installation of granular backfill placed against old workings that lie along the toe of the south- eastern end wall and along the south side low wall up to a maximum elevation of 232m AOD. Any open shafts encountered in the Lower Four Feet pavement would also be filled with granular backfill up to pavement level so that water percolating through the backfill would continue to drain south-eastwards into the old workings drainage systems. This historic drainage system will therefore remain intact, and its drainage function will remain unimpaired.
- 12.5.5 The removal of the potentially low permeability Dowlais Fault would be mitigated, if necessary, by the installation of a 'barrier' of selected impermeable material with a nominal hydraulic conductivity of 10^{-9} m/s or less placed on the pavement of the basal seam and over the backfill low wall to an agreed level. This barrier would replace the Dowlais Fault, which was thought to act as an aquiclude or 'leaky' aquitard preventing or reducing flow across the fault.
- 12.5.6 Although base flow in the Nant Morlais will decrease for a short period after dewatering stops, whilst water levels recover to the east of the 'barrier' within the excavation, when water levels have recovered to c.260 m AOD east of the Dowlais Fault, water will again discharge to the drainage system and re-establish base flows in the Nant Morlais Culvert at a similar level to the pre-development situation.

Restoration Impacts

- 12.5.7 No restoration phase impacts were predicted.

Water Quality and Acid Rock Drainage Impacts

- 12.5.8 No water quality or ARD impacts were predicted.

Subsequent Mitigation or Monitoring

- 12.5.9 There has been subsequent monitoring undertaken as proposed in the Miller Argent (10th August 2005) Ffos-y-Fran Land Reclamation Scheme Groundwater Monitoring Scheme for Discharge of Condition 44, subject to operational constraints.

Alternate or Additional Mitigation and Monitoring

- 12.5.10 No additional mitigation or monitoring is required beyond that already proposed, to mitigate impacts from the proposal to extend the mine's lifespan by 9 months.

12.6.0 Residual Effects

12.6.1 No residual effects are anticipated beyond those identified within the original ES.

Consideration of Original ES

12.6.2 No residual effects were identified within the original ES.

12.7.0 Other Environmental Issues

12.7.1 This Section seeks to detail any considerations and environmental effects which have been identified with regard to the range of topics which have been introduced into EIA requirements through the EIA Regulations 2017. Where there are no such considerations or environmental effects, this is also specified below for clarity.

12.7.2 Please see Chapter 21 for a summary of the 'Other Environmental Issues' identified across all of the technical assessments undertaken and the Chapters prepared as part of the ES.

Other Environmental Issues of Relevance

Infrastructure

12.7.3 Not relevant to the topic.

Waste

12.7.4 Not relevant to the topic.

Population and Human Health

12.7.5 Not relevant to the topic.

Climate and Carbon Balance

12.7.6 Not relevant to the topic.

Risks of Major Accidents and/or Disasters

12.7.7 Not relevant to the topic.

Summary

12.7.8 No issues identified.

12.8.0 Summary of Effects

- 12.8.1 The site has been worked from south to north and only options relating to this method are summarised below.

Excavation Impacts

- 12.8.2 During dewatering of the excavation the proposed discharge will result in an increase in base flow in one or more of the outfalls to Nant Gyrawd, Nant Cwm Blacs and Nant Morlais valleys.
- 12.8.3 As coaling advances the excavation void will be progressively backfilled and this could affect the existing sub-pavement drainage system which is connected by shafts and cross measure drives to the Lower Four Feet and higher seams, to the east and south and possibly to the west of the excavation area.
- 12.8.4 Removal of the Dowlais Fault as part of the coaling operation could affect the overall distribution of groundwater between the aquifers to the north-east and south-west of the fault.
- 12.8.5 When dewatering of the excavation stops, the base flow in the Nant Morlais will decrease for a short period whilst water levels recover to the east of the 'barrier' within the excavation.
- 12.8.6 In addition to a potential effect on flows in the Nant Cwm outfall referred to above, a number of springs that provided dry weather base flows would be removed by the excavation works, but these will be replaced by water discharging from the water treatment facilities on site.
- 12.8.7 A number of springs that provided dry weather base flows would be removed by the excavation works, but it was stated that these will be replaced by water discharging from the water treatment facilities on site, so no significant impact was predicted.
- 12.8.8 It was stated that base flows within the Bargoed Taff and Nant Gyrawd would not be affected by pit dewatering as they are geographically and stratigraphically remote from the Site.

Restoration Impacts

- 12.8.9 It was concluded that the volume of infiltration carried by the sub-pavement drainage system and its associated reservoirs would be unaffected by the excavations once the restoration scheme is complete, although it was acknowledged that there may be some change to the balance of flows from particular outfalls.

Water Quality and Acid Rock Drainage Impacts

- 12.8.10 Potential impacts on water quality and from acid rock drainage (ARD) were also considered, the conclusions are summarised below:
- No significant concentrations of toxic or phytotoxic elements were, although low levels of possible leachate contaminants were identified, no significant impact on water quality from the working or restoration of the site was identified.
 - Due to the levels of alkalinity in the waters it was concluded that there is a high capacity for the existing mine water to neutralise any potential acid rock drainage, and no significant impact was therefore predicted.

12.9.0 Conclusions

- 12.9.1 The original ES identified potential impacts associated with baseflows to surface water courses and disruption of drainage to the historic sub-surface drainage system. Mitigation was proposed which included the discharge of dewatering water to streams and measures relating to the restoration of the site which would ensure that the current discharge to sub-surface drainage system would be maintained. No significant residual impacts were predicted.
- 12.9.2 Impacts on water quality and from acid rock drainage were not considered significant.
- 12.9.3 A groundwater monitoring schedule was submitted, and monitoring is ongoing and does not show any significant adverse impacts.

REFERENCES

- Miller Argent (May 2003) Ffos-y-fran Land Reclamation Scheme, Environmental Statement, Chapter 12 Hydrogeology.
- Miller Argent (10th August 2005) Ffos-y-fran Land Reclamation Scheme, Groundwater Monitoring Scheme for Discharge of Condition 44.

EUROPEAN OFFICES

United Kingdom

AYLESBURY

T: +44 (0)1844 337380

BELFAST

T: +44 (0)28 90732493

BRADFORD-ON-AVON

T: +44 (0)1225 309400

BRISTOL

T: +44 (0)117 9064280

CAMBRIDGE

T: + 44 (0)1223 813805

CARDIFF

T: +44 (0)2920 491010

CHELMSFORD

T: +44 (0)1245 392170

EDINBURGH

T: +44 (0)131 3356830

EXETER

T: + 44 (0)1392 490152

GLASGOW

T: +44 (0)141 3535037

GUILDFORD

T: +44 (0)1483 889800

LEEDS

T: +44 (0)113 2580650

LONDON

T: +44 (0)203 6915810

MAIDSTONE

T: +44 (0)1622 609242

MANCHESTER

T: +44 (0)161 8727564

NEWCASTLE UPON TYNE

T: +44 (0)191 2611966

NOTTINGHAM

T: +44 (0)115 9647280

SHEFFIELD

T: +44 (0)114 2455153

SHREWSBURY

T: +44 (0)1743 239250

STAFFORD

T: +44 (0)1785 241755

STIRLING

T: +44 (0)1786 239900

WORCESTER

T: +44 (0)1905 751310

Ireland

DUBLIN

T: + 353 (0)1 296 4667

France

GRENOBLE

T: +33 (0)4 76 70 93 41