

Enforceable Undertaking

Section 336E of the *Water Management Act 2000*

1. Parties

Name: Natural Resources Access Regulator
Notice details 4 Parramatta Square
12 Darcy Avenue, Parramatta NSW 2150
Lisa Stockley
Attention Grant Barnes, Chief Regulatory Officer

Name Illawarra Coal Holdings Pty Ltd
ACN/ABN ACN 093 857 286 of Illawarra Coal Holdings Pty Ltd
Notice details PO Box 514 Unanderra NSW 2526 gary.m.brassington@South32.net
Attention Gary Brassington

2. Background

- 2.1 The Natural Resources Access Regulator (**NRAR**) created by the *Natural Resources Access Regulator Act 2017* (NSW) (**NRAR Act**) is the regulator responsible for compliance and enforcement measures for natural resources management legislation in New South Wales. It has responsibility for compliance and enforcement of the specified functions of the Minister administering the *Water Management Act 2000* (**WM Act**) as specified in Schedule 2 of the NRAR Act. Section 336E of the WM Act (read with section 11 of the NRAR Act) empowers NRAR to accept enforceable undertakings from parties alleged to have breached the WM Act.
- 2.2 Illawarra Coal Holdings Pty Ltd ACN 093 857 286 (**IC**) is an Australian company which was registered on 21 July 2000 and carries out approved underground coal mine operations and associated surface facilities and infrastructure at the Dendrobium Coal Mine. These operations are undertaken in accordance with Development Consent DA 60-03-2001 (as modified), consolidated coal lease No 768, environmental protection licence No. 3241, as well as the Approval Decision EPBC 2001/214.
- 2.3 IC holds aquifer water access licences in connection with its underground operations at the Dendrobium Coal Mine. IC did not hold any surface water licences for surface water take at the Dendrobium Coal Mine for the 2018-2019, 2019-2020, 2020-2021, 2021-

2022 and 2022-2023 water years. As such, the Dendrobium Coal Mine did not directly account for surface water take across those water years under the WM Act.

- 2.4 NRAR is concerned that by not holding a water access licence for surface water take at the Dendrobium Coal Mine for the 2018-2019, 2019-2020, 2020-2021, 2021-2022 and 2022-2023 water years, IC has breached section 60A of the WM Act.
- 2.5 IC acknowledges NRAR's allegations concerning the conduct referred to in paragraph 2.4 and undertakes to carry out the commitments and preventative measures which are set out in this Enforceable Undertaking.
- 2.6 IC has offered the commitments set out in this Enforceable Undertaking.
- 2.7 This Enforceable Undertaking has been prepared in accordance with and satisfies the specific requirements for an undertaking contained in NRAR's Enforceable Undertakings Guideline.
- 2.8 IC and relevant water agencies were in contact since at least 2015, seeking a resolution or position on how to appropriately account for and have appropriate licences in place for incidental surface water take.

Background to licensing implementation

- 2.9 The *Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources 2011* (the **Water Sharing Plan**) was introduced in 2011, several years after the approval of the Dendrobium Coal Mine. Due to the Dendrobium Coal Mine being located in an area where all available water licences under the Water Sharing Plan were allocated to other water users, there were no surface water licences available to IC to account for its incidental surface water take at the Dendrobium mine.
- 2.10 IC has been seeking a resolution on how to appropriately account for and have appropriate access licences in place for surface water take at the Dendrobium Coal Mine.
- 2.11 IC purchased licences in the underlying Water Sharing Plan to seek to account for the volume of water (groundwater and surface water) entering the mine workings. IC's expenditure to secure these licences between 2015 and 2019 was \$5.6M.
- 2.12 In 2019 the NSW Government adopted all of the recommendations of the Independent Expert Panel for Mining in the Catchment (**IEPMC**), including to establish a new licensing regime for mines operating in the Greater Sydney Drinking Water Catchment to obtain entitlements for incidental surface water take.
- 2.13 NRAR agrees with the IEPMC assessment of and methodology for estimating surface water losses. NRAR does not agree with IC's estimates of incidental surface water losses over the water years relevant to this Enforceable Undertaking. Notwithstanding this, NRAR generally considers that IC's undertakings in this Enforceable Undertaking

are reasonable compensation for the alleged water take in the circumstances known to NRAR as at the date of this Enforceable Undertaking.

