MACH Energy Australia Pty Ltd
PO Box 2115, Dangar NSW 2309
ABN 34 608 495 441

t: +61 2 5517 1150
e: info@machenergyaustralia.com.au
www.machenergyaustralia.com.au

28 October 2021

Mr Joe Fittell
Team Leader
Resource Assessments (Coal & Quarries)
Department of Planning, Industry and Environment

By email c/o sarah.clibborn@planning.nsw.gov.au

RE: MOUNT PLEASANT OPTIMISATION PROJECT – REQUEST FOR INFORMATION

Dear Joe,

Further to the Department of Planning, Infrastructure and Environment (DPIE) request for additional information regarding the Mount Pleasant Optimisation Project (the Project) (letter dated 29 September 2021), please find below and attached MACH Energy's (MACH's) responses.

The approved Mount Pleasant Operation, under Development Consent DA 92/97, incorporates the use of a dragline as part of truck and shovel mining operations. The Environmental Impact Statement (EIS) for the Project describes fleet optionality for the Project.

The potential dragline operations represent a minor alternative within the truck and shovel operations described in the EIS. That is, one dragline would be utilised, which would replace one large excavator and associated haul trucks. Further detail regarding the potential dragline operations, including electrical supply implications, timing, strike length and road transport approvals is provided in Attachment A.

In regard to air quality, Todoroski Air Sciences conducted additional sensitivity analysis to quantify the potential change in air quality impacts due to implementing a dragline. The analysis concludes that any change in dust emissions would be minor and unlikely to cause discernible negative impact at any surrounding sensitive receivers. Todoroski Air Sciences' sensitivity analysis is provided as Attachment B.

RWDI (formerly Wilkinson Murray) conducted a similar sensitivity analysis to determine the potential change in noise impacts associated with the implementation of a dragline. The analysis concluded that implementation of a dragline would not increase noise levels associated with the Project at surrounding residential receivers. RWDI's sensitivity analysis is provided in Attachment C.

As detailed above, and in Attachments A to C, the proposed dragline operations represent a minor optional change to the Project truck and shovel operations, with no material off-site implications for air quality or noise impacts. Irrespective of the mining equipment that is utilised over the life of the operation, MACH would continue to implement best practice air quality and noise management for the Project to maintain compliance with relevant air quality and noise criteria. This includes real-time monitoring, proactive and reactive operational management and temporarily ceasing operations when required in accordance with Conditions O3.4 to O3.9 of Environment Protection Licence 20850.

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Please feel free to contact me if you require further information.

Yours sincerely,

Chris Lauritzen
General Manager - Resource Development
Mount Pleasant Operation

Enclosed: **Attachment A – Responses Regarding Dragline Implementation - General**
Attachment B – Air Quality Sensitivity Analysis
Attachment C – Noise Sensitivity Analysis

Attachment A

Responses Regarding Dragline Implementation - General

Xenith
ABN 73 112 994 715

BRISBANE
Level 6, 40 Creek St
GPO Box 993
Brisbane QLD 4000
P +61 7 3835 3900

SINGLETON
Suite 2, Level 1
129 John St
Singleton NSW 2330
P +61 2 6572 2878

SYDNEY
P +61 408 969 917

27 October 2021

Chris Lauritzen
General Manager Resource Development
MACH Energy
Suite 1, Level 3, 426 King Street
Newcastle West, NSW 2302

Dear Chris,

RE: Response to DPIE's Request for Information (RFI) regarding Dragline Operations

The following memorandum sets out responses to the Department of Planning, Industry and Environment's (DPIE's) request for information dated 29th September 2021, attached as an appendix at the end of this document.

1. *The EIS states throughout that "draglines" or "a dragline" may be employed to replace excavators. Please provide confirmation of the number of draglines proposed to be used should MACH Energy pursue this option.*

A maximum of one dragline could be used in the Mount Pleasant Optimisation Project (the Project) (SSD 10418). While a specific dragline model has not been nominated, the dragline could move up to 23 million bank cubic metres (Mbcm) of material per year (including rehandle). This roughly equates to the equivalent prime waste movement of a large hydraulic excavator and truck fleet.

