

BULGA OPEN CUT

GLENCORE

Mr Matthew Sprott
Director
Resource Assessments
GPO Box 39
Sydney NSW 2001

Dear Matthew

Bulga Coal management plan revisions and commencement of mining the Whybrow Wedge

As required by SSD-4960 Bulga Coal has commenced the revision of our management plans subsequent to the approval of SSD-4960 modification 3 and DA 376-8-2003 modification 7. Bulga Coal is seeking endorsement from the Planning Secretary to use the following list of suitable qualified and experienced persons to assist with the preparation of the revised management plans. Copies of their curriculum vitae's are attached.

SSD-4960

Blast Management Plan	Thomas Lewandowski, Enviro Strata Consulting Pty Ltd
Air Quality and Greenhouse Gas Management Plan	Shane Lakmaker, Jacobs
Water Management Plan	Anthony Marszalek, Hydro Engineering & Consulting Pty Ltd, previously approved by the Planning Secretary on 13/2/2020 (attached)
Biodiversity Management Plan	Rebecca Vere, Umwelt
Heritage Management Plan	Ben Churcher, Ozark
Rehabilitation Strategy	Adam Williams, SLR

DA 376-8-2003

Exploration Activities and Minor Surface Infrastructure Management Plan	Dorian Walsh, Hansen Bailey
Air Quality and Greenhouse Gas Management Plan	Shane Lakmaker, Jacobs
Noise Management Plan	Tony Welbourne, Global Acoustics

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Bulga Coal Management Pty Ltd ABN 48 055 534 391

For and on behalf of the Bulga Joint Venture

GLENCORE

Commencement of Mining the Whybrow Wedge

Bulga Coal is intending to commence mining of the Whybrow Wedge within the SSD-4960 modification 3 project approval boundary once we receive the corresponding EPBC approval. The Whybrow Wedge area shown in the attached figure was already approved for surface disturbance. This area has been cleared in accordance with Bulga Coal's Environment Managements Strategy most notably the Biodiversity, Aboriginal Cultural Heritage, Historic Heritage, Noise, Air Quality and Water management plans.

In accordance with SSD-4960 Schedule 5, condition 5C Bulga Coal is seeking written agreement from the Planning Secretary to commence mining within Whybrow Wedge section of the SSD-4960 modification 3 project approval area prior to having the the Noise, Blasting, Air Quality and Green House Gas and Water management plans revised and approved by the Planning Secretary. Bulga Coal commits to operating in accordance with the existing, revised and new conditions and criteria included in SSD-4960 modification 3. Bulga Coal has had continuous PM2.5 air quality monitoring within the communities of Broke and Bulga since 2014. The PM2.5 air quality monitoring is already included in the approved air quality management plan.

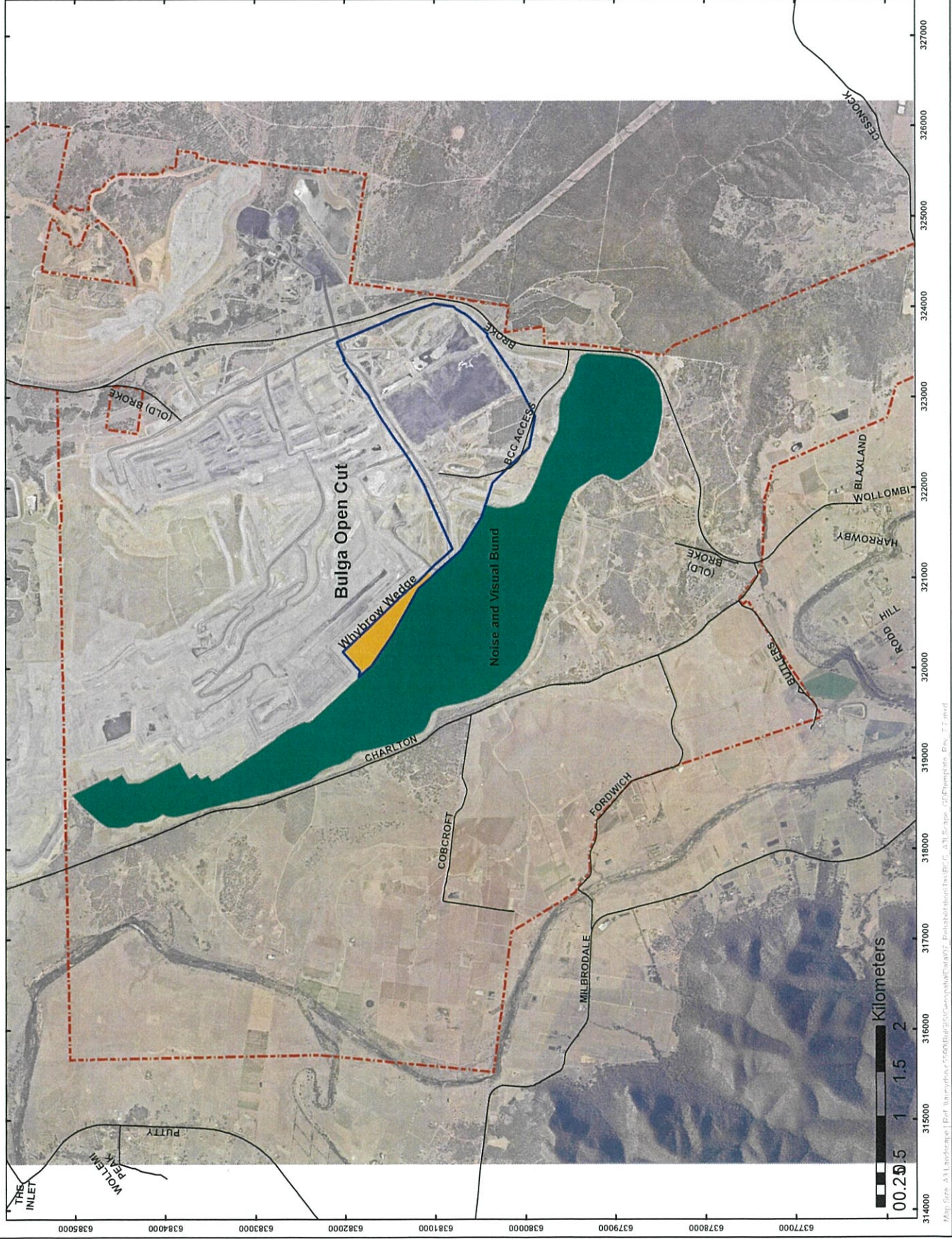
Bulga Coal understand it will likely received EPBC approval by the 11 September and would very much appreciate receiving written agreement from the Planning Secretary by this time if possible.

Do not hesitate to contact me should you have any queries.

Yours sincerely



Ralph Northey
Environment and Community Manager
Bulga Coal



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Received 10 July 1996, accepted 10 October 1996

Correspondence: Dr J. A. Roberts, School of Pharmacy, University of London, 29-39 Brunswick Square, London WC1N 1AX, UK.

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Coal Assets Australia
Glencore
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CURRICULUM VITAE

NAME: Thomas Lewandowski
ADDRESS: 24 Albert St.
Valentine NSW 2280
TEL: (02) 4946 1864
MOB: 0407 005 352
EMAIL: enviro.strata@gmail.com

Academic Qualifications:

POSTGRADUATE STUDY:

1996 - Master of Mining Management
University of Wollongong / UNSW

TERTIARY EDUCATION:

1991 - Bachelor of Mining Engineering (Hons.)
University of Wollongong

1990 – Student Exchange Program
University of Miami

Academic Involvement:

Member of the International Society of Explosives Engineers (ISEE)
Member of the AUSIMM
Member of the European Federation of Explosives Engineers (EFEE)

Professional Experience:

2006 – Present **Enviro Strata Consulting Pty Ltd**, Director and Principal Consultant.