- 2.14 The January 2022 status update of key actions from the Mining in the Catchment Action Plan announced by the NSW Government noted the establishment of the licensing and offsetting regime to account for incidental surface water losses. This regime included amendments to the Water Sharing Plan to permit WaterNSW to trade a portion of its water allocations to mines in the Greater Sydney Water Catchment Woronora and Metropolitan Special Areas so that the incidental surface water taken by mines in the Catchment can be licensed.
- 2.15 On 2 March 2023, the *Access Licence Dealing Principles (Special Areas) Amendment Order 2023* dated 22 February 2023 was published (**Amendment Order 2023**). The Amendment Order 2023 amended clause 17 of the *Access Licence Dealing Principles Order 2004*, providing a mechanism for assignment of water allocations from a Water NSW Licence to an unregulated river access licence held by a mine (subject to conditions).
- 2.16 IC made an application for a zero-share WAL on 20 March 2023. At the date of execution of this Enforceable Undertaking, the application remains under assessment.
- 2.17 NRAR acknowledges IC's ongoing efforts to secure appropriate licences under the WM Act for its take and use of surface water in connection with mining operations.

3. Start of this Undertaking

- 3.1 This Enforceable Undertaking comes into effect when:
 - (a) this Enforceable Undertaking is executed by IC; and
 - (b) this Enforceable Undertaking so executed is accepted by NRAR.(the **Commencement Date**)

4. Undertakings

- 4.1. IC commits to the following undertakings, for the purposes of section 336E of the WM Act and section 11 and Schedule 2 of the NRAR Act.
- 4.2. IC agrees to fulfill its obligations by the dates specified in this Enforceable Undertaking or a later date agreed in writing by NRAR. Where IC is unable to meet the obligation by the date due, IC will by notice in writing with reasons and before the obligation due date, seek to vary the obligation due date. IC assumes NRAR will not unreasonably withhold agreement in circumstances where the delay is beyond the control of IC.

Undertaking 1: Donation/contribution for public benefit

- 4.3. IC undertakes to contribute \$2,878,138 (exclusive of GST) for the purpose of delivering a local community project (**Community Project**) linked to waterway or wetlands restoration and management outside of the mine footprint. Details of the Community Project are addressed in Undertaking 2.
- 4.4. Within 28 days of the Commencement Date, IC will provide NRAR with an unconditional and irrevocable bank guarantee in favour of NRAR in the amount of \$2,878,138 issued by one of Australia and New Zealand Banking Group Limited, Commonwealth Bank of Australia, National Australia Bank Limited or Westpac Banking Corporation in a form and substance that is satisfactory to NRAR in its absolute discretion, as security for the undertaking at 4.3 and Undertaking 2. The bank guarantee is to remain in place until completion of the Community Project (subject to 4.5). The form of the bank guarantee is provided at Schedule 5.
- 4.5. The bank guarantee at 4.4 may be replaced or removed as follows, subject to NRAR's satisfaction that the funds have been expended in accordance with the accepted Community Project proposal:
- (a) Upon 50% of the funds being expended for the Community Project, IC may replace the bank guarantee for an amount being 50% of the original.
 - (b) Upon 75% of the funds being expended for the Community Project, IC may replace the bank guarantee for an amount being 25% of the original.
 - (c) Upon 100% of the funds being expended for the Community Project IC may remove any bank guarantee and is not required to replace it.
- 4.6. NRAR may make a claim or demand on the bank guarantee provided under this Enforceable Undertaking without notice to IC if:
- (a) IC is in breach (or alleged breach) of any of its obligations in Undertaking 2 or the undertaking at 4.3; or
 - (b) IC has not provided an acceptable Community Project proposal to NRAR by 1 July 2024.

Undertaking 2: Community Project

- 4.7. IC undertakes to provide a detailed Community Project proposal for the undertaking at 4.3.
- 4.8. The accepted Community Project proposal is to form part of this Enforceable Undertaking and will be included as a schedule to this Enforceable Undertaking once accepted by NRAR.
- 4.9. The Community Project must be carried out by IC or a third party subject to the terms of this Enforceable Undertaking, and the accepted Community Project proposal. If a third

party carries out the Community Project, IC is not released from its obligations under the Enforceable Undertaking. IC must ensure that any third party:

- (a) carries out the Community Project in accordance with the accepted Community Project proposal agreed between NRAR and IC;
- (b) is properly qualified, experienced and competent to carry out the Community Project; and
- (c) is engaged under contractual obligations acceptable to NRAR.