2. *Please provide confirmation that draglines would not generate greater noise and air quality impacts than the proposed truck and shovel mining operations during representative stages of the project.*

Introducing a dragline to the operation would replace a large excavator and truck fleet, it would not represent additional stripping capacity over and above the schedule presented in the EIS. It is therefore not anticipated to have a material impact on air or noise quality relative to the truck and shovel operations assessed in the EIS. However, we understand MACH Energy will obtain separate specialist advice on this aspect.

3. *Further information should be provided to identify any relevant approvals required to bring draglines to site (e.g. any approvals required to allow transport of draglines through the surrounding landscape).*

No additional approvals are anticipated to be required for bringing a dragline to site (i.e., permits for road transport would be consistent with those required for delivering other large mining equipment to site).

4. *The EIS indicated that the off-site electricity supply network may require upgrading if draglines are used as part of the project. Please clarify if the existing electricity supply network has the capacity to accommodate the use of draglines, or if the offsite upgrades would be required.*

If dragline operations proceed, some additional electricity supply and distribution infrastructure would need to be constructed. This additional electricity distribution infrastructure would include a main 66 kilovolt (kV) mine site distribution overhead line from the Ausgrid 66 kV on-site switching station, including spur lines and earth grids. The 66 kV overhead power line would be constructed to the west of the Mount Pleasant open cut, with spur lines off the main line feeding transportable substations that in turn supply electricity directly to the dragline.

It is possible that off-site upgrades to the site electricity supply may be required to support a dragline (e.g., off-site electricity transmission line upgrade). A more detailed study would need to be undertaken to determine the nature of any upgrades required. Any off-site upgrades would be subject to separate environmental assessment and approval.

5. *Although the EIS states that draglines could be used after 2026, there is no indicative timing for when this could occur. Please provide further clarification on the potential timing for introducing draglines during the various stages of the project.*

The use of a dragline could commence from 2028 onwards, coinciding with the operation's transition from a terrace-mining configuration to strip-mining configuration suitable for dragline operations. With commencement of strip mining in 2028, the operation progresses from 10.5 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal to 15.75 Mtpa. This production profile could be maintained with the introduction of a dragline, as it would replace the prime waste movement of a large excavator and truck fleet.

6. *Please identify the potential locations where draglines would operate and confirm the approximate dragline strike length (i.e. total horizontal distance [or strike] available within the spatial limits of the project area).*

The geology and strike length of the Mount Pleasant Operation are suitable for a dragline, with relatively benign structural geology issues, appropriate interburden thicknesses and a consistent low dip on coal of less than four degrees on the basal seam. The dragline could operate the full length of the Mount Pleasant Operation open cut, representing a maximum strike of approximately 5 kilometres. Burden thicknesses in the north and south of the operation favour the dragline. A dragline would therefore likely operate in the North and South Pits only, leaving the Central Pit exclusively for truck and shovel operations.

If adopted, the dragline would operate in the lower passes of the operation, mining up to five passes per strip (typically associated with Wynn Seam and Edderton Seam interburden material). Excavator coal and partings operations would need to occur between each of the dragline passes. This sequence would vary as the mine progresses to the west to ensure a consistent ROM production profile and dump space can be maintained.

Total interburden thickness for the dragline passes in the North and South Pits ranges from 11 metres (m) up to 60 m. Interburden thicknesses will vary to enable strips to turnover at a rate sufficient to achieve planned ROM production under the Project.

The interburdens likely to be suitable for dragline operations vary along strike and down dip. The mining sequence would require optimisation of dragline allocation on a strip-by-strip basis to maintain the targeted production profile and the required strip dump release.

Yours sincerely,

John Campbell
Manager Hunter Valley
Xenith Consulting

Mr Chris Lauritzen
General Manager – Resource Development
MACH Energy Australia Pty Ltd

Via email: chris.lauritzen@machenergy.com.au
cc: sbartlam@resourcestrategies.com.au

29/09/2021

Dear Mr Lauritzen

Mount Pleasant Optimisation Project (SSD-10418)
Request for Additional Information

The Department is continuing to progress its assessment of the Mount Pleasant Optimisation Project (SSD 10418) and has identified several areas where additional information is required (see **Attachment A**).