In 2006 founded Enviro Strata Consulting Pty Ltd taking on the roles of director and principal consultant. The company specialises in blast impact, environmental and blast management studies for open cut and underground mines, construction groups and quarries.

The areas of expertise include:

ENVIRONMENTAL IMPACT STUDIES

- Blast impact studies for Environmental Impact Statements.
- Modelling of blast impacts on the surrounding environment in relation to proposed and existing mines.

MONITORING EQUIPMENT HIRE AND DATA MANAGEMENT

- Permanent and portable vibration monitoring system – equipment hire and data management.
- Fume monitoring system – equipment hire and data management.
- Velocity of Detonation (VOD) – equipment hire.
- Portable Weather Monitoring Units – equipment hire.

FUME STUDIES

- Fume monitoring system – equipment supply and data management.
- Fume impact monitoring studies.
- Assessment of the impacts of fumes on the environment, humans and underground mines.

FLYROCK

- Flyrock modelling and assessments.
- Consultancy in the area of flyrock impacts and minimisation.

EXCEEDANCES

- Environmental (ground vibration and overpressure) exceedance investigations.

INFRASTRUCTURE / WATER DAMS

- Assessment of allowable vibration limits for various infrastructure.
- Assessment of blast impacts on rock strata conditions and infrastructure, including conveyor belts, fans, buildings, power poles and others.
- Assessment of the impacts of blasting on water and tailings dams.

HISTORICAL SITES / INDIGENOUS SITES / GEOLOGICAL FEATURES

- Historical and Indigenous sites – assessment of allowable vibration limits and assessment of blast impacts.
- Caves and geological features – risk damage assessment and assessment of allowable vibration limits.

HOUSES AND STRUCTURES

- Dilapidation surveys.
- Investigations related to house and infrastructure damage caused by blasting.
- Vibration monitoring and house / structure response assessments.

RISK ASSESSMENTS / AUDITS / PROCEDURES

- Procedures – overview and development (including Blast Management Plans, Road Closure Management Plans, Blasting Procedures, Lightning Management Plans)
- Independent mine site audits.
- Consultancy in the area of blast risk assessment.
- Advice on monitoring station locations.

COMMUNITY

- Community presentations.

CONSTRUCTION BLASTING / PILE DRIVING / MOTOR TRAFFIC

- Consultancy in the area of construction blasting and pile driving.
- Vibrations monitoring of motor traffic and impact assessment.

OPEN CUT / UNDERGROUND MINE INTERACTION

- Assessment of allowable limits for underground workings and infrastructure.
- Managing interactions between open cut blasting and underground mines.
- Preparation of interaction procedures.

SPECIALISED BLASTING / UNUSUAL CONDITIONS

- Consultancy in the area of difficult blasting conditions (including hard / soft strata and fractured ground conditions).
- Consultancy in the area of shallow type blasting (i.e. (1 – 7) m holes) and management of blast impacts.
- Consultancy in the area of close range blasting and management of blast impacts.
- Consultancy in the area of blast impact minimisation - advising on minimising the impacts of blasting, including air / ground vibrations and flyrock.

SPECIALISED STUDIES

- Airblast overpressure and ground vibration predictive model development.
- Optimisation of initiation timing to minimise air and ground vibration impacts.

- Comparative air and ground vibration monitoring studies.
- Supplementary airblast overpressure and ground vibration monitoring (on request). including surface and underground measurements.
- Application of supplementary monitoring techniques including displacement / crack monitors, Velocity of Detonation (VOD), high speed photography, as well as fume monitoring for blast impact studies.
- Seed wave study.
- Assessment of local geological conditions on the level of ground vibrations.
- Assessment of blast product performance.
- Fragmentation studies and related consultancies.

Client List:

NSW – Hunter Valley

GLENCORE

- Beltana U/G
- Bulga U/G
- Bulga Open Cut
- Glencore Corporate
- Glendell Open Cut
- Integra U/G
- Liddell Open Cut
- Mangoola Open Cut
- Mount Owen Complex
- Ravensworth Open Cut
- Ravensworth North
- Ulan Open Cut
- United Underground
- United / Wambo

Other

- Abel Mine U/G (Donaldson)
- Ashton Open Cut
- Ashton U/G
- BHP Mt Arthur
- Ditchfield Contracting
- Downer EDI
- Drayton
- Duralie Coal
- EMM
- Hunter Valley Operations (HVO)
- Mount Pleasant (Thiess)
- Mount Thorley / Warkworth
- Muswellbrook Coal
- North Wambo U/G
- Orica
- Umwelt
- Wambo Peabody

NSW – Gunnedah

- Maules Creek
- Narrabri U/G
- Rockglen
- Tarrawonga
- Werris Creek
- Sunnyside

NSW – Western District

- Invincible
- Kerosene Vale
- Lamberts Gully
- Pine Dale

Tasmania

- VEC Civil Engineering

Quarries

- Lynwood Quarry
- Martins Creek Quarry
- Stone Ridge Quarry

AFRICA – Ghana

- Edikan Gold Mine (African Mining Services)
- Iduapriem Gold Mine (African Mining Services)

Past Experience:

1999 - 2006 Terrock Pty Ltd, Hunter Valley Regional Engineer

Servicing Hunter Valley and Melbourne regions including various open cut, quarry and underground mines. Dealing mainly with blast impact minimisation and blast improvements.

- Providing an ongoing vibration monitoring services to open cut and underground mines in Hunter Valley.
- Ongoing consulting services in the area of blast impact minimisation.
- New blast products testing and assessments.
- Exceedance investigations.
- ACARP project studies i.e. involvement in C9090 and C14057 projects.

1997 - 1999 Strata Engineering (Australia) Pty Ltd, Teralba Geotechnical Engineer

Servicing Newcastle and Lithgow regions including various underground coal mines. Dealing with variety of geotechnical issues.

- Providing an ongoing geotechnical monitoring, consulting and research services to various underground mines across NSW. The objective of the geotechnical monitoring was to improve and maximise mine safety and geotechnical stability.
- Implementation of new technologies and related mine personnel training.
- Client liaisons, data analysis and reporting.

1994 - 1997 BHP Research Newcastle / Drilling and Blasting Section, Mining Engineer

Servicing Wollongong, Queensland and Western Australia regions including open cut underground and dredging operations. Dealing mainly with drilling and blasting aspects of mining.

- Assessment of large-scale blasting via the use of various blast monitoring techniques i.e. high-speed photography, ground vibration and velocity of detonation measurements.
- Introduction of two-dimensional ground vibration analysis technique, and implementation of a control system for open cut mining.
- Assessment of geological structures on pre-split effectiveness.
- Application of surface drill monitoring technology to open cut and dredging operations and development of operating procedures for field engineers.
- Development and implementation of Intrinsically Safe computer hardware for underground drill monitoring technology.

1994 Geogas Pty Ltd consulting group, Wollongong, Mining Engineer

- Involved in underground ventilation surveys

1991 - 1994 **ACIRL Ltd** Research and Consulting group / Underground Geotechnical Engineering section, **Mining Engineer.**

Servicing Wollongong, Picton, Lithgow, and Queensland regions including underground coal mines. Dealing mainly with underground geotechnical aspects of mining.

