

mining management system

Waste and Water Management

1 INTRODUCTION AND SCOPE

1.1 Contents

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1.2 The objectives of this procedure are to: -

- To maximise re-use and recycling of materials
- To minimise the quantity and impact of waste
- To maintain water and groundwater quality
- To prevent pollution of ground and watercourses

1.3 This procedure applies to Cwmbargoed Disposal Point and the Ffos-y-fran Land Reclamation Scheme,

2 RESPONSIBILITIES

Operations Manager (OM)/ Coal Processing Manager (CPM) OM/ CPM and delegated Staff.	Ensure that all reasonable environmental controls, consents, and other associated procedures are implemented and used on site
>	Monitor environmental performance and advise to ensure that this procedure is implemented on site. Ensure relevant information & instructions are given to those working on behalf of <i>Merthyr (South Wales) Ltd</i> to control water management.

3 PLANNING FOR WASTE AND WATER MANAGEMENT

- 3.1 The OM/CPM shall Maintain and address all Planning Consent requirements relating to waste generated by the mining process and discharges from site.
- 3.2 The OM shall maintain compliance with the Mine Waste Directive, including
- Preparation of an EMMS (Extractive Minerals Management Statement)
 - Obtaining verification from an appropriate Verifier
 - Submission and approval by NRW (formerly Environment Agency)
 - Updating when necessary
- 3.3 >The OM and delegated personnel shall maintain compliance with the The Water Abstraction (Transitional Provisions) Regulations 2017 for Mine dewatering activities, including
- Obtaining and maintaining the sites NRW Licence for de-watering activities, including the

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- transfer of mine water to water treatments areas by pumping operations
 - environmental monitoring of water transferred (pumped) from the mine into water treatment areas and off site via discharge points
- 3.4 The OM/CPM shall plan to minimise mains water usage in the design of plant and other water consuming equipment and practices, including
- Recycling of water where processes permit
 - Collection and use of surface water and groundwater where practicable, and abstraction/transfer where appropriate
- 3.5 The OM/CPM shall address water supply, abstraction/transfer, and consents required to maintain an adequate and reliable water supply.
- 3.6 > The OM and CPM shall ensure all reasonable measures are taken to ensure water is discharged from the Cwmbargoed D.P. & Ffos-y-fran Land Reclamation Scheme in accordance with permit consents

4 GROUNDWATER MONITORING AND DISCHARGE

- 4.1 Note – this procedure monitors using indicative trigger levels based on historic data, agreed with the NRW, which in many cases may be different from levels normally considered acceptable. They are not absolute but are indicative limits.
- 4.2 The OM shall maintain a suitable groundwater (including surface water) monitoring scheme in compliance with the Planning Consent Condition 44 and other requirements (e.g. for any Planning Applications or Planning Audits or at the request of the NRW), and shall arrange monitoring boreholes and sampling facilities as necessary.
- 4.3 The OM shall procure suitable accredited testing facilities and plan to store data for inspection on request.
- 4.4 **Ffos-y-fran** - The Site Engineer shall sample boreholes and watercourses as follows: - Condition 44 Groundwater Monitoring Plan Dips – Near to every solstice and equinox every 3 months, from boreholes and surface sample points. Additional testing to be undertaken after extreme rainfall or extreme dry spells, and where determined by the OM or as agreed with the NRW.
- 4.5 >**Nant Llesg** – When instructed by the OM, the Site Engineer shall plan to sample boreholes and watercourses as follows: - Nant Llesg investigatory baseline monitoring – quarterly sampling for chemical tests and dips, or as otherwise instructed by the OM.
- 4.6 Once samples have been collected, the Site Engineer shall complete a chain of custody record and send the samples to an accredited laboratory for analysis for the full suite of determinants agreed with the NRW, and obtain the resulting test results back from the lab.
- 4.7 The Site Engineer shall maintain a suitable excel spread sheet for the collation and analysis of results including tests, indicative and absolute trigger levels and test results, using conditional formatting to highlight individual results above the trigger levels, where appropriate (note - a single result is not in itself a trigger but warrants further investigation following the next set of results).
- 4.8 The OM or delegated personnel, shall review the most recent set of results, identifying if any

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trigger levels have been exceeded. A CAR Form CP14-1 shall be used to record any exceedances of trigger levels.