Please review the attached and provide the requested information at your earliest convenience.

If you have any questions regarding this matter, please contact Sarah Clibborn, on 02 8837 6095 or via email at sarah.clibborn@planning.nsw.gov.au.

Yours sincerely,

Joe Fittell
A/Team Leader
Resource Assessments (Coal & Quarries)

Enclosed: Attachment A

Attachment A

Mining Methodology

The EIS states that the proposed open cut mine would be operated using the truck and shovel mining method, with the potential introduction of draglines, subject to feasibility studies. While the EIS makes note of this, it does not provide sufficient assessment of potential air quality and noise impacts associated with the use of draglines during the various stages of the project. The Department requests that you provide additional information to address the following issues:

1. The EIS states throughout that “draglines” or “a dragline” may be employed to replace excavators. Please provide confirmation of the number of draglines proposed to be used should MACH Energy pursue this option.
2. Please provide confirmation that draglines would not generate greater noise and air quality impacts than the proposed truck and shovel mining operations during representative stages of the project.
3. Further information should be provided to identify any relevant approvals required to bring draglines to site (e.g. any approvals required to allow transport of draglines through the surrounding landscape).
4. The EIS indicated that the off-site electricity supply network may require upgrading if draglines are used as part of the project. Please clarify if the existing electricity supply network has the capacity to accommodate the use of draglines, or if the offsite upgrades would be required.
5. Although the EIS states that draglines could be used after 2026, there is no indicative timing for when this could occur. Please provide further clarification on the potential timing for introducing draglines during the various stages of the project.
6. Please identify the potential locations where draglines would operate and confirm the approximate dragline strike length (i.e. total horizontal distance [or strike] available within the spatial limits of the project area).

Attachment B

Air Quality Sensitivity Analysis

TODOROSKI AIR SCIENCES
Suite 2B, 14 Glen Street Eastwood, NSW 2122
Phone: 02 9874 2123
Fax: 02 9874 2125
Email: info@airsciences.com.au
Web: www.airsciences.com.au
ACN: 151 202 765 | ABN: 74 955 076 914

27 October 2021

Chris Lauritzen
General Manager – Resource Development
MACH Energy Australia Pty Ltd
Suite 1, Level 3, 426 King Street
Newcastle West NSW 2302
c/- Resource Strategies
Via email: MKelly@resourcestrategies.com.au

RE: Air Quality Assessment – Mount Pleasant Optimisation Project Dragline

Dear Chris,
Todoroski Air Sciences prepared the *Mount Pleasant Optimisation Project Air Quality Impact Assessment* (AQIA) (**Todoroski Air Sciences, 2020**). The Department of Planning, Industry & Environment (DPIE) has requested additional information regarding the potential air quality impacts associated with the potential use of a dragline during the various stages of the Mount Pleasant Optimisation Project (the Project).

Todoroski Air Sciences has previously evaluated the relative impact of inclusion of a dragline as part of operations at the Mount Pleasant Operation and concluded a dragline would have minimal potential to alter dust emissions. Notwithstanding, to address the Department's request, additional sensitivity analysis has been conducted, with consideration of the New South Wales (NSW) Environment Protection Authority (EPA) document *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (**NSW EPA, 2017**), to demonstrate the use of a dragline would not result in increased air quality impacts on the surrounding community.

Assessment of potential air quality impacts
The potential dragline operations at the Project would commence from Scenario 2 (approximately Year 6) onwards and be positioned in either the North Pit or the South Pit. The analysis is based on an estimated maximum annual capacity of the dragline which is approximately 14.3 million bench cubic metres (Mbcm).

A range of rehandle rates from 20% to 60% for draglines was considered for the analysis, consistent with for example "*Equipment Selection Using Simulation of Dragline Stripping Methods*," **Hrebar and Dagdalen (1979)** as reported in **Mirabediny (1998)**. Rehandle refers to the amount of material that has to be handled more than once by the dragline. Thus a 60% rate of rehandle would result in a total annual amount of material movement of 1.6 X 14.3 = 22.88Mbcm.