- Providing geotechnical research and consultancy services for underground coal mines across NSW and Qld.
- Development and application of various underground monitoring techniques for efficiency and mine safety improvements.
- Implementation of numerical modelling programs as a supplementary tool for mine site monitoring.
- Installation of underground monitoring equipment, data analysis, reporting, and client liaison.

1990 - 1991 **German Creek Open Cut Mine**, Central Qld / Tech. Services Division of Shell, Undergraduate Mining Engineer

1988 - 1989 **Central Norseman Gold Corporation**, WA, underground gold mine operation, Undergraduate Mining Engineer

Publications:

RELEVANT BLASTING RELATED PUBLICATIONS:

1. "Close range blasting in adverse geotechnical conditions". Proc. 9th Int. World Conference Stockholm. European Federation of Explosives Engineers. T. Lewandowski, K. Nguyen, N. Doulai, L. Claassens 2017.
2. "How to deal with adverse geology to achieve better blasting outcomes". Proc. 7th Int. Conference Moscow. European Federation of Explosives Engineers. Lewandowski, T. Keith, G. Goldfinch, H. 2013.
3. "Vibrations and concrete behaviour". Proc. 6th Int. Conference Lisbon. European Federation of Explosives Engineers. T. Lewandowski, K. Nguyen, S. Wylie, T. Campbell 2011.
4. "The impact of geological features on level of ground vibrations". Proc. FRAGBLAST 9. Rock Fragmentation by Blasting – Granada 2009, Lewandowski, T, Richards, L, Hamson, L, Merchant, M, Spargo A, 2009.
5. "Impact of close range blasting on infrastructure and associated vibration management". Proc. 5th Int. Conference Budapest. European Federation of Explosives Engineers. T. Lewandowski, G. Cope, 2009
6. "Introducing a uniform blast management system for ground vibration control" Proc. 4th Int. Conference Vienna. European Federation of Explosives Engineers. Lewandowski T., Wylie S., Merchant M., Roxburgh A., 2007.
7. "Developing a blast management plan for open cut coal mine adjacent to an underground colliery". Proc. 8th Int. Symposia on Rock Fragmentation by Blasting. FRAGBLAST.8 Lewandowski T., Weeks G., Kelly P., - Santiago 2006, Editex S.A.
8. "The impact of surface blasting on underground opening – geotechnical assessment". Proc. 6th Fragmentation by Blasting FRAGBLAST 6, Johannesburg, 1999 – Lewandowski T., Keith G, Croucher M, Richards A,
9. "Influence of discontinuities on presplit effectiveness". Proc. Fragmentation by Blasting FRAGBLAST 5, Montreal, 1996. Lewandowski T., Mai L. Danell R.E.
10. "Influence of initiation sequences and geological factors on blast induced vibrations". Proc. 8th BHP Drilling and Blasting Seminar, Groote Eylandt 1995. Lewandowski T., Danell R.E.

RELEVANT GEOTECHNICAL PUBLICATIONS:

1. "Monitoring and bit location in rotary in-seam drilling". Proc. Int. Symposium on Management and Control of High Gas Emissions and Outbursts in Underground Coal Mines, Wollongong 1995. Danell R. E., Lewandowski T., McLeod C., Leung L.

2. "Instrumentation of roof support for colliery pillar extraction". Proc. Australian Conference on Geotechnical Instrumentation and Monitoring in Open Pit and Underground Mining, Kalgoorlie 1993 – Shepherd J., Lewandowski T.
3. "Modified Wongawilli extraction with mobile breaker line supports: preliminary geomechanics" article in The Australian Coal Journal, no. 38, pp. 41-47, 1992 – Shepherd J., Lewandowski T.



Shane Lakmaker

AIR QUALITY

Shane obtained a Bachelor of Technology (Atmospheric Science) degree from Macquarie University in 1997 and is a Principal (Air Quality) with Jacobs, based in Newcastle. He has over 20 years' experience in the environmental field with specific expertise in air dispersion modelling and air quality assessment, meteorology, greenhouse gas inventories and software development.

Most of Shane's career has involved the modelling and assessment of air quality impacts due to mining projects. He also has experience across a range of other industry sectors including power generation, transport infrastructure (roads, motorways and tunnels), waste management, and wastewater treatment. Shane is experienced in the use of a wide range of meteorological and air dispersion models (MM5, TAPM, CALPUFF, AERMOD, AUSPLUME, ISC, EDMS, CALINE, TAPM-CTM) and has installed over 30 meteorological stations.

EDUCATION / QUALIFICATIONS

Bachelor Technology (Atmospheric Science), 1997 Macquarie University, NSW.

MEMBERSHIPS AND AFFILIATIONS

Member of the Clean Air Society of Australia and New Zealand

LANGUAGES

English

OTHER

Principal (Air Quality)

2013 to present: Jacobs

2008 to 2013: SKM

1998 to 2008: Holmes Air Sciences

Areas of Expertise

- Air quality assessment and dispersion modelling
- Greenhouse gas inventories
- Meteorology
- Software development

Relevant Project Experience

- Completed air quality impact assessments for over 100 mining projects, many to support Environmental Impact Statements. These assessments involved the preparation of dust emission inventories, analysis of air quality monitoring data, meteorological data collection and air dispersion modelling for open-cut and underground mines. Recent examples include Bulga Modification 3, Mangoola Coal Continued Operations Project and Glendell Continued Operations Project.
- Preparation and review of Air Quality Management Plans. Examples include plans for Mt Owen Mine, Mangoola Mine, Collinsville Mine, Clermont Mine, United Wambo Mine.
- Audit of air quality compliance with approval conditions at mining operations, landfills, coal terminals. Examples include audits at Mt Arthur Mine, Mt Thorley Warkworth Mine, Hunter Valley Operations – North and South, Maules Creek mine, Moolarben Mine, Mangoola Mine and Newcastle Coal Infrastructure Group Coal Export Terminal.
- Developed and implemented site-specific meteorological, dust and noise forecasting systems. These systems created a greater awareness of potential environmental issues and was the winner of the 2013 NSW Minerals Council Environment & Community Excellence Award.
- Developed the Jacobs greenhouse gas activity and emissions management system, known as CarbonEasy™. CarbonEasy™ provides a simple interface between the activities of an organisation and its reporting requirements (compliance, legislative, and internal).
- Management of long-term dust monitoring programs.
- Installation and management of more than 30 weather stations around Australia, including data analysis, verification and monthly reporting.

- Peer reviews of air quality impact assessments.
- Air quality impact assessments for several major roadway projects in Australia including Brisbane North South Bypass Tunnel (EIS), Brisbane Airport Link Tunnel (EIS), Brisbane Northern Link Tunnel (EIS), Cross River Rail, Sydney Cross City Tunnel (EIS), Sydney Lane Cove Tunnel (EIS), M4 East Tunnel (Concept Design), and F3 to M2 (Concept Design).
- Air quality impact assessments for rail infrastructure projects including Maldon to Dombarton Rail Link, Cross River Rail, Lower Hunter Freight Corridor and Western Sydney Freight Line.
- Air quality assessment for the Brisbane Airport New Parallel Runway and Melbourne Airport Third Runway.
- Odour impact assessments for wastewater treatment plants (over 50), waste treatment and composting facilities.
- Air quality assessments for power generation projects including ENAP Refinery Cogeneration and Combined Cycle Project (Chile), Latrobe Valley Air Quality Control Region, Yallourn CCGT Power Station Project, Mt Piper Power Station Extension Project, Muja AB Power Station (Collie Region of WA). Modelling was undertaken using CALPUFF and TAPM, Munmorah power station OCGT, BlueScope Illawarra Co-generation Project (ICP) and others.
- Expert Witness in proceedings for Land and Environment Court, Independent Hearing and Assessment Panel, Commission of Inquiry, and Planning and Assessment Commission.