- 4.9 The OM where necessary shall analyse trigger events in context, which may include considering: -
- The pattern of historical results
 - Comparison to historic results
 - Comparison of site upstream results
 - Any site activities which may influence results
 - Previous discussions with the NRW
 - Any actions which may be necessary to mitigate effects
 - Whether the trigger level is a statutory or indicative limit
- 4.10 If necessary, the OM shall assess, brief and appoint an external specialist consultant to provide further analysis or advice regarding any particular results of concern.
- 4.11 The OM shall provide results of the monitoring and sampling to the NRW on request, for inspection at any time and shall liaise with the NRW in the event of any unexpected results of concern, including communicating information where significant unexpected or unexplained trigger levels have been breached.

5 WATER AND LAGOON MONITORING AND DISCHARGE

Planning for water management

- 5.1 Before any surface mine or disposal point can operate it must obtain Water Discharge Consents/permits from the NRW to discharge water into any off-site stream or watercourse.
- 5.2 The OM/CPM shall ensure that suitable settling lagoons are designed, constructed and maintained, to ensure water can be discharged in accordance with permit conditions.
- 5.3 Automatic fixed water monitoring equipment, where installed, shall be maintained and calibrated as far as is reasonably practicable. The OM/CPM shall ensure alternative monitoring systems are established should there be any operational issues with automatic systems. As a minimum this should be regular daily inspections and daily samples of water from the discharge points, which shall be tested for pH, checked for clarity and recorded on CP63 – 1H (Mine Lagoon Inspection Sheet) and CP63 – 2D (DP lagoon Inspection Sheet).
- 5.4 Automatic storm overflow monitoring equipment, where installed, shall be maintained and calibrated as far as is reasonably practicable. The OM/CPM shall ensure alternative monitoring systems are established should there be any operational issues with automatic systems.
- 5.5 The OM/CPM shall ensure that temporary and permanent systems of water management are developed to prevent the uncontrolled discharge of water off site, including emergency actions to be taken in the event of oil/chemical/fuel spillage and a method of de-silting lagoons, prior to them becoming ineffective.

Daily Inspections and Routine Water Monitoring

- 5.6 Lagoons and discharge points shall be inspected daily by pumpsmen (site) and person nominated by CPM (D.P.), as follows: -

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- As a minimum daily inspections or at the change of every shift.
 - Additional inspections shall be undertaken in the event of adverse weather or if lagoons are discharging.
 - Inspections shall include all areas of the water treatment areas including environmental issues (e.g. evidence of oils/greases), fencing & gates, security, pond liners, integrity of banks, provision of life buoys and other health, safety and environmental issues including any wildlife or pond life.
 - Inspection of flocking stations and caustic soda dosing facilities, ensuring sufficient chemicals are available for use at all times and dealing with any potential spillages.
 - Samples of water shall be taken from discharge points which are flowing. Samples shall be taken in 'clean' bottles which shall be labelled with the location, date and time the sample was taken. Samples from the site shall be delivered to the environmental office for further inspection and analysis.
- 5.7 Pumpsman (site) and person nominated by CPM (D.P.) shall check the quality and quantity of effluent flowing into water treatment areas and apply flocculant and/or caustic soda (D.P. only) as required, in accordance with manufacturers guidelines. Regular checks of dosing rates, settlement rates and quality of discharge must be carried out to ensure quality limits are met and there is no overdosing of chemicals.
- 5.8 Water samples shall be visually checked for clarity and contamination by any foreign bodies (e.g. oils/greases) by the pumpsman (site) and person nominated by CPM (D.P.) and the results recorded on CP63 – 1H (Mine Lagoon Inspection Sheet) and CP63 – 2D (DP lagoon Inspection Sheet).
- 5.9 The designated personnel shall test the samples delivered to the environmental office for pH and clarity and shall record & file the results on the appropriate form. The pumpsman in the Disposal Point shall be issued with pH meters which shall be regularly calibrated and checked. Samples shall be immediately checked at point of source in the Disposal Point for pH due to the nature of the operations carried out involving coal which has the potential to cause fluctuations in pH if it is not managed correctly.
- 5.10 In the event of pH exceeding the trigger point at the discharge point ;
- A spot sample shall be taken immediately and re-tested for pH using hand held pH meters.
 - If this sample does not fall within the set criteria of >5pH <9pH it shall be sent with the 'Chain of Custody' sheet for testing by a UKAS Accredited Laboratory. On receipt of the results, the designated personnel shall use these results for assessing compliance
- 5.11 If any visual inspection or pH test indicates discharge of a quality which is thought to be approaching, over or outside the consented limits, the pumpsman shall check the overflow and if flowing shall note the fact and take no further action. If not, take a spot sample of the discharge immediately and report the matter to a Supervisor, the General Foreman, OM or CPM. The pumpsman shall take all reasonable measures to stop or reduce the volume of water being discharged via the outlet to minimise any adverse impact to off-site watercourses. This may include ;
- closing the hydro-break ;
 - diverting water to another water treatment area, providing sufficient storage is available ;
 - diverting water into a containment area ;
 - diverting water into the operational void ;
 - increasing or decreasing the volume or concentration of flocculants or caustic soda (D.P. only) with respect to the volume of water treated, and the nature of any potential breach