The rate of dust emission for the use of a dragline has been calculated based on the total annual amount of material moved per the dragline dust emission factor sourced from the United States Environmental Protection Agency (US EPA) supported AP-42 documentation. The same overburden moisture level (2.5%) as in the AQIA is used, and a best practice drop height of 6 metres is assumed. A summary of the estimated annual dust emissions from only the dragline activity is presented in **Table 1**, according to the amount of rehandle.

Table 1: Summary of estimated dust emissions rate for the dragline only (kg/yr)

Dragline Activity (Mbcm)	Rehandle rate (%)	TSP	PM_{10}	$PM_{2.5}$
22.88	60	573,850	132,507	9,755
21.45	50	537,984	124,225	9,146
20.02	40	502,119	115,944	8,536
18.59	30	466,253	107,662	7,926
17.16	20	430,387	99,380	7,317

The use of the dragline would not alter the total amount of overburden moved in each scenario, but would replace equipment otherwise required to move the equivalent amount of material (i.e. a large loader and associated haul trucks) in each scenario. The two different mining methods (dragline vs. truck and shovel/ excavator/ loader) generate differing amounts of dust emissions for handling the same amount of material.

To investigate the potential effect the proposed dragline operations may have, an analysis was undertaken for the proposed change in dust levels associated with the Project incorporating dragline operations relative to the dust levels assessed in the AQIA (**Todoroski Air Sciences, 2020**).

For the analysis, the dragline operations were incorporated into the dust emissions inventories for the relevant scenarios in the AQIA in the North Pit and the South Pit, apportioned per the relative overburden amounts in each pit (north and south) for the scenario year.

A comparison of the estimated total annual TSP, PM_{10} and $PM_{2.5}$ dust emissions for Scenarios 2, 3, 4, 5 and 6 of the Project with and without the dragline is presented in **Table 2**. The table also presents the percentage change with the dragline operations relative to the AQIA value.