Published Papers

- Holmes K T and Lakmaker S (2000), "Queensland Cattle Feedlot Guidelines Revisited", Proceedings of Enviro 2000 Conference, Sydney 9-13 April 2000.
- Holmes K, Lakmaker S, Lott S and Patricks R (2003), "Accounting for feedlot management practices in odour dispersion modelling", Proceedings of National Clean Air Conference, Newcastle, 23-27 November 2003.
- Cox J, Holmes K, Lakmaker S, Beyers C, Richardson C, Lilley W and Camamo M (2007) "An Air Quality Screening Tool for Roadway Analysis", Proceedings of the 14th IUAPPA World Congress, Brisbane, QLD, September 2007.
- Holmes N and Lakmaker S (2007) "The Performance of Dispersion Models in Predicting Maximum 24-hour PM10 concentrations from Open Cut Mines", Proceedings of the 14th IUAPPA World Congress, Brisbane, QLD, September 2007.
- Holmes N, Lakmaker S and Richards A (2009) "Meteorological Modelling for the Hunter Valley", Proceedings of the 19th Clean Air and Environment Conference, Perth, WA, September 2009.
- Davies M, Lakmaker S and Marlin H (2009) "Issues associated with air quality assessment of ships", Proceedings of the 19th Clean Air and Environment Conference, Perth, WA, September 2009.
- Holmes N and Lakmaker S (2009) "Meteorological Modelling for the Hunter Valley", ACARP Research Project C12036.

- Holmes N and Lakmaker S (2012) "Use of Meteorological Models to Predict Dust Risk Indices for Mining Areas in the Hunter Valley", ACARP Research Project C19034.

Court related work

Shane has been an Expert Witness in proceedings for Land and Environment Court, Independent Hearing and Assessment Panel, Commission of Inquiry, and Planning and Assessment Commission. Experience includes:

- Melbourne Metro Rail Project IAC
- Drayton South Coal Project (Planning Assessment Commission). Provision of specialist advice to the Department of Planning and Infrastructure to assist with their assessment of air quality impacts relating to the Drayton South Coal Project.
- Anvil Hill Coal Project (Independent Hearing and Assessment Panel). Expert witness support for matters relating to potential dust impacts from the Anvil Hill Coal Mine Project.
- NCIG Coal Export Terminal (Independent Hearing and Assessment Panel). Expert witness on matters relating to dust from the proposed NCIG Coal Export Terminal (Kooragang Island).
- Rooty Hill Regional Distribution Centre (Land and Environment Court). Blacktown Council v Minster for Planning and Readymix. Expert witness for assessment of dust impacts from the Rooty Hill Regional Distribution Centre.
- Eastern Creek 2 landfill (Commission of Inquiry). Expert witness on matters relating to dust and odour from the Eastern Creek 2 landfill proposal.
- Moresload Quarry (Land and Environment Court). Provision of specialist advice to Port Stephens Council in Land and Environment Proceedings relating to the operation of the Moresload Quarry.

Reference/s

Nigel Holmes
Atmospheric Physicist
NH2 Dispersion Sciences
0412 619 718





Mr Ralph Northey
Environment and Community Manager

Private Mail Bag 8
SINGLETON, NSW, 2330

13/02/2020

Dear Mr Northey

**Bulga Optimisation Project (SSD 4960)
Approval of Water Expert**

I refer to your request for the Secretary's approval of suitably qualified persons to prepare a revised Site Water Management Plan for the Bulga Optimisation Project (SSD 4960).

The Department has reviewed the nomination and information you have provided and is satisfied that this expert is suitably qualified and experienced. Consequently, I can advise that the Secretary approves the appointment of Mr Anthony Marzsaleck of HEC Consulting to prepare the revised Site Water Management Plan.

If you wish to discuss the matter further, please contact Melanie Hollis on 8712 2043.

Yours sincerely

A handwritten signature in black ink, appearing to read 'M Sprott'.

Matthew Sprott
A/Director
Resource Assessments (Coal & Quarries)

As nominee of the Planning Secretary



Rebecca Vere

Principal Ecologist/NSW Lead – Post-Approval Management



With almost two decades of ecological consulting experience, Rebecca has gained detailed knowledge and experience in ecological impact assessment, biodiversity offsetting, impact mitigation/management, monitoring, ecosystem rehabilitation and conservation management.

In recent years, Rebecca has developed a particular focus in post-approval ecological management, where she aims to work with proponents to develop fit-for-purpose management plans with clear and achievable performance/completion criteria, design and complete robust monitoring programs to identify trends and threats to achieving biodiversity commitments and provide recommendations to maximise biodiversity gain through best-practice land management.

Most of Rebecca's experience in this field spans extractive industries (particularly mining), infrastructure and residential development projects, where her involvement has included constraints analysis and input into project design, field survey, impact assessment, mitigation and offsetting needs.

Rebecca specialises in post-approval ecological management, particularly designing and managing projects to satisfy State and Commonwealth approval conditions. Types of projects completed by Rebecca include authoring ecological, rehabilitation and biodiversity offset management plans, management of large tree felling operations, design and implementation of nest box and habitat augmentation programs, soil pathogen testing, on-ground ecological monitoring, addressing species-specific management issues, project modifications, translocation projects and research project design. She has prepared many ecologically focused operational procedures and designed reporting forms to ensure the capture of data in a clear and auditable manner.

Her long career in ecological consulting has furnished Rebecca with substantial experience in liaising with clients, stakeholders, government authorities and community groups.

Rebecca also has experience in conducting expert investigations into environmental incidents, including field surveys, determination of environmental harm and expert reporting/advice. She has also been involved in proceedings in the NSW Land and Environment Court, including support to an expert witness and as an expert witness herself.

Qualifications/Affiliations:	Master of Environmental Management, University of New England Bachelor of Science (Honours), University of New England Bachelor of Science, University of New England
Years Experience:	20
Specialisation:	Post-approval ecological management, including survey design and implementation, monitoring programs and biodiversity offsetting, design and implementation of post-approval management projects to achieve approval conditions at State and Commonwealth levels, large-scale tree felling and habitat augmentation programs, ecosystem rehabilitation and management plans.
Key Clients:	Glencore (multiple mine sites), Yancoal, Bloomfield Group, Centennial Coal

Relevant Project Experience

Approvals and Post-Approvals Works for Mangoola Mine | Mangoola Coal | 2009 to Current | Project Manager and Director | Wybong, NSW. Management and Direction of numerous post-approval requirements over more than a decade, Rebecca has developed excellent familiarity on the ecological management requirements of this large open cut mine, including initial approvals and offset planning, management plans, pre-clearing surveys and tree felling supervision of many hundreds of hectares, habitat augmentation advice, installation and monitoring of over 1000 nest boxes, translocation of threatened flora species, soil pathogen surveys, rehabilitation/revegetation and regeneration works, biodiversity monitoring and general ecological assistance to the Mine. Rebecca also prepared the Conservation Agreements to secure the biodiversity offsets in perpetuity. Rebecca has been the key ecological contact for management issues for the Mine over its current lifespan. This long-term involvement has provided Mangoola Coal with ongoing management benefits and cost efficiencies in achieving approval requirements at a State and Commonwealth level. **Project value: \$500,000. Key Contact: Damien Ryba, Damien.Ryba@glencore.com.au, 0419 329 930**