4.10. **Timing**

- (a) Within 3 months of the Commencement Date IC will provide the Community Project proposal to NRAR for its consideration of acceptance;
- (b) IC will commence delivery of the Community Project within 3 months of the date of NRAR's acceptance of the Community Project proposal.
- (c) IC will provide a report on the completed delivery of the Community Project within 3 months of the completion of the Community Project.

4.11. **Defining the characteristics**

IC must ensure that the Community Project fulfils the following objectives:

- (a) will improve the health of waterways or wetlands restoration and management outside of the Dendrobium Mine footprint;
- (b) aims to protect the cultural values of waterways in the local area and will involve and require consultation with the local Aboriginal community;
- (c) will not incorporate actions already required to be undertaken by IC under a development consent or environmental protection licence (but may complement any such existing actions); and
- (d) will otherwise reflect and promote the water management principles in section 5 of the WM Act and the objects in section 3 of the WM Act.

4.12. **Process**

- (a) NRAR may decline to accept the Community Project proposal if it does not satisfy the identified characteristics at 4.11 or if (in NRAR's opinion) it is otherwise not an appropriate regulatory outcome.
- (b) IC assumes that NRAR, as a government agency, will act reasonably and in good faith in assessing the Community Project proposal.
- (c) If NRAR declines the Community Project Proposal IC will:
 - i. provide NRAR with an amended or new Community Project proposal within 30 days after NRAR's written notice to IC that the Community Project proposal is not acceptable; and

- ii. act in good faith and use all reasonable efforts to do all things necessary in relation to preparation of a Community Project proposal which meets NRAR's reasonable satisfaction.

4.13. **Proposal details**

IC will include the following in the Community Project proposal:

- (a) a detailed schedule of proposed work to be carried out under the Community Project outlining key milestones and timeframes for meeting those milestones (including the proposed completion date for the Community Project);
- (b) an estimated cost for all proposed work in relation to the Community Project totalling to the amount in 4.3 and an outline for spending which identifies how funds will be allocated and reported against each milestone to allow for the periodic reduction or removal of the bank guarantee as set out at 4.5;
- (c) an explanation of how the Community Project meets the defining characteristics as set out at 4.11;
- (d) a warranty that the recipient of the funds (if applicable) has the capacity to carry out the Community Project;
- (e) a warranty that IC will seek any relevant approvals (or ensure that a relevant third party warrants it has capacity to seek those approvals) to undertake the Community Project;
- (f) proposed governance arrangements in place for the purposes of managing and reporting to NRAR on the expenditure of the monetary contribution in accordance with the identified milestones for the Community Project; and
- (g) a mechanism for the independent audit of expenditure of funds at agreed intervals with such funds included in the costs of the Community Project.

- 4.14. Any external publication or communications relating to the Community Project will carry a disclaimer notice that the Community Project is being funded and implemented in relation to the Enforceable Undertaking.

Undertaking 3: Publication

- 4.15. IC, at its own expense, undertakes to place a notice agreed with NRAR, as set out in Schedule 3, in publications identified at 4.16 of this Enforceable Undertaking, within 6 weeks of the Commencement Date.
- 4.16. IC undertakes to place the agreed notice in Schedule 3 in or on the following publications:
- (a) IC's "Community Portal" on its website and IC's annual report for 2023;
 - (b) The Australian Financial Review;
 - (c) The Illawarra Mercury; and

- (d) An industry publication nominated by IC, to be accepted by NRAR.