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- in limits ;
 - pumping water back from the outlet lagoons to attenuation ponds or other containment areas.
 - Soaking up or sucking up spillages with a bowser to remove potential area of contamination if found to be the source of the problem
- 5.12 The spot sample shall be taken in a clean bottle and delivered to the Environmental office where a visual inspection shall be carried out by the designated personnel using a Palin test Turbidity Tube. If the sample is determined as having a turbidity level of <50 a photograph of the sample shall be taken and recorded on the spreadsheet and no further action is required. If the sample is determined to have a turbidity of >50 it shall be sent with the 'Chain of Custody' sheet for testing by a UKAS Accredited Laboratory, for analysis of the criteria specified on the consents (pH and suspended solids). On receipt of the results, the designated personnel shall use these results for assessing compliance.

Mine De-watering operations

- 5.13 The OM or designated personnel shall put measures in place to ensure that any mine water pumped into water treatment areas, as part of the mine de-watering process, complies with the requirements of the permit granted by the NRW before being discharged into off-site watercourses.
- 5.14 The OM shall ensure that the quality of the mine water being transferred by pump into lagoon discharge points are inspected daily by pumpsmen, as follows: -
- While pumps are in operation, pumpsmen will conduct ongoing visual inspection of the water being pumped from the mine to lagoons – specifically monitoring the clarity of the water
 - Samples shall be taken daily at intervals when the lagoon is discharging
 - Samples will be recorded using form CP63-1
 - If possible, water will be allowed to settle in the void before pumping as clean as possible to water treatment areas. Flocculation can be added if required, prior to entry to the attenuation pond. Dosing and settlement rates must be monitored by pumpsmen and adjusted as required to ensure discharge permit conditions are met and no over-dosing takes place.
- 5.15 Where a discharge point is not flowing or is out of use for operational reasons, no sample shall be taken, and 'no flow' recorded on the log.
- 5.16 During long periods of dry weather it may be possible for iron to precipitate out in the main sump prior to pumping and in water treatment areas. Pumpsmen shall monitor and report any discoloration of water indicating that precipitation is taking place (i.e. yellow or orange in colour) to a Supervisor, General Foreman, OM or CPM (in the D.P.). The General Foreman and OM (CPM in the D.P.) shall immediately inspect the water and implement remedial measures, consulting the NRW as considered necessary.

Monthly Laboratory Testing

- 5.17 The designated personnel shall, at the beginning of each month:-
- Take spot samples from all Consented Discharge Points in the Site and the D.P. where water is flowing. Use only clean sample bottles. Wash out the bottle with water and then fill the sample bottle. In the event of a "dipper" being used to fill the bottle it must also be completely clean.

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- Record on a Sampling 'Chain of Custody' sheet provided by a test house
- Record on Water Spot Check Sampling form CP63-3, and state 'no-flow' where not running at the time of sampling
- Submit the samples with the 'Chain of Custody' sheet to a UKAS Accredited test house, for analysis of the criteria specified on the consents (pH and suspended solids)
- Receive the test results and log onto Water Spot Check Sampling form CP63-3
- If noncompliant, use CAR form CP14-1 and immediately send Water Spot Check Sampling form CP63-3 to the NRW Compliance Officer.
- If compliant, send the Water Spot Check Sampling form CP63-3 to the NRW (formerly Environment Agency) Compliance Officer for information before the end of the following month
- NRW review and send back a Compliance Assessment Record
- Review and file the Compliance Assessment Record, and use CAR form CP14-1 if apparent breach detected.