Approvals and Post-Approval Works for Liddell Coal Operations | Liddell Coal Operations Pty Limited | 2012 to current | Hunter Valley, NSW. Rebecca was responsible for the ecological assessment for the extension of the Liddell Coal Operations. This went through numerous assessment levels at the State and Commonwealth levels, including public exhibition, response to submissions, referral and Preliminary documentation. The project included an ecological assessment, preparation of an EPBC Referral, development and negotiation of a biodiversity offset strategy for impacts to MNES and preparation of a rehabilitation strategy. The offsetting outcomes of this project required the use of the Commonwealth offsetting calculator to identify the likely requirements for biodiversity offsetting at the Commonwealth level. Post-approval works have included development of detailed onsite and offset management plans and design and implementation of extensive ecological monitoring programs. This has spanned general biodiversity monitoring, as well as rehabilitation, nest box, aquatic, stygofauna and regeneration monitoring works. Rebecca has also designed and managed tree felling programs, translocation programs, soil pathogen testing and habitat augmentation programs for this site. Rebecca also prepared the Conservation Agreements to secure the biodiversity offsets in perpetuity. **Project value: \$350,000. Key Contact: Mikayla Henderson, 02 6570 9923, Mikayla.Henderson@glencore.com.au**

Ecological Assessment and Expert Witness Support for Ulan Coal | Xstrata Coal | 2008 to 2010 | Mudgee, NSW. Rebecca was the project manager responsible for the delivery of an ecological assessment for a proposed open cut and underground mine extension at Ulan. This included field survey, reporting, impact assessment and development of a biodiversity offset strategy under Part 3A of the NSW EP&A Act. It also involved preparation of an EPBC Referral due to impacts to MNES, followed by Preliminary Documentation due to a declared controlled action. The project achieved approval at State and Federal levels, however was subject to a process-based appeal on the validity of the State approval. On this, Rebecca provided detailed support for the Expert Witness for the proceedings, which resulted in the approval being upheld, with minor additions to the biodiversity offset package.

Delta Electricity | Biodiversity and Weed Management Assessments | 2014 – 2017 | Project Director | Eraring NSW. Project direction for biodiversity monitoring project for two offset areas in the Eraring area. Works included field survey, reporting and assessment in accordance with project approval conditions. In addition, this project included assessment of weed management requirements, design of action plan to control target species, and will include follow up monitoring to assess the efficacy of the management works.

Four Mile Pty Limited (Bloomfield Group) | Rehabilitation Monitoring | 2019 | Project Director | Singleton NSW. The Biennial Bloomfield Rehabilitation Monitoring Program assesses the rehabilitation progress of rehabilitated pasture and woodland across two large coal mines in the Hunter Valley; Rix's Creek Coal Mine in Singleton and Bloomfield Colliery, south of Maitland. Umwelt conducted the monitoring program in 2019 across 76 sites, which involved site walkovers, photo monitoring, floristic data collection, biometric data collection and soil sampling, and preparation of two rehabilitation monitoring reports. Landscape Function Analysis and Land and Soil Capability assessments were at the core of this program, with results informing the post-mining performance of rehabilitated land on a landscape scale. **Project value: \$55,000. Key Contact: Greg Lamb, 02 4930 2689, glamb@bloomcoll.com.au**

Guidelines for the Mitigation of Coal Mining Impacts on Biodiversity | Office of Environment and Heritage | 2013 to 2014 | Upper Hunter Strategic Assessment. Rebecca managed the preparation of a guideline for biodiversity mitigation measures for the Biodiversity Plan for coal mining in the Upper Hunter under a strategic assessment agreed by the Australian and NSW governments. It documented a range of mitigation measures recognised for reducing coal mining and vegetation clearing impacts on local biodiversity including weed management, translocation of flora species, fauna-friendly fencing and comprehensive protocols for pre-clearance surveys and tree-felling supervision. The report was prepared with input from OEH and industry representatives and Rebecca was integral in consulting with these stakeholders on the suitability of mitigation actions for coal mining operations in the Upper Hunter.

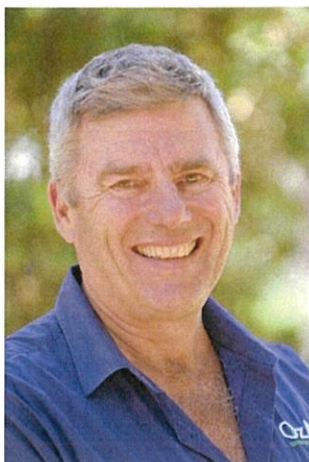
Austar Coal Mine | Various Post-Approval Ecological Tasks | 2009 – Current. Hunter Valley, NSW. Rebecca has been responsible for the ecological survey, impact assessment and reporting for a variety of projects required for the Austar Mine. This has included approvals documentation, management plans, tree clearing programs, ecological burn advice, rehabilitation monitoring and aquatic monitoring. Infrastructure projects have included surface and buried pipelines, access tracks/roads, powerlines and associated buildings and structures. This has led to impact assessments for a variety of threatened flora and fauna species, endangered populations and endangered ecological communities. Advice has been provided on methods to avoid or minimise impacts. **Project value: \$150,000. Key Contact: Carly McCormack, 02 49937334, Carly.McCormack@yancoal.com.au**

New Air Combat Capabilities Project | Williamtown RAAF | Lend Lease | 2014 – 2018 | Project Director | Williamtown RAAF Base, NSW. Rebecca is the Project Director for the current clearing works at the Williamtown RAAF Base for the New Air Combat Capabilities (NACC) Project. This project has required provision of a number of ecological services, including pre-clearing surveys, habitat identification and marking, tree felling supervision, advice on mitigation for fauna species and reporting. This has been a long-running project, often requiring a flexible resource base with limited notice. One of the key requirements of this project is awareness of and strict adherence to security protocols and fieldwork procedures. Rebecca is highly experienced in managing field staff operating under such conditions.

Borehole Rehabilitation Monitoring | Integra Underground | Glencore | 2018 - Current | Project Director | Singleton, NSW. Rebecca has been the Project Director for this ongoing monitoring project which involves ecological monitoring 42 borehole rehabilitation sites. This comprised a combination of ecological monitoring requirements including floristic assessment, land stability and soil monitoring.

MR BEN CHURCHER

Principal Archaeologist



Ben, Principal Archaeologist with OzArk Environment & Heritage, has over 36 years' experience as an archaeologist and has been employed with OzArk since 2003. His duties include project director on large scale survey and excavation programs. Ben has written numerous comprehensive reports concerning Aboriginal and historic heritage across NSW including the assessment of scientific values for a number of complex State Significant projects. Ben's extensive work overseas includes the University of Sydney's excavations at the site of Pella in Jordan where

he holds the position of Field Director. He has also worked on a range of projects in Australia focusing primarily on Aboriginal cultural heritage but he also has a keen interest in historical sites. Ben is also the primary reviewer of archaeological reports written by OzArk staff to ensure their high quality and consistent approach.