Undertaking 4: Amendments and improvements to estimating surface water losses

- 4.17. IC undertakes to provide NRAR publicly available briefing papers with a focus on technology and practices that could lead to improvements in water monitoring in the mining industry, and achieve better industry regulation. The briefing papers may consider and report on the following:
- (a) measured and modelled surface water losses;
 - (b) investigation of technologies and techniques that could lead to improvements in surface water monitoring in the mining industry;
 - (c) the alignment of proposed technology with water reporting in mining; and
 - (d) the progress and outcomes of any technological solution.
- 4.18. IC will provide the briefing papers referred to at 4.17 to NRAR annually within a month of the Commencement Date. The first briefing paper will be provided within a month of the anniversary of the Commencement Date. The briefing papers will be provided until 1 July 2027.
- 4.19. IC will make the briefing papers publicly accessible, with publication of the briefing papers on its website within 30 days of provision to NRAR.
- 4.20. IC commits to reviewing and updating the mine Groundwater Model required under development consent 60-03-2001 to improve surface water loss estimates from the Dendrobium Coal Mine based on improved stream flow gauging and using emerging technology, in accordance with the timeframes and reporting framework in the methodology set out in Schedule 4.
- 4.21. Schedule 4 may be amended from time to time by agreement in writing between IC and NRAR. Any accepted amendments to Schedule 4 are to form part of this Enforceable Undertaking.

Undertaking 5: Consultation with the local Aboriginal community

- 4.22. IC undertakes to commence consultation with the local Aboriginal community (being the Aboriginal community connected to the area where the Community Project will be undertaken) about the Community Project.
- 4.23. IC will include in the Community Project proposal the following:
- (a) how it has identified the Aboriginal community connected to the area of the Community Project and how that community was invited to consult;
 - (b) the consultation undertaken to date;
 - (c) the organisations, groups and/or individuals consulted;

- (d) feedback received in relation to the Community Project and how this had been considered in the Community Project proposal;
- (e) how any future or ongoing consultation will be staged and delivered; and
- (f) how incorporation of discussions about past and future surface water losses is to be addressed in the Community Project.

4.24. IC will provide NRAR with further written updates in accordance with 4.23(a)-(f) within 28 days of a written request from NRAR seeking an update.

5. Reporting of compliance

5.1. IC undertakes to issue NRAR with an initial written report by 3 months of the Commencement Date, and every 3 months or as otherwise agreed by NRAR thereafter until satisfaction of each of the undertakings evidencing the progress of and compliance with the undertakings contained in this Enforceable Undertaking. The obligations are separate to the reporting requirements in Undertaking 2.

6. Payment of costs

6.1. Within 28 days after the Commencement Date and the provision of an invoice, IC will reimburse NRAR in the sum of \$50,000 being agreed costs associated with investigation and legal costs associated with the alleged contravention.

6.2. Within 28 days after the Commencement Date and the provision of an invoice, IC will reimburse NRAR in the sum of \$20,000, or other reasonable amount agreed with IC upon acceptance of a Community Project proposal, being agreed costs associated with the future monitoring, compliance and ongoing management of this Enforceable Undertaking.

7. Acknowledgments

7.1. IC acknowledges the following:

- (a) IC's conduct resulted in a likely contravention of the WM Act, and is making a positive commitment to address NRAR's concern about the alleged contravention.
- (b) NRAR may make this undertaking public including by publishing it on NRAR's website and on NRAR's public register about enforcement action maintained under the NRAR Act on the Commencement Date, referring to its terms and to the concerns of the NRAR which led to its execution.

- (c) NRAR will, from time to time, make public reference to this Enforceable Undertaking including in news media statements, media releases and in NRAR's publications.
- (d) This Enforceable Undertaking in no way derogates from the rights and remedies available to any other person or entity arising from the alleged conduct, nor does it affect any statutory obligation under the WM Act.
- (e) This Enforceable Undertaking does not affect the ability of NRAR to take any other enforceable action for the contravention or alleged contravention of the WM Act to which this Enforceable Undertaking relates.
- (f) This Enforceable Undertaking does not affect NRAR's power to investigate a contravention arising from future conduct or to pursue a criminal prosecution in respect of future conduct, or to lay charges or exercise other civil or regulatory powers under the NRAR Act or WM Act.
- (g) In any communications that IC makes referring to the projects subject of this Enforceable Undertaking, IC will note that the projects were carried out under this Enforceable Undertaking and that it was entered into as a result of the alleged breaches.
- (h) IC has read and understood NRAR's Enforceable Undertakings Guideline.
- (i) No expenditure commitments made by IC in this Enforceable Undertaking may be claimed as tax deductions.
- (j) This Enforceable Undertaking has no operative force until formally accepted by NRAR and written notice of the decision (including reasons for the decision) are provided to IC in accordance with section 336F of the WM Act.
- (k) This Enforceable Undertaking may only be withdrawn or varied with the written consent of NRAR in accordance with the WM Act.
- (l) This Enforceable Undertaking, as it may be varied from time to time, will remain in force until completed or withdrawn in accordance with the WM Act.
- (m) NRAR may take this Enforceable Undertaking into account in regulatory matters under the WM Act.
- (n) IC further acknowledges that NRAR requires undertakings to contain new commitments only, and not expenditure commitments previously made or budgeted for prior to the undertaking being entered into. In light of this, IC has disclosed to NRAR that:
 - i. while expenditure has not yet been committed to the implementation and the contribution for public benefit (as outlined in Undertakings 1 and 2 of this Enforceable Undertaking) this was in the process of development at the time that this undertaking was accepted.