Table 2: Comparison of estimated total dust emissions for the Project

	Scenario	TSP emissions (kg/year)	PM_{10} emissions (kg/year)	$PM_{2.5}$ emissions (kg/year)
Total dust emissions as per AQIA	Scenario 2	4,640,569	1,290,328	226,379
	Scenario 3	5,122,089	1,395,638	228,659
	Scenario 4	6,273,114	1,697,450	285,788
	Scenario 5	7,157,638	1,962,739	353,264
	Scenario 6	6,696,511	1,845,889	321,515
Total dust emissions with dragline (60% rehandle)	Scenario 2	4,746,444	1,296,578	221,112
	Scenario 3	5,034,001	1,360,120	218,976
	Scenario 4	6,243,679	1,675,593	279,216
	Scenario 5	7,258,733	1,969,550	349,430
	Scenario 6	6,710,507	1,833,691	315,453
Change in emissions; dragline (60% rehandle) vs. AQIA	**Scenario 2**	**2.3%**	**0.5%**	**-2.3%**
	Scenario 3	**-1.7%**	**-2.5%**	**-4.2%**
	Scenario 4	**-0.5%**	**-1.3%**	**-2.3%**
	Scenario 5	**1.4%**	**0.3%**	**-1.1%**
	Scenario 6	**0.2%**	**-0.7%**	**-1.9%**
Total dust emissions with dragline (50% rehandle)	Scenario 2	4,710,578	1,288,296	220,502
	Scenario 3	4,998,136	1,351,839	218,366
	Scenario 4	6,207,814	1,667,311	278,606
	Scenario 5	7,222,867	1,961,269	348,820
	Scenario 6	6,674,641	1,825,409	314,844
Change in emissions; dragline (50% rehandle) vs. AQIA	**Scenario 2**	**1.5%**	**-0.2%**	**-2.6%**
	Scenario 3	**-2.4%**	**-3.1%**	**-4.5%**
	Scenario 4	**-1.0%**	**-1.8%**	**-2.5%**
	Scenario 5	**0.9%**	**-0.1%**	**-1.3%**
	Scenario 6	**-0.3%**	**-1.1%**	**-2.1%**
Total dust emissions with dragline (40% rehandle)	Scenario 2	4,674,712	1,280,015	219,893
	Scenario 3	4,962,270	1,343,557	217,757
	Scenario 4	6,171,948	1,659,030	277,997
	Scenario 5	7,187,002	1,952,987	348,211
	Scenario 6	6,638,776	1,817,127	314,234
Change in emissions; dragline (40% rehandle) vs. AQIA	**Scenario 2**	**0.7%**	**-0.8%**	**-2.9%**
	Scenario 3	**-3.1%**	**-3.7%**	**-4.8%**
	Scenario 4	**-1.6%**	**-2.3%**	**-2.7%**
	Scenario 5	**0.4%**	**-0.5%**	**-1.4%**
	Scenario 6	**-0.9%**	**-1.6%**	**-2.3%**
Total dust emissions with dragline (30% rehandle)	Scenario 2	4,638,847	1,271,733	219,283
	Scenario 3	4,926,404	1,335,275	217,147
	Scenario 4	6,136,082	1,650,748	277,387
	Scenario 5	7,151,136	1,944,705	347,601
	Scenario 6	6,602,910	1,808,845	313,624
Change in emissions; dragline (30% rehandle) vs. AQIA	**Scenario 2**	**0.0%**	**-1.4%**	**-3.1%**
	Scenario 3	**-3.8%**	**-4.3%**	**-5.0%**
	Scenario 4	**-2.2%**	**-2.8%**	**-2.9%**
	Scenario 5	**-0.1%**	**-0.9%**	**-1.6%**
	Scenario 6	**-1.4%**	**-2.0%**	**-2.5%**
Total dust emissions with dragline (20% rehandle)	Scenario 2	4,602,981	1,263,451	218,673
	Scenario 3	4,890,539	1,326,993	216,537
	Scenario 4	6,100,217	1,642,466	276,777
	Scenario 5	7,115,270	1,936,424	346,991
	Scenario 6	6,567,044	1,800,564	313,015
Change in emissions; dragline (20% rehandle) vs. AQIA	**Scenario 2**	**-0.8%**	**-2.1%**	**-3.4%**
	Scenario 3	**-4.5%**	**-4.9%**	**-5.3%**
	Scenario 4	**-2.8%**	**-3.2%**	**-3.2%**
	Scenario 5	**-0.6%**	**-1.3%**	**-1.8%**
	Scenario 6	**-1.9%**	**-2.5%**	**-2.6%**
Average		**-0.9%**	**-1.8%**	**-2.8%**

It is calculated that the net change in total annual TSP dust emissions associated with the Project incorporating dragline operations would range from -4.5% to +2.3% relative to the Project assessed in the AQIA (**Todoroski Air Sciences, 2020**). The change in total annual PM_{10} dust emissions would range from -4.9% to +0.5% and for total annual $PM_{2.5}$ dust emissions would range from -5.3% to -1.1%.

The overall effect of the dragline, assuming a range of 20 to 60% rehandle at various times, is a net average reduction in annual emissions over the life of the project, -0.9% for TSP, -1.8% for PM_{10} and -2.8% for $PM_{2.5}$. These changes are too small to lead to any discernible effect at receptors.

We note that the dragline would also operate lower in the mining pit and be more sheltered relative to some of the handling and hauling activities that it would replace.

Summary and conclusions

This assessment has examined the potential air quality effects resulting from the operation of a dragline for the Project.

The analysis indicates that the Project incorporating dragline operations would result in a net change in total annual dust emissions ranging from -5.3% to +2.3% for the various dust metrics. Relative to operations assessed in **Todoroski Air Sciences (2020)**, the estimated change in dust emissions due to the Project incorporating dragline operations is considered minor and unlikely to cause any discernible negative impact at any surrounding sensitive receptor locations relative to the assessed operations.

The Mount Pleasant Operation would continue to operate with appropriate best practice controls and dust mitigation measures, including the reactive operational dust mitigation strategies implemented per the Environment Protection Licence (EPL) conditions, to ensure dust levels from the site are minimised, irrespective of the mining fleet items utilised.

Please feel free to contact us if you would like to clarify any aspect of this letter.