MAJOR PROJECTS

2020	Director: United Wambo Joint Venture Project salvage program, Glencore Director: Bowmans Creek Windfarm survey and ACHAR preparation Director: Winterbourne Windfarm survey and ACHAR preparation Co-Director: Copi Mineral Sands Project Test Excavation Program, Wentworth, NSW
2019	Author: Bulga Coal Complex Aboriginal Cultural Heritage Management Plan (ACHMP) Author: Bulga Coal Complex Historic Heritage Management Plan Author: Integra Underground Mine ACHMP Author: Ardmore Quarry ACHMP Author: Loders Creek Grinding Grooves Relocation Area Plan of Management, Bulga Coal Complex
2018	Director of the archaeological assessment for the Mangoola Coal Continued Operations Director of the archaeological assessment for the Glendell Continued Operations Project Author: United Wambo Open Cut Project ACHMP Author: Wollombi Brook Conservation Agreement Area Plan of Management, Bulga Coal Complex
2017	Assistant-Director for the Mount Owen Continued Operations salvage program, Glencore Director of the historic excavations at the Ravensworth Village site, Mount Owen Complex
2013–2016	Author: Mount Owen Complex ACHMP Author: Mount Owen Complex Historic Heritage Plan of Management Author: Dubbo Zirconia Project, Australian Zirconia Limited ACHMP Author: Loders Creek Grinding Grooves Plan of Management for Bulga Coal Author: Bulga Coal Complex ACHMP Author: Ravensworth Underground Mine ACHMP Associate author: Liddell Coal ACHMP



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EDUCATION

1985	Diploma of Education, University of Sydney
1983	Bachelor of Arts with Honours, Majoring in Ancient History, University of Queensland
1982	Bachelor of Arts, Majoring in History and Geography, University of Queensland

WORK HISTORY

2003-present	OzArk Environmental & Heritage Management Pty Ltd Principal Archaeologist - Principal Archaeologist for both survey and excavation projects. This includes carrying out survey and excavation tasks, liaising with community representatives, supervision of staff and report writing. - Report writing of both Aboriginal and historic Archaeological reports - Plan and undertake excavations and assessments for large- and small-scale development projects - Liaise with diverse client base, community stakeholders, OEH National Parks and Wildlife Unit, Aboriginal community consultation, external authorities, contractors and the general public
2006–2012	University of Canberra Sessional lecturer and Tutor Running units on the Archaeology of Australia as part of the Cultural Heritage degree
1993 – present	Astarte Design Associates Pty Ltd Director - Produced ten video documentaries (along with support material) focusing on the science or archaeology, ancient Greek history and Australian history - Duties include script and product development, finances, advertising copy, layout, general and administrative duties - Develop and maintain (Web Master) of various websites, including OzArk and the Near Eastern Archaeology Foundation at the University of Sydney
1990–2010	University of Sydney The Centre for Continuing Education Sessional lecturer with topics including archaeology, ancient or modern history
1993 – present	University of Sydney/Academy Travel Study Tour Leader Tour Leader on specialist archaeology and history tours to Jordan, Egypt, Israel, Syria, Lebanon, Greece, Turkey, Iran, Morocco, Mali, Uzbekistan, Turkmenistan, China and Mexico
1983 – present	University of Sydney Archaeological excavations at Pella in Jordan - Field supervisor, and since 1994 Field Director, at the Pella excavations. During this time Ben has excavated deposits including the Natufian (10,000 BCE), Bronze Age, Iron Age and Byzantine periods. - Site photographer from 1994-2001.

AWARDS

1982	Pella in Jordan fellowship awarded by the University of Queensland Alumni Association.
2006	Winner 2006 National Trust Heritage Award in Education: Corporate/Government category (for the production of the educational product: "Think Local!").

MEMBERSHIPS

1990 – present	Life Membership of the Near Eastern Archaeology Foundation at the University of Sydney.
2010 – present	NSW History Teachers Association

CURRICULUM VITAE



ADAM WILLIAMS

PRINCIPAL ENVIRONMENTAL SCIENTIST

Environmental Assessment & Management – Asia Pacific

QUALIFICATIONS

BEnvSc 2008

MEnvMgt 2017

Bachelor of Environmental Science, University of Newcastle (NSW)

Master of Environmental Management, University of Newcastle (NSW)

EXPERTISE

- Project Management
- Environmental Impact Assessment
- Subsidence Management Plans / Extraction Plans
- Rehabilitation and Mine Closure Planning
- Government / Stakeholder / Consultation
- Environmental Reporting
- Environmental Management Planning
- Environmental and Regulatory Licensing
- Risk assessment
- Remediation / rehabilitation programs
- Environmental auditing

Adam Williams is a Principal Environmental Scientist in the SLR Environmental Management Planning and Approvals (EMPA) team and has over twelve years of experience in environmental consulting and operational roles. Adam has significant experience in project management, environmental impact assessment, rehabilitation and mine closure planning, preparation of Subsidence Management Plans / Extraction Plans, management plan preparation, developing environmental and rehabilitation monitoring programs, remediation / rehabilitation programs, and environmental reporting for underground and open cut mines.

Adam also has significant experience in government and stakeholder consultation, engagement and coordination of multi-disciplinary teams, site secondments, environmental risk assessment and environmental auditing.

PROJECTS

Bulga Coal

- Annual Environmental Management Reports / Annual Reviews (2010 to 2018)
- Conceptual Mine Closure Plans
- Rehabilitation Cost Estimate Reviews

Bulga Open Cut

- 1 July 2020 to 31 June 2023 MOP (in progress)
- 1 January 2018 to 31 December 2023 MOP
- 1 January 2018 to 31 December 2023 MOP Amendment A
- 1 January 2018 to 31 December 2023 MOP Amendment B
- December 2014 to December 2021 MOP (SSD-4960)
- November 2013 to December 2015 MOP (and MOP Amendments)

Bulga Underground Operations

- 1 July 2020 to 31 June 2023 MOP (in progress)
- 1 January 2018 to 31 December 2023 Mining Operations Plan (MOP)
- Blakefield South Longwalls 7, 8 and 9 Subsidence Management Plan (SMP)
- Blakefield North Gas Drainage Management Plan
- 1 July 2015 to 30 November 2021 MOP
- Exploration Borehole Review of Environmental Factors
- Site Secondment

Hunter Valley Operations

- November 2019 to November 2024 MOP
- Environmental Management Strategy

Mount Owen Complex

- 1 April 2018 to 30 June 2024 MOP
- 1 January 2020 to 30 June 2024 MOP
- 1 January 2020 to 30 June 2024 MOP Amendment A
- 1 January 2020 to 30 June 2024 MOP Amendment B (in progress)
- Bowmans Creek Crossing Management Plan
- Environmental Management Strategy
- Conceptual Mine Closure Plan

Integra Underground Mine

- Creek Crossing Management Plan
- 2017 Annual Review
- 2018 Annual Review

Wambo

- Prepared Kharlibe Property Subsidence Remediation Plan, overseeing implementation works, ongoing rehabilitation monitoring and compliance
- Baseline Subsidence Survey of underground mining areas (excluding privately owned land)
- Biannual Subsidence Survey of underground mining areas (excluding privately owned land). This commenced in November 2017
- Exploration Review of Environmental Factors (multiple)
- Rehabilitation Cost Estimate Review

Springvale Colliery

- Longwalls 428 to 432 Extraction Plan (in progress)
- Longwalls 424 to 427 Extraction Plan
- Water Management Plan 2020 revision
- Upper Coxs River Action and Monitoring Plan 2020 revision
- Environmental and Rehabilitation Monitoring Program
- Longwalls 411 to 418 Environmental Monitoring Program
- Longwall 419 Environmental Monitoring Program
- Longwall 419 Biodiversity Management Plan
- Longwall 419 Master TARP
- June 2018 to May 2025 MOP (SSD-5602)
- June 2018 to May 2025 MOP Amendment A
- November 2015 to October 2022 MOP (SSD-5602)
- November 2015 to October 2022 MOP Amendment 1
- Detailed Rehabilitation Cost Estimate Reviews
- Exploration and Minor Surface Infrastructure Management Plan
- Environmental Management Strategy
- Springvale Rehabilitation Monitoring Program (coordinated and scoped)