Executed as an Undertaking

Company

Executed by **Illawarra Coal Holdings Pty Ltd, 093 857 286** pursuant to section 127(1) of the *Corporations Act 2001* by:

Signature of director:

Name of director: Peter Baker

Date: 30 June 2023

Signature of ~~director~~/company secretary [delete as appropriate or delete this section if this is a sole director company]:

Name of ~~director~~/company secretary: Li Ching Delaney

Date: 30 June 2023

For the Natural Resources Access Regulator

Signature:

Accepted by the delegate for the Natural Resources Access Regulator pursuant to section 336E of the WM Act:

Name: **Grant Barnes**

Title: **Chief Regulatory Officer**

Natural Resources Access Regulator

Date: 30.06.2023

Schedule 1– Summary of commitments table

IC commits to undertake the following environmental protection activities:

Undertaking	Commitment	Description of Commitment	Anticipated timeframe
	Donation/contribution for public benefit	IC undertakes to contribute the \$2,878,138 (exclusive of GST) for the purpose of delivering a local community project which fulfills the objectives at 4.11 of the Enforceable Undertaking.	<ol style="list-style-type: none"> 1. This contribution is to be paid by the earlier of <ol style="list-style-type: none"> (a) the specified payment schedule as approved by NRAR in the Community Project proposal at 4.13(a)-(b); or (b) 3 years of the Commencement Date. 2. Within 28 days of the Commencement Date, IC will provide NRAR with an unconditional and irrevocable bank guarantee in favour of NRAR in the amount of \$2,878,138 in its absolute discretion, as security for the undertaking at 4.3 and Undertaking 2 (as detailed above at 4.4).
	Community project	<p>IC undertakes to deliver a community project, to be detailed in a Community project proposal and accepted by NRAR, which fulfills the following objectives:</p> <ol style="list-style-type: none"> (a) will improve the health of waterways or wetlands restoration and management outside of the Dendrobium Mine footprint; (b) aims to protect the cultural values of waterways in the local area and will involve and require consultation with the local Aboriginal community; (c) will not incorporate actions already required to be undertaken by IC under a development consent or environmental protection licence 	<p>IC undertakes to</p> <ol style="list-style-type: none"> 3. provide a detailed Community Project proposal for the undertaking at 4.3 within 3 months of the Commencement Date. 4. commence delivery of the Community Project within 3 months of the date of NRAR's acceptance of the Community Project proposal. 5. provide a report on the completed delivery of the Community Project within 3 months of the completion of the Community Project.

		(but may complement any such existing actions); and (d) will otherwise reflect and promote the water management principles in section 5 of the WM Act and the objects in section 3 of the WM Act.	
	Publication of undertaking	IC, at its own expense, undertakes to place a notice agreed with NRAR as set out in Schedule 3 in various publications at 4.16 within 6 weeks of the Commencement Date	Within 6 weeks of the Commencement Date.
	Water monitoring improvements	IC undertakes to provide NRAR with annual, publicly available, briefing papers with a focus on technology and practices that could lead to improvements in water monitoring in the mining industry, and achieve better industry regulation.	Annually until 1 July 2027.
	Consultation with the local Aboriginal community	IC undertakes to consult with the local Aboriginal community (being the Aboriginal community connected to the area where the Community Project will be undertaken) about the Community Project.	IC undertakes to: <ol style="list-style-type: none"> 1. Commence consultation with the local Aboriginal community (being the Aboriginal community connected to the area where the Community Project will be undertaken) about the Community Project. ; 2. Include in the Community Project proposal the details at 4.23 of the Enforceable Undertaking. 3. Provide NRAR with further written updates in accordance with 4.24 within 28 days of a request from NRAR in writing.
	Payment of costs	<ol style="list-style-type: none"> 1. IC will reimburse NRAR in the sum of \$50,000 being agreed costs associated with investigation and legal costs associated with the alleged contravention of the WM Act. 2. IC will reimburse NRAR in the sum of \$20,000 or other reasonable amount agreed with IC upon acceptance of a Community Project proposal, 	<ol style="list-style-type: none"> 1. Within 28 days after the Commencement Date and the provision of an invoice. 2. Within 28 days after acceptance of a Community Project proposal by NRAR.