Yours faithfully,
Todoroski Air Sciences

Aleks Todoroski

TODOROSKI AIR SCIENCES | info@airsciences.com.au | 02 9874 2123

REFERENCES

Hrebar & Dagdalen (1979)

"Equipment Selection Using Simulation of Dragline Stripping Methods, 16th International Symposium on the Application of computers and Operations Research in the Mineral Industry", T.J. O'Neil (ed), Society of Mining Engineers, AIME, New York, PP: 449-461. Hrebar, M.J. and Dagdalen, K.,1979

Mirabediny (1998)

"A Dragline Simulation model for Strip Mine design and development", Doctor of Philosophy Thesis, Department of Civil and Mining Engineering – Faculty of Engineering, University of Wollongong, Mirabedinly. H., 1998.

Attachment C

Noise Sensitivity Analysis

RWDI Australia Pty Ltd (RWDI)
Level 4, 272 Pacific Highway
Crows Nest, NSW, 2065, Australia

Tel: +61.2.9437.4611
E-mail: solutions@rwdi.com
ABN: 86 641 303 871

WILKINSON MURRAY

October 28, 2021

MACH Energy
Attn: Chris Lauritzen
Suite 1, Level 3, 426 King Street
Newcastle West NSW 2302

Dear Chris,

Re: Mount Pleasant Optimisation Project – Sensitivity Analysis of Potential Use of Dragline
RWDI Project #2201204.02

Introduction

RWDI Australia (RWDI) (previously Wilkinson Murray) prepared the Noise and Blasting Assessment for the Mount Pleasant Optimisation Project (the Project) (Wilkinson Murray, 2020). The Department of Planning, Industry and Environment (DPIE) has subsequently (29 September, 2021) requested additional information regarding potential noise implications associated with the potential use of a dragline over the life of the Project.

RWDI has previously evaluated the relative impact of inclusion of a dragline as part of operations at the Mount Pleasant Operation and concluded a dragline would have minimal potential to alter noise emissions. Notwithstanding, to address the Department's request, RWDI has conducted additional sensitivity analysis to demonstrate the use of a dragline would not result in increased noise impacts on the surrounding community. This letter provides the findings of the analysis.

Sensitivity Analysis

The sensitivity analysis is based on a 5,000-tonne dragline with a sound power level (SWL) of 120 dBA. This was obtained from RWDI's database of SWLs and is indicative of leading practice mining equipment for noise performance.

As advised by MACH Energy, if used, the dragline would replace an 800-tonne excavator (e.g. Liebherr R9800) and associated fleet of haul trucks (5-7 trucks). The dragline was evaluated in the same location as the 800-tonne excavator in relevant assessment scenarios.

As a dragline could only be implemented once operations transition from a terrace-mining configuration to a strip-mining configuration (i.e. from 2028 onwards), all assessed years included in the Noise and Blasting Assessment from 2028 onward were included in the sensitivity analysis.

Findings

The total sound power level (SWL) of the equipment (i.e. 800-tonne excavator and associated fleet of haul trucks) that would potentially be substituted by a dragline over the life of the Project was found to be 2-3 dB louder than the dragline. As such, the use of a dragline would result in a small reduction in the total SWL of mobile fleet activities (i.e. excluding CHPP and train activities) in the order of 0.2 to 0.3 dB.

Table 1 summarises the reduction to the overall mobile fleet SWL in terms of percentage and noise level for all assessed scenarios from 2028 onward.

Table 1: Dragline Implementation Sensitivity Analysis

Reduction to Overall Pit Activity SWL	Year 2028	Year 2031	Year 2034	Year 2041	Year 2044	Year 2047
Noise Level (dB)	-0.3	-0.3	-0.2	-0.2	-0.2	-0.3
Percentage	-0.2 %	-0.2 %	-0.2 %	-0.1 %	-0.1 %	-0.2 %

When considering the reduction in the overall SWL of pit activities and the location and exposure of the replaced haul fleet relative to that of a dragline, noise emissions from the potential introduction of a dragline would not increase Mount Pleasant Operation noise levels at the surrounding residential receivers, when compared to the mobile fleet modelled in the Noise and Blasting Assessment (Wilkinson Murray, 2020).

I trust this information is sufficient. Please contact us if you have any further queries.

Yours faithfully

Roman Haverkamp
Senior Engineer
RWDI