Angus Place Colliery

- Longwalls 900W and 910 Integrated SMP / Extraction Plan
- Longwalls 1001 to 1003 Extraction Plan (partially complete)
- April 2016 to March 2023 Care and Maintenance MOP
- Detailed Rehabilitation Cost Estimate Review
- Conceptual Mine Closure Strategy
- 2014 Annual Environmental Management Report
- Longwall 980 SMP Variations
- July 2013 to May 2015 MOP (and MOP Amendments)
- Ventilation Facility Rehabilitation Management Plan
- Construction Environmental Management Plan
- Environmental Management Strategy

Clarence Colliery

- 1 January 2018 to 31 October 2022 MOP
- 1 January 2018 to 31 October 2022 MOP Amendment A
- REA2 and REA4 Rehabilitation Trial Design
- Supervision of REA4 rehabilitation trials and ongoing support
- 700 Area, 800 Area and 900 Area Environmental Monitoring Program
- Environmental Management Strategy
- Exploration Borehole Rehabilitation Monitoring Program (coordinated and scoped)
- Exploration Review of Environmental Factors
- REA5 Construction Environmental Management Plan
- 900 Area SMP Variation Peer Review
- DA 504-00 Environmental Monitoring Program

Charbon Colliery

- Mine Closure Planning (including the coordination of internal specialist assessments to assist with closure and rehabilitation)
- Southern Open Cut Rehabilitation planning (including coordination of multiple contractors and specialists)
- Charbon Rehabilitation Monitoring Program (coordination and scoping)
- October 2017 to September 2025 Rehabilitation and Closure MOP (peer review)
- Eastern SMP Application
- 802A SMP Variation
- Implementation of Project Approval 08_0211 including the preparation of management plans, project management of all sub-consultants, stakeholder consultation and project delivery

Centennial Coal

- Blue Mountains Colliery Closure MOP
- Ivanhoe Colliery Closure MOPs
- Migration of Rehabilitation Cost Estimates to new RR Tool
- Peer review of the Western Coal Services MOP and Mandalong MOP (and Amendments)
- Peer review of Mandalong Exploration Review of Environmental Factors (multiple)
- Peer review of the Mandalong Exploration Activities Management Plan, and Airly Exploration Activities and Minor Surface Infrastructure Management Plan

Aurelia Metals

- 2020 to 2022 Hera Gold MOP
- Hera Gold Environmental Management Plan revisions 2019/2020
- Nymagee Mine Closure Planning Requirements Support

Confidential Client

- Sinkhole Rehabilitation Plan

Areas of Expertise

- Project Management
- Environmental Impact Assessment and Reporting
- Environmental Compliance Auditing
- Environmental Management Plan Development and Implementation
- Mine site environmental support

Qualifications

- Bachelor of Environmental Science, University of Newcastle, 2006

Qualifications

- Certified Lead Auditor 201881: Environmental Management Systems Auditor, EMS, Compliance, ISO14001:2015 (Exemplar Global, 2018)

Career Highlights

- Dorian has 14 years' experience as a consulting environmental scientist, with a focus on planning approvals in the NSW mining industry.
- During this time, Dorian has had close involvement in the project management and co-ordination of environmental impact assessments and stakeholder engagement programs for significant mining projects.
- Major planning approval and assessments that Dorian has project co-ordinated include:
 - Dartbrook Mine Modification EA;
 - Bylong Coal Project EIS;
 - Watermark Coal Project EIS;
 - Drayton South Coal Project EA;
 - Maules Creek Coal Project EA;
 - Coalpac Consolidation Project EA;
 - Continuation of Boggabri Coal Mine EA;
 - Mt Arthur Coal Consolidation Project EA; and
 - Mandalong Development Consent Modification EA.
- Direct mine site Environmental Advisor experience in the following roles:
 - Bengalla Mine Site Environmental Advisor (2015);
 - Maules Creek Coal Mine Environmental Superintendent (2016);
 - Bulga Underground Operations Environmental Advisor (2016 - 2018); and
 - Dartbrook Mine Environmental Officer (2018 -present).
 - During his secondments to site, Dorian was responsible for maintaining environmental compliance and management requirements, including the preparation of regular reports to regulatory agencies, internal stakeholders and the local community.

Employment History ***SITE ENVIRONMENTAL ADVISOR / SUPERINTENDENT******Environmental Officer, Bengalla Mine (June – December 2015)***

- Work undertaken Bengalla Mine as an Environmental Advisor included:
 - Site inspections and reporting to address EPL, development consent and internal corporate management requirements;
 - Project management of Environment Department works program and co-ordination of external contractors and consultants;
 - Management and reporting on the site environmental monitoring program and assist in incident response;
 - Advice on the management and maintenance works in existing rehabilitation areas;
 - Review site EMS and implementation of updated site management plans, procedures and training;
 - Preparation for internal environmental audits and inspections;
 - Management of ground disturbance permits and database;
 - Management of archaeological salvage, in consultation with local Aboriginal community stakeholders; and
 - Liaison with regulatory and community stakeholders including response to incidents and complaints and preparation for quarterly CCC meetings.

Environmental Superintendent, Maules Creek Coal Mine (May - October 2016)

- Work undertaken at Maules Creek Coal Mine as an Environmental Superintendent included:
 - Scoping and preparation of various planning approvals advices and interpretation and implementation of planning approvals;
 - Liaison with regulatory agencies regarding site environmental performance, incident response and completion of EA commitments, Annual Reviews and compliance audits;
 - Stakeholder engagement, including response to community incidents and complaints and preparations for CCC;
 - Project management of site programs and co-ordination of external contractors and consultants;
 - Preparation for environmental compliance audit and inspections; and
 - Drafting of a revised EMS and associated management plans to meet new approval requirements and commitments.

Environmental Officer, Bulga Coal (November 2016 – January 2018, July 2018 – April 2019)

- Work undertaken at Bulga Coal Underground as an Environmental Officer included:
 - Scoping and project management of a program of works to rehabilitate redundant gas drainage infrastructure on site prior to cessation of underground operations;
 - Management of surface subsidence repairs on Glencore, Commonwealth, local government and private land;
 - Completion of EPBC Act subsidence approvals audits, to the satisfaction of Commonwealth regulatory agencies;
 - Surface subsidence monitoring and reporting for current and historic longwall mining operations on site;
 - Review and update of site management plans, subsidence management plans and associated Glencore procedures;
 - Regulatory and community stakeholder engagement; and
 - Internal and external environmental reporting to address compliance requirements of regulatory approvals and Glencore corporate reporting procedures.

Environmental Officer, Dartbrook Mine (February 2018 - present)

- Work undertaken at Dartbrook Mine as an Environmental Officer included:
 - Preparation of a compliance database for the management of environmental obligations from Dartbrook mining approvals, leases and licences;
 - Environmental compliance reporting and auditing;
 - Environmental management inspections for an exploration and groundwater bore drilling program;
 - Review and update of site management plans for care and maintenance; and
 - Regulatory and community stakeholder engagement.