6 Monthly Storm Flow Recording

- 5.19 The designated personnel shall ensure that storm overflow events are monitored and recorded on CP63-4 6-Monthly Storm Overflow Event Record, showing
- The dates and times of the storm over flow events are recorded
 - Where no storm overflow events occurred this is also recorded on CP63-4 6-Monthly Storm Overflow Event Record and submitted to the NRW on a six-monthly basis

Water Discharge Incidents

- 5.20 The designated personnel shall ensure that in the event of an incident, in which the appearance or circumstances suggest that any lagoon or discharge point is outside Consent Conditions, the following are carried out:
- Additional samples shall be taken for chemical analysis
 - Use only clean sample bottles. Wash out the bottle with water and then fill the sample bottle. In the event of a "dipper" being used to fill the bottle it must also be completely clean.
 - If reagent overdosing is suspected at a lagoon treatment system then the pH of the water shall be analysed, using hand held pH meters.
 - Samples shall be labelled with location, date and time.
 - Samples shall be despatched for testing by a UKAS Accredited Laboratory
 - If noncompliant, use CAR form CP14-1 and immediately send Water Spot Check Sampling form CP63-3 to the NRW Compliance Officer.

NRW Checks

- 5.21 The NRW conduct monthly (or otherwise at their discretion) spot checks to monitor water management and sample consented discharge points and shall coordinate and arrange assistance for such visits.
- 5.22 The designated personnel shall monitor results of water monitoring and advise the OM/CPM accordingly of any concerns, agree and take actions as needed, and monitor their effectiveness.

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Annual Maintenance Mine

- 5.23 The OM shall ensure that attenuation ponds and lagoons are pumped down and cleaned if inspections identify the need, recording the quantity of silt removed and deposited in the backfill as authorised by the Mine Waste Directive.

Annual Maintenance DP

- 5.24 The CPM shall ensure that DP attenuation ponds and lagoons are pumped down and cleaned if inspections identify the need, recording the quantity of silt removed. Depending on the nature of the material removed from the ponds in the D.P. the CPM shall take samples and decide whether the silt contains sufficient coal to warrant storing, drying and blending according to customer requirements. If insufficient coal is contained within the silt, it shall be transferred down the mine and deposited in the backfill. The CPM shall issue a toolbox talk prior to each desilting operation taking into consideration weather & ground conditions and environmental controls and complete the CP63 – 5 inspection form on completion of the operation.

6 WASTE AND RECYCLING

- 6.1 The principle in waste minimisation is:-
- Reduce (the need to use it in the first place)
 - Reuse (used items for similar purposes)
 - Recycle (if you cannot reuse)
 - That which remains is waste
- 6.2 The OM/CPM shall plan for waste management and disposal, taking into account
- Safety/Environmental legislation
 - Waste minimisation
 - The need/advantage of segregation
 - Waste disposal locations
 - Waste disposal costs
 - Subcontractor's waste
 - Hazardous Waste, including Registration with NRW
- 6.3 **Site waste** - The Plant Managers (supported by the OM/CPM and Finance Controller as needed) shall ensure that waste is segregated in as much as practicable, to optimise recycling (some via subcontractors), as follows: -

6.4

Category	Disposal method
Site wastes segregated	
Oil	Collect, via Slickers Recycling, or other registered Company, for disposal as Hazardous Waste
Oil filters	Collect, via Slickers Recycling, or other registered Company, for disposal as Hazardous Waste
Oily rags, spill clean ups, etc	Collect, via Slickers Recycling, or other registered Company, for disposal as Hazardous Waste
Grease gun cartridges	Collect, via Slickers Recycling, or other registered Company, for disposal as Hazardous Waste
Metals	Collect, for sale for recycling, via Owners Representative

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Large Batteries	Collect, for sale for recycling via Owners Representative.
Small Batteries	Collect, for recycling, via office, by Caerphilly CB Council
Tyres	Collect, store on site, while seeking environmentally and commercially sound disposal route, via Owners Representative & Cost Accountant. Remold tyres wherever possible, using Rosler Tyres.
Residual 'General' Waste	To landfill by Caerphilly CB Council
Used IBCs	Collection for re-use
Timber	Separated when significant, for firewood/re use/recycling

6.5 **Office waste** - The Environmental Officer (supported by the *Office Manager* as needed) shall ensure that unwanted office materials are collected and segregated in separate bins, as much as practicable, to optimise recycling, as follows: -

6.6

Category	Disposal method
Office and Welfare wastes segregated	
Paper/Cans/Glass/Plastics	Collect for separation and recycling by Caerphilly CB Council
Copier and print cartridges	Collect for charity recycling
Small Batteries	Collect for recycling, via office, by Caerphilly CB Council
Fluorescent tubes	Collect together for disposal as Hazardous Waste
Residual 'General' Waste	Bins in kitchens, to landfill by Caerphilly CB Council

6.7 **IT used equipment** - The designated Personnel shall ensure that surplus or broken Electrical and Electronic Equipment (potentially WEEE) is segregated, as follows:-

Category	Disposal method
Servers and PCs	Collect, store temporarily in the office, transport to a location for disc cleaning, and onward disposal, normally for re-use
Any other surplus or broken Electrical and Electronic Equipment	Collect, store temporarily in the office, transport to a location for repair, re-use or onward disposal, to disposal facility licensed to handle WEEE.