Natural Resources Access Regulator

Natural Resources Access Regulator

Locked Bag 5022,

Parramatta NSW 2124

T 1800 633 362

www.nrar.nsw.gov.au

		being agreed costs associated with the future monitoring, compliance and ongoing management of this Enforceable Undertaking.	
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Schedule 2 – History of Ground Water and Surface Water Management at the Dendrobium Coal Mine

Date	NSW Government / NRAR / WaterNSW	Illawarra Coal Holdings Pty Ltd
2000	Water Management Act 2000 is introduced.	
2001		Dendrobium Coal Mine is approved by the NSW Government ¹ .
2011	The Water Sharing Plan is introduced in a manner that does not account for the approved Dendrobium Coal Mine operations.	
2015	Department of Primary Industries (DPI) Water advises IC that water licences should be held in the underlying Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011.	
2015		IC obtains sufficient groundwater licences to account for 100% of mine inflows (groundwater and surface water). IC does not (and cannot) obtain surface water licences at this time.
2018	NRAR commences an investigation into the Dendrobium Coal Mine.	
2019	The NSW Government accepts a recommendation from the IEPMC to establish a surface water licensing regime for mines in the catchment.	
May 2019	NRAR requests IC provide information regarding concerns that IC does not hold sufficient licences or approvals under the Water Management Act 2000.	
July 2019		IC provides relevant information to NRAR.



Date	NSW Government / NRAR / WaterNSW	Illawarra Coal Holdings Pty Ltd
January 2020		IC provides a draft Enforceable Undertaking for NRAR's consideration.
September 2020	NRAR does not accept the draft Enforceable Undertaking.	
December 2020		IC offers a revised draft Enforceable Undertaking for NRAR's consideration.
May 2021	WaterNSW accepts the use of measured water loss from monitored streams and the Dendrobium Coal Mine regional groundwater model for seepage losses to calculate the actual annual surface water no longer reporting to water storages.	
July 2021	The NSW Government accepts the use of measured water loss from monitored streams and the Dendrobium Coal Mine regional groundwater model for seepage losses to calculate the range estimates of annual surface water no longer reporting to water storages.	
January 2022	The NSW Government notes the establishment of the licensing regime to account for water losses is ongoing.	
March 2023	The NSW Government publishes Access Licence Dealing Principles (Special Areas) Amendment Order 2023.	
15 March 2023		IC submitted application for zero-share WAL and related licences

Schedule 3 – Agreed media notice

Illawarra Coal Holdings Pty Ltd undertakes to implement various environmental protection works in Wollongong, NSW

Illawarra Coal Holdings Pty Ltd (**IC**) has entered into an enforceable undertaking with the New South Wales Natural Resources Access Regulator (**NRAR**), following an investigation into the Dendrobium Coal Mine's modelled water usage, water management and water licencing arrangements.

NRAR alleged that IC did not hold surface water licences under the *Water Management Act 2000* (the Act) to authorise incidental surface water taken as a result of carrying out operations at the Dendrobium Coal Mine. As a result, IC has agreed to implement various environmental protection works and activities at the mine in order to regularise its operations and ensure compliance with the Act.

Environmental protection works will include, amongst other things, payment of a financial contribution to a third party, or IC carrying out works to the sum of the financial contribution, to undertake environmental protection works.

IC has published this notice in accordance with the enforceable undertaking.