HANSEN BAILEY PLANNING APPROVALS (February 2006 – present)

Senior Environmental Scientist

Environmental Planning Approvals Management

- Project co-ordination and assistance with planning approvals, preparation of technical environmental impact assessment reporting and stakeholder engagement for the following projects:
 - Dartbrook Mine Modification EA (2018-2019);
 - Bengalla Mine Modification EA (2017 – 2018);

- Bylong Coal Project EIS (2012 – current);
- Drayton South Coal Project EIS (2013 - 2015);
- Watermark Coal Project EIS (2013- 2014);
- Drayton South Coal Project EA and Preferred Project (2012- 2014);
- Coalpac Consolidation Project EA (2010- 2014);
- Boggabri Coal Mine Development Consent Modification 2 and Modification 3 (2012);
- Muswellbrook Coal Mine Modification SEE (2012);
- Moolarben Coal Project Stage 2 Preferred Project (2012);
- Continuation of Boggabri Coal Mine EA (2012);
- Anglo Coal Environmental Prefeasibility Studies, Hunter Valley Projects (2011, 2014);
- Invincible Colliery Modification to Project Approval EA (2011);
- Mt Arthur Coal Consolidation Project EA (2010);
- Drayton Mine Project Approval Modification EA (2009);
- Mandalong Mine Modification to Development Consent EA (2008);
- Newstan Colliery Longwall Panel 25 REF (2008);
- Idemitsu West Muswellbrook Open Cut Coal Project Prefeasibility Studies (2008, 2012);
- Bengalla Mining Company Development Consent Modification EA (2008);
- Bengalla Mining Company Wantana Extension SEE (2007);
- Drayton Mine Extension EA (2007);
- Newstan Colliery Modifications to Development Consent SEE (2006);
- Mannering Colliery Continuation of Mining EA (2006); and
- BMC Modifications to Mining Operations SEE (2006).

Environmental Management and Reporting

- Project management and preparation of applications, reporting and stakeholder engagement documents to meet the regulatory licencing and approvals requirements for:
 - Commonwealth EPBC Referrals;
 - NSW and QLD mining and exploration authority applications and renewals;
 - Environment Protection Licencing;
 - Water Licencing; and
 - Site Verification and Gateway Certificate applications required under the Strategic Regional Land Use Policy;
- Assistance in the development of strategic development and planning approvals advice for Hansen Bailey NSW clients (2008 – present);

- Preparing a range of post-approval documentation, including environmental management plans and Environmental Management System procedures for:
 - Ravensworth Operations (2019-2020)
 - Bengalla Mine (2007 – 2008, 2015 – 2017, 2019);
 - Bulga Coal (2017 – 2019);
 - Shenhua Watermark Mine (2015);
 - Drayton Mine (2008, 2014 - 2015,);
 - Dartbrook Mine (2018 – 2019);
 - Maules Creek Mine (2012 – 2013, 2016); and
 - Coalpac Cullen Valley Mine and Invincible Colliery (2011 – 2012).
- Preparation of Mining Operations Plans and/or Mine Closure Plans for:
 - Drayton Mine (2014, 2015);
 - Invincible Colliery (2010);
 - Ashton Mine (2009);
 - Hunter Valley Operations South (2009); and
 - Bengalla Mine (2006, 2020).
- Preparation of Annual Environmental Management Reports / Annual Reviews (AEMRs), including for:
 - Bengalla Mine (2006, 2015, 2017);
 - Coalpac Cullen Valley Mine (2008, 2010);
 - Dartbrook Mine (2006 – 2015, 2017, 2018, 2020); and
 - Maules Creek Coal Mine (2016).
- Development and implementation of ISO 14001 Environmental Management System Standard procedures for Ensham Resources QLD (2007);
- Completing annual visual impact assessments and compliance reporting for Coal & Allied to assess:
 - Hunter Valley Operations (2008); and
 - Mount Thorley Warkworth (2006 - 2008).
- Facilitating stakeholder consultation with the Aboriginal community and the establishment of an Aboriginal Consultation Summary Report for Coal & Allied for the period 2000 - 2006.

Environmental & Compliance Auditing

- Project co-ordination of environmental compliance auditing inspections and report preparation for:
 - Dartbrook Mine Independent Environmental Audit (2019);
 - Bulga Underground EPBC Compliance Audits (2017, 2019);

- White Rock Wind Farm Independent Environmental Audit (2018 and 2019);
- Mannering Colliery Independent Environmental Audit (2016);
- Chain Valley Colliery Independent Environmental Audit (2016);
- Liddell Coal Operations Independent Environmental Audit (2016);
- Ravensworth Operations (open cut and underground) Independent Environmental Audit (2015);
- Mt Owen Complex Independent Environmental Audit of Development Approvals (2014);
- Peabody Wambo Coal Mine & Wambo Rail Loop approvals Independent Environmental Audit (2014); and
- Ashton Coal Mine, Annual Environmental Compliance Audit (2009).
- Preparation of internal compliance advice reports for the following clients:
 - Anglo American (Dartbrook Mine and Drayton Mine);
 - Glencore (Liddell, Mount Owen, Bulga Coal);
 - Rio Tinto (Bengalla Mine);
 - Coalpac (Cullen Valley Mine and Invincible Colliery); and
 - Idemitsu (Muswellbrook Coal and Boggabri Coal).

Environmental Management Support

- Development of data, plans and schematics in GIS to support planning approval assessments, technical studies and stakeholder engagement programs; and
- Preparation of stakeholder engagement materials and technical briefings for major projects, including for community newsletters, open days and presentations to regulatory agencies.

Curriculum Vitae for Tony Welbourne

ACADEMIC QUALIFICATIONS:	Mechanical Engineering Certificate Newcastle Technical College, 1985
CAREER AND SPECIALISED COMPETENCE:	Tony has more than 35 years engineering experience including more than 25 years conducting acoustic assessments for environmental impact statements, and preparing noise impact statements and acoustic reports to accompany development applications for mining, industrial and rural projects.

PROFESSIONAL EXPERIENCE

November 2000 to present GLOBAL ACOUSTICS PTY LTD

Director of acoustics consulting practice providing services including assessment of noise and vibration, environmental noise impact statements, environmental noise and vibration monitoring and Occupational Health and Safety noise assessments including expert evidence in Court.

1995 to November 2000 ERM MITCHELL McCOTTER /ERM AUSTRALIA

Tony was an acoustic engineer responsible for project management, assessment of noise and vibration for environmental investigations, environmental noise and vibration monitoring and Occupational Health and Safety noise assessments including expert evidence in Court.

June to August 1998 ERM Hong Kong

Tony was involved in the design of noise control for a proposed railway and the assessment of traffic noise impacts associated with rail station developments including bus stations.

1994 to 1995 HLA-ENVIROSCIENCES

Principal Acoustics responsible for HLA-Envirosciences acoustic assessments and acoustic monitoring projects.

1992 to 1994 CALEB SMITH CONSULTING PTY LTD

Project engineer involved in a wide variety of acoustical assessment and monitoring projects.

1982 to 1992 ELECTRIC LAMP MANUFACTURERS PTY LTD

Maintenance Engineer (1987 to 1992). Position involved supervision of maintenance personnel, budget control, and, interview and selection procedures. Gained experience in many aspects of maintenance and design of machinery and associated control systems.

Detail Draftsperson (1986 to 1987). Design and drafting of mechanical components using AutoCAD software.

Trainee Mechanical Engineer (1982 to 1986). Detail drafting of mechanical components, experience in repair and maintenance of machinery, operation of CNC and manual metal working machinery, fabrication.

1990 to 1992 TG THOMAS AND ASSOCIATES

Detail draftsman (AutoCAD), detail drafting and basic design of structural components from marking plans and steelwork schedules.