6.8 The Person (see above for who is responsible) consigning any waste shall ensure that any hauliers, sub-contractors or other disposal arrangements procured are authorised to do so, in line with one of the following guidance notes:

- **Council waste collectors** For offices the council will collect waste. In this case no further checking is required.
- **Registered Waste Carriers** of waste (unless exempt) have to be registered. Ask for a copy and check the carrier's certificate of registration.
- **Exempt Waste Carriers** Not all waste carriers have to be registered. The main exceptions are charities and voluntary organisations. If told that someone is exempt ask for a copy of a certificate to show this, and satisfy yourself that this is correct and appropriate.
- **Holders of waste disposal or waste management licenses** Some licenses are only valid for certain kinds of waste or certain activities. Ask for a copy of the license. Check that it covers your type of waste.
- **Persons who are exempt from the requirement to have waste disposal or waste**

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management licenses There are exemptions for very specific activities and types of waste. If someone claims not to need a license, ask for a copy of this evidence, and check that the exemptions apply in their case.

- 6.9 The person consigning any waste shall ensure that a Controlled Waste Transfer provided by carrier is used and all boxes completed in conjunction with the haulier/sub-contractor/disposer of the waste at or before the time of transfer of the waste, including the relevant 6 digit European Waste Catalogue reference number. Retain a copy for records and pass a copy to the subcontractor/haulier/disposer.

Note, when all waste is of similar type it is only necessary to issue one Waste Transfer note providing that all loads are carried by the same contractor and are going to the same location. State the commencing and termination date, which may be up to a maximum of 1 year.

- 6.10 The person consigning any waste shall retain records sufficient to demonstrate that waste was disposed of legally, i.e.
- Identification of the Waste (incl six digit EWC reference)
 - Waste Transfer Note / Waste Consignment Notes, accounting for all the waste
 - Copy of Waste Carriers Licenses
 - Copy of Waste Management Licenses for the tip
 - Exemption certificates where above are not required
 - Commercial Department keep records relating to the disposal of WEEE

7.0 RE-USE OF MATERIALS

- 7.1 The OM/Senior Engineer shall ensure that the site design optimises the re-use of materials, by balancing excavated and re-used topsoil, spoil, Soil Forming Material and other material as far as possible.

8 SUSPECTED CONTAMINATED LAND

- 8.1 Site staff shall isolate any suspected contaminated land found and contact the OM for further investigation and instruction. Consideration shall be given to securely fencing the land and posting warning notices if considered necessary.
- 8.2 The OM shall investigate the possible contamination, considering:
- Land use Current and intended future use
 - Source The contamination present on the site – for examples gases, oils, tar, chemicals from previous industrial use
 - Pathway The route and method by which the contamination could move - for example in groundwater flowing through permeable soil to a watercourse
 - Receptor A place or situation to which the contamination might move and pollute
- 8.3 The OM shall establish the degree and nature of any work required involving the contaminated land and;
- Obtain written agreement with the regulatory bodies
 - Use external specialist consultants or contractors as appropriate

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9 FLY TIPPING

- 9.1 Staff shall inform the Supervisor, General Foreman, OM/CPM of any fly tipping observed on Merthyr (South Wales) Ltd land. Fly tipping adjacent to the site is also recorded by diary entries/photos and information may be passed onto the authorities for action.

10 WATER USE

- 10.1 The OM/CPM shall minimise mains water usage as far as is reasonably practicable through implementation of appropriate water management practices, currently: -

10.2

Water Using Process	Water source
Road sweepers	Mains water
Wheel wash	Recycled water
DP stock sprays	Recycled water
Mine fog cannons	Mains water or mine pond water
Mine dust suppression	Mine pond water
DP washing plants	Recycled water
Site barrel washing plant	Recycled water
Office and welfare water supply	Mains water

11 DOCUMENTATION

CP63-1 RevH	Mine Lagoon Inspection Sheet
CP63-2 RevD	DP Lagoon Inspection Sheet
CP63-3 RevB	Water Spot Check Sampling
CP63-4 RevB	6 Monthly Storm Overflow Event Record
CP63-5 RevA	Desilting of disposal point lagoons inspection sheet