Schedule 4– Methods to improve the quantification of incidental surface water losses at Dendrobium Coal Mine

Since 2007 IMC has made progress in improving surface water flow monitoring and measurements as follows:

- improving and replacing gauging infrastructure (e.g. installation and use of artificial weirs, as agreed to and supported by WaterNSW);
- installation of better (more accurate) water level sensors in stream pools;
- obtaining approval from WaterNSW to access Special Areas of the catchment during and following moderate to high rainfall periods to improve observed stream flow levels to flow conversions (the “rating curve”);
- Engaging with specialist hydrologist services to review hydrographic methods and procedures to reduce uncertainty and improve stream level and flow measurement and estimation;
- Understanding and quantifying stream level and flow measurement uncertainties to improve overall calculations and surface water estimates;
- Undertaking semi-quantitative flow observations at all watercourse sites, where more quantitative flow gauging is not practical.

Emerging technology

Despite the improvements described above, estimation of stream flow during and after high rainfall events is difficult, primarily due to technology limitations, access to catchment areas, and safety considerations. This has consequences for reliably estimating flow statistics, especially monthly/annual average (arithmetic mean) flow (or the average across other similar periods). This is because the average is strongly influenced by the highest flows that typically occur over 3-10 days per year, and uncertainty in measuring those high flows propagates large errors through to estimates of the change in average flow between different periods.

In discussion with specialist consultants, IMC is aware of technology and methods that would remove the need to manually measure high stream flows on the ground, and so remove the safety risk. These methods have developed over recent years and is gradually being introduced to industries including mining.

The technique, known as Image Velocimetry, uses cameras and software to monitor stream flow and estimate flow velocity. At Dendrobium Coal Mine this could be achieved from fixed positions or from drones, or using hand-held devices. A fixed installation, that does not need to be permanently installed, is considered most preferable.

Despite technological advances, estimating volumetric flow still relies on certain assumptions and calculations from the measured stream flow velocities, however the Image Velocimetry method also allows for essentially continuous monitoring of sites, rather than relying on periodic

visits by field staff. This will improve the quantification of the rating curve across a wider span of flow conditions.

IMC commits to investigating image velocimetry in parallel with further data acquisition methods to improve the current (standard) methods for measuring stream water level and estimating stream flow, i.e. including expanding on the database of measured flow and improving the level-flow relationship (the rating curve) for each of the monitoring sites at the mine.

Improved Analysis and Reporting

In addition to technological improvements in stream flow gauging methods and data-gathering, IMC will improve its data analysis and reporting as follows:

- Graphical display of rating curves and the more comprehensive data they are based on to include high stream flow gauging. This measure can include display of all historical rating curves, noting that the rating curve for gauging sites is updated periodically as new data is obtained;
- Tabulation and charting of flow gauging uncertainty, based on the methods developed by hydrological consultants for IMC. Examples of this are shown in End of Panel Surface Water and Shallow Groundwater Assessments (example: Appendix C of the End of Panel Surface Water and Shallow Groundwater Assessment: Longwall 18 (Area 3B) [HGEO, 2022]. This provides estimates of the ML/d and % error on estimates of flow obtained from the current rating curve. This would clearly show the change (improvement or reduction) in uncertainty due to improved flow gauging;
- using the above, it would be possible for IMC to illustrate how the uncertainty in stream flow gauging across the range affects estimates of annual median and annual average stream flows to guide an understanding in the potential reliability of changes in these statistics as used to report incidental surface water take. Based on this, it is possible that a hierarchy of flow statistics could be used for estimating surface water take as reliability improves over time, such as:
 - Median flow (flow exceeded 50% of the time = Q50);
 - Possibly some higher flow statistic (e.g. Q30);
 - Average flow (Qmean)

Timeframes

Within 3 months of the EU's execution date, IMC will purchase or hire equipment and install (subject to WaterNSW approval) at a trial site at the mine. The technology will require temporary setup of camera and associated equipment adjacent to existing stream flow gauging sites. Due to the temporary nature of the equipment, setup will ideally be using a temporary but stable structure (e.g. pole, frame, stable tree). Depending on the nature of the site, concrete footing and pole may need to be used however the former approach will be targeted initially and any installation will be subject to WaterNSW approvals.

Depending on the frequency of flow measurement, the trial at this site would extend for approximately another 3-6 months to ensure operation and monitoring procedures are in place, the adequate range of flow are captured, and the results can be input to the existing hydrological database held.

The objective of the trial is to collect data on stream flow ratings above where the current model is

calibrated by manual flow monitoring of flows including higher flow events. Once this data is captured, the equipment would be moved to other sites at the mine, either for more testing or (preferably) to collect calibration data at sites known to be impacted, i.e. are directly downstream from mining. Following use at the first 2-3 sites, evaluation and reporting of the method would be carried out and its effectiveness reviewed. If successful, the equipment would be rotated through other appropriate monitoring sites or additional units purchased and installed.

Pending the outcome of the initial trials, IMC commit to a program of progressive improvement of flow gauging reliability. We anticipate that rotation of the equipment approximately every 6-months likely required to capture an appropriate range of flows, especially higher flows, at each site. However, it is emphasised that this is dependent on weather conditions (e.g. a the El Nino conditions of 2017-19 resulted in no truly high flow events for approximately 32 months).

Reporting of outcomes

Evaluation

Initial reporting of outcomes would include information such as stream water levels and stream discharges to produce rating curves that can enable comparisons of post-image velocimetry rating curves with those prior to the use of velocimetry. Additionally, presenting data for gauge height and stream discharge and their uncertainties, pre- and post-velocimetry, would allow users and relevant agencies such as NRAR to understand the magnitude of improvements achieved.

Operational implementation

IMC will use the results to progressively update estimates of surface water loss (take) and provide written updates to NRAR and WaterNSW. These will be provided during End of Panel reporting or at least on an annual basis.



Schedule 5 – Bank Guarantee

Banker's Undertaking

Westpac	Westpac Banking Corporation (ABN 33 007 457 141)
Address for Service	ATT: Manager, Corporate Guarantees, Level 29, 275 Kent Street, Sydney NSW 2000 (or any other Westpac branch or office)
Favouree	Natural Resources Access Regulator (ABN 94 426 785 505)
Customer	
Purpose	for all of the obligations under the Enforceable Undertaking between Illawarra Coal Holdings Pty Ltd and the Natural Resources Access Regulator
Sum	
Date Issued	

1. Undertaking

In consideration of the Favouree accepting this undertaking, Westpac undertakes to pay the Sum to the Favouree on the terms of this undertaking when it receives a demand that meets the requirements in clause 2.

This undertaking continues until one of the following occurs:

- the Favouree gives Westpac written notice that it no longer requires the undertaking;
- the Favouree returns the original undertaking to Westpac;
- Westpac pays the Favouree the Sum (or any smaller amount the Favouree advises in writing will fully satisfy the undertaking); or
- 4:00 p.m. Sydney time on [Date to be agreed]

2. Demands

Demands must:

- be in writing;
- purport to be signed by the Favouree;
- be for the Sum or part of the Sum. If a demand is for part of the Sum, then the Favouree can make later demands for the balance of the Sum;
- be received by a Manager of Westpac at the Address for Service; and
- be received by Westpac before the Expiry Time.

3. Payment

When Westpac receives a demand it will pay promptly:

- despite any notice from the Customer not to pay; and
- to the Favouree's Australian bank account provided that the Favouree gives Westpac sufficient information to enable Westpac to identify that the bank account is in the name

Signed for and on behalf of

Westpac Banking Corporation by its
duly constituted Attorney

of the Favouree. If Westpac cannot do so (to Westpac's satisfaction) Westpac will make the payment by bank cheque payable to the Favouree.

Westpac can terminate this undertaking at any time by paying the Favouree:

- the Sum (or any smaller amount the Favouree advises in writing will fully satisfy the undertaking); or
- any balance of the Sum that remains after a previous part payment by Westpac to the Favouree.

Westpac is under a statutory duty to comply with sanctions laws and regulations mandatorily applicable to it. Transactions may be delayed, blocked or refused if not in compliance with the applicable anti-boycott, anti-money laundering, anti-terrorism, anti-drug trafficking and economic sanctions laws and regulations.

4. Assignment

The Favouree can assign or transfer all or any part of its rights under this undertaking but only if Westpac has received prior written notice of the assignment. Any assignment is only effective from the date Westpac confirms that it has updated its records with the details of the new Favouree

5. Multiple Favourees

- If there is more than one Favouree, this undertaking is for the Favourees' joint benefit.
- If one Favouree makes demand or gives notice, it is deemed to be a demand or notice from all of them. If Westpac pays one Favouree, this undertaking is discharged to all the Favourees to the extent of the amount paid by Westpac.

..... Name:
TIER THREE ATTORNEY, Book 4299, No.332, Dated 17
January, 